



NAME: _____ EMPLOYEE # _____

COURSE NO. _____

EXAM NO. _____

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CONFIDENTIAL
D56/D43

I signify that all answers in this examination are my own. I have not given or received any unauthorized assistance and I have not used any unauthorized references. I understand that I am not to remove any of the examination materials from this room.

Student Signature

Date

I signify that I have had the opportunity to review my graded exam and am satisfied that I understand the correct answer for those questions I missed.

Student Signature

Date

Points Scored: _____

Points Possible: _____

Grade %: _____

Exam Bank No.: 2799

Last used on an NRC exam: Never

RO Sequence Number: 1

To answer a question about system operation, you need to obtain a system P&ID.

In accordance with OPGP03-ZA-0010, Performing and Verifying Station Activities, if the P&ID is NOT available in the control room, the PREFERRED method to obtain the current revision is to use the ____ (1) ____.

The following standard P&ID symbol depicts a(an) _____ (2) _____ globe valve.



- A. (1) Work Order Management Database
(2) closed
- B. (1) Work Order Management Database
(2) open
- C. (1) Records Management Tracking System
(2) closed
- D. (1) Records Management Tracking System
(2) open

Answer: D (1) Records Management Tracking System (2) open

Exam Bank No.: 2799**Source:** New**Modified from****K/A Catalog Number:** G2.2.41

Ability to obtain and interpret station electrical and mechanical drawings.

RO Importance: 3.5**Tier:** 3**Group/Category:****10CFR Reference:** 55.41(b)(10)**STP Lesson:** NLO 100.09**Objective Number:** 30009

Interpret information and use symbols and acronyms used in drawings.

Reference: OPGP03-ZA-0010, Section 5.0, NLO 100.09**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as this is one of the methods mentioned in ZA-0010, and if the student confuses open-closed designations.
- B: INCORRECT: Plausible as this is one of the methods mentioned in ZA-0010 and this is the correct position.
- C: INCORRECT: Plausible as this is the preferred method if the drawing is not in the Level 1 Station and if the student confuses the symbols.
- D: CORRECT: If the Level 1 Station (control room) is not available then the preferred method is to use the RMS module on ORACLE. The picture shown is a open globe valve.

Question Level: F**Question Difficulty** 2**Justification:**

The student must be able to know how to obtain controlled drawings and how to interpret symbols.

Exam Bank No.: 2794

Last used on an NRC exam: Never

RO Sequence Number: 2

Which of the following radiation monitor automatic actions control radioactive releases to the environment?

A high activity alarm on...

- A. RT-8042, Condensate Polishing (CP) System Radiation Monitor, will isolate CP Polishing Discharge to the Neutralization Basin.
- B. RT-8042, Condensate Polishing (CP) Radiation Monitor, will reroute CP Polishing Discharge to the Condensate Polishing Regenerative Waste Collection Tank (CRPWCT).
- C. RT-8041, TGB Drain Radiation Monitor, will isolate sump discharge to the Neutralization Basin.
- D. RT-8041, TGB Drain Radiation Monitor, will reroute sump discharge to the Condensate Polishing Regenerative Waste Collection Tank (CPRWCT).

Answer: A RT-8042, Condensate Polishing (CP) System Radiation Monitor, will isolate CP Polishing Discharge to the Neutralization Basin.

Exam Bank No.: 2794 **Source:** Modified **Modified from** 62

K/A Catalog Number: G2.3.11 Ability to control radiation releases.

RO Importance: 3.8 **Tier:** 3 **Group/Category:** **10CFR Reference:** 55.41(b)(11)

STP Lesson: LOT 505.01 **Objective Number:** 92107

Discuss automatic actions expected to occur on entry conditions for the referenced procedure.

Reference: OPOP04-RA-0001, Addendums 15 and 16

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: CORRECT: On a high radiation signal to RT-8042, CP Discharge to the outdoor Neutralization Basin will isolate.
- B: INCORRECT: Plausible as RT-8042 does have an automatic feature, and the CPRWCT is a destination for contaminated water from this system following a tube rupture, but not an automatic feature.
- C: INCORRECT: Plausible as RT-8041 does have an automatic feature, but it trips the TGB Sump Pumps.
- D: INCORRECT: Plausible as RT-8041 does have an automatic feature, and the CPRWCT is a destination for contaminated water from the CP system

Question Level: F **Question Difficulty** 3

Justification:

The candidate must comprehend the system physical arrangement, operation during discharges, and interlocking scheme.

Exam Bank No.: 1387

Last used on an NRC exam: Never

RO Sequence Number: 3

Per Conduct of Operations, the correct method to verify a handwheel THROTTLE valve position during the initial valve lineup is to...

- A. check the valve closed and return it to the throttled position.
- B. independently verify the valve is throttled by position indication.
- C. dual verify the correct throttled position during initial positioning.
- D. verify proper position using indirect methods (proper flow, temperature, or pressure).

Answer: C dual verify the correct throttled position during initial positioning.

Exam Bank No.: 1387

Source: Bank

Modified from

K/A Catalog Number: G2.1.29

Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.

RO Importance: 4.1

Tier: 3

Group/Category:

10CFR Reference: 55.41(b)(10)

STP Lesson: LOT 507.01

Objective Number: 92186

Given the title of an administrative procedure, DISCUSS the requirements associated with the referenced procedure.

Reference: Conduct of Ops, Chapter 9, step 3.12

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible but moving the valve would then require additional verification.
- B: INCORRECT: Plausible but handwheel throttle valves do not have accurate position indication.
- C: CORRECT: Dual verification is used.
- D: INCORRECT: Plausible as indirect means are not an approved method for checking throttled position (but can be used under different circumstances).

Question Level: F

Question Difficulty 2

Justification:

The applicant must have knowledge of the station requirements for verifying throttle valve position.

Exam Bank No.: 1945

Last used on an NRC exam: Never

RO Sequence Number: 4

In OPOP05-EO-ES01, Reactor Trip Response, the basis for establishing 576 gpm AFW flow when adequate SG levels do not exist is to...

- A. prevent dryout of the SG U-tubes.
- B. verify all AFW pumps are in service.
- C. ensure an adequate secondary heat sink
- D. prevent an uncontrolled RCS cooldown.

Answer: C ensure an adequate secondary heat sink.

Exam Bank No.: 1945**Source:** Bank**Modified from**

K/A Catalog Number: EPE 007 EK3.01 Knowledge of the reasons for the following responses as they apply to a reactor trip: Actions contained in EOP for reactor trip.

RO Importance: 4.0 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(4)

STP Lesson: LOT 504.06 **Objective Number:** 81674

Given a step, note, or caution from 0POP05-EO-ES01, STATE/IDENTIFY the basis for the step, note or caution and the basis for the action to include the action itself, its purpose and result.

Reference: LOT 504.06 Powerpoint Presentation, slide 35

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible as dryout is a concern for some accident sequences, but not the reason for establishing a minimum flow rate in this procedure.
- B: INCORRECT: Plausible as all AFW pumps automatically start on a LO LO SG Level signal, but there is no requirement to have all in service. The AFW system is designed such that any one pump is capable of providing the minimum flow to ensure a heat sink and to allow any pump to provide water to any SG therefore all AFW pumps are not required.
- C: CORRECT: A secondary heat sink is defined in terms of minimum SG level or minimum AFW flow.
- D: INCORRECT: Plausible as AFW flow rate affects RCS cooldown rate, but the priority consideration for AFW is the a minimum flowrate to ensure a heat sink

Question Level: F **Question Difficulty** 3

Justification:

The student must know the basis of maintaining minimum AFW flow.

Exam Bank No.: 2096

Last used on an NRC exam: 2016

RO Sequence Number: 5

The Unit tripped from 100% power with the following conditions:

- RCS Tave is 567 °F and stable.
- Pressurizer pressure is 1737 psig and lowering.
- Pressurizer level is 45% and rising.
- Containment pressure is 0.1 psig and stable.
- PRT pressure is 20 psig and rising.

Which of the following events has likely occurred?

- A. A Pressurizer PORV has failed open
- B. Charging flow control valve, FCV-0205, failed open
- C. Steam Generator steamline break outside Containment
- D. Steam Generator feedwater line break outside Containment

Answer: A A Pressurizer PORV has failed open.

Exam Bank No.: 2096**Source:** Bank**Modified from****K/A Catalog Number:** APE 008 AK2.01 Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following:
Valves.**RO Importance:** 2.7 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(5)**STP Lesson:** LOT 501.21 **Objective Number:** 501215

Given a set of conditions or event description, be able to PREDICT the sequence of events and trends of plant parameters for a transient or accident involving a decrease in Reactor Coolant Inventory.

Reference: LOT 501.21, Powerpoint Presentation, slide 13-25**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: Based on RCS pressure lowering with RCS temperature stable, the event occurring is a loss of coolant. With a Pressurizer PORV open, a low pressure area exists in the top of the Pressurizer causing RCS water to fill the pressurizer. There is no containment pressure response because the PORV discharges to the PRT.
- B: INCORRECT: Plausible as a charging flow control valve failed open would normally cause a rise in Pressurizer level. However, based on the given conditions, a Safety Injection has occurred and the charging line has been isolated by Phase 'A' Isolation.
- C: INCORRECT: Plausible as a SG steamline break outside of containment would cause pressurizer pressure to lower, however RCS temperature is stable, not going down as it would for an overcooling event.
- D: INCORRECT: Plausible as a SG feedline break outside of containment would cause pressurizer pressure to lower, however RCS temperature is stable, not going down as it would for an overcooling event.

Question Level: H **Question Difficulty** 3**Justification:**

Student must be able to determine the event that has occurred based on the given plant conditions.

Exam Bank No.: 2733**Last used on an NRC exam:** Never**RO Sequence Number:** 6

The Hydrogen Monitor controls in the control room allows the operator to select a sample from the _____(1)_____. Hydrogen concentration indication in the control room can be read on _____(2)_____.

- A. (1) RCFC outlets
(2) QDPS
- B. (1) RCFC outlets
(2) a meter on CP-002
- C. (1) top of the containment dome
(2) QDPS
- D. (1) top of the containment dome
(2) a meter on CP-0002

Answer: C (1) top of containment dome
(2) QDPS

Exam Bank No.: 2733**Source:** New**Modified from****K/A Catalog Number:** 028 A4.03

Ability to manually operate and/or monitor in the control room: Location and operation of hydrogen sampling and analysis of containment atmosphere, including alarms and indications.

RO Importance: 3.1 **Tier:** 2 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.27 **Objective Number:** 91590

DESCRIBE the controls and indications in the control room.

Reference: LOT 201.27, Containment Combustible Gas Control Lesson Plan, Powerpoint Slides 34 and 41**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the RCFC outlets are used for TS temperature readings and would have a representative sampling of the contents of the containment atmosphere. QDPS is a location where H2 concentration can be read.
- B: INCORRECT: Plausible as the RCFC outlets are used for TS temperature readings and would have a representative sampling of the contents of the containment atmosphere. H2 concentration cannot be read on CP-002, however, H2 concentration is recorded and displayed on another control room panel, CP-018.
- C: CORRECT: The top of the containment dome is one of the sample locations and QDPS displays H2 concentration along with ICS and CP-018.
- D: INCORRECT: Plausible as the top of the containment dome is sampled but H2 concentration cannot be read on CP-002. H2 concentration is recorded and displayed on another control room panel, CP-018

Question Level: F **Question Difficulty** 3**Justification:**

Student must know the operation of the hydrogen sample system and the locations in the control room.

Exam Bank No.: 2739

Last used on an NRC exam: Never

RO Sequence Number: 7

The unit is at 100% power.

- “CHG FLOW CONT” FK-0205 is in MANUAL.
- The Reactor Operator reports that charging flow is lowering.

The RO knew the charging flow was lowering by _____(1)_____.

If charging flow lowers to _____(2)_____, then a CHG FLOW HI/LO alarm will be received.

- A. (1) observing the indicator on CP-004
(2) 90 gpm
- B. (1) observing the value displayed on QDPS
(2) 90 gpm
- C. (1) observing the indicator on CP-004
(2) 50 gpm
- D. (1) observing the value displayed on QDPS
(2) 50 gpm

Answer: C (1) observing the indicator on CP-004 (2) 50 gpm

Exam Bank No.: 2739**Source:** New**Modified from**

K/A Catalog Number: APE 022 AA1.02 Ability to operate and/or monitor the following as they apply to the Reactor Coolant Makeup: CVCS Charging low flow alarm, sensor, and indicator.

RO Importance: 3.0 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)

STP Lesson: LOT 201.06 **Objective Number:** 70166

Describe the location of the CVCS components, control and/or instrumentation.

Reference: OPOP09-AN-04M8, CHG FLOW HI/LO

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible as flow is monitored on CP-004 and 90 gpm is slightly below the normal charging flow rate.
- B: INCORRECT: Plausible as many important parameters are monitored on QDPS, and there is a plasma display on CP-004. 90 gpm is slightly below the normal charging flow rate.
- C: CORRECT: The RO monitors charging flow on CP-004 with FI-205. AT 50 gpm, the CHG FLOW HI/LO will alarm.
- D: INCORRECT: Plausible as many important parameters are monitored on QDPS, and there is a plasma display on CP-004. 50 gpm is the value at which CHG FLOW HI/LO will alarm.

Question Level: F **Question Difficulty** 3

Justification:

The student must know where to monitor charging flow and when the low flow alarm comes in.

Exam Bank No.: 2740

Last used on an NRC exam: Never

RO Sequence Number: 8

The Unit is at 100% power.

- A loss of all CCW pumps has occurred.
- The crew has entered 0POP04-CC-0002, Loss of Component Cooling Water, and is NOT able to restore a train of CCW cooling.

Based on this information, the crew will go to _____(1)_____ and within 4 minutes _____(2)_____.

- A. (1) 0POP04-CC-0001, Component Cooling Water System Leak
(2) take steps to stop the containment pressure rise
- B. (1) 0POP04-CC-0001, Component Cooling Water System Leak
(2) take steps to protect the centrifugal charging pump motors
- C. (1) 0POP05-EO-EO00, Reactor Trip or Safety Injection
(2) take steps to stop the containment pressure rise
- D. (1) 0POP05-EO-EO00, Reactor Trip or Safety Injection
(2) take steps to protect the centrifugal charging pump motors

Answer: D (1) 0POP05-EO-EO00, Reactor Trip or Safety Injection (2) take steps to protect the centrifugal charging pump motors.

Exam Bank No.: 2740**Source:** New**Modified from****K/A Catalog Number:** APE 26 G2.4.20 Knowledge of the operational implications of EOP warnings, cautions, and notes: Loss of Component Cooling Water**RO Importance:** 3.8 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 505.01 **Objective Number:** 92109

Given a plant condition, DESCRIBE and/or INTERPRET the requirements and/or limits of a precaution or step of a referenced procedure.

Reference: 0POP04-CC-0002, steps 1-4**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student believes that a leak could form as a result of system heating and that the RCFCs are normally cooled by CCW.
- B: INCORRECT: Plausible if the student believes that a leak could form as a result of system heating. Protecting the charging pump motors is a top priority that must be accomplished.
- C: INCORRECT: Plausible as the crew will enter 0POP05-EO-EO00 and if the student believes that RCFCs are normally cooled by CCW.
- D: CORRECT: With no CCW, the crew is directed to trip the reactor, trip the RCPs and go to 0POP05-EO-EO00 by the CIP of 0POP04-CC-0002. The CIP also tells the user to continue 0POP04-CC-0002 at Step 4. The note prior to step 4 states the reason for starting the PDP and securing both CCPs.

Question Level: H **Question Difficulty** 3**Justification:**

The student must be able to apply procedural guidance for a loss of all CCW.

Exam Bank No.: 2750

Last used on an NRC exam: Never

RO Sequence Number: 9

Following an event in the unit, the crew trips the reactor and initiates safety injection.

- Later, the Unit Supervisor is unsure of the cause of the event and enters 0POP05-EO-ES00, Rediagnosis.

Per the Conditional Information Page of 0POP05-EO-ES00, if AFWST level drops below _____(1)_____ gallons, then the crew will initiate makeup in order to have adequate inventory to _____(2)_____.

- A. (1) 485,000
(2) conduct a cooldown
- B. (1) 485,000
(2) maintain hot shutdown conditions
- C. (1) 138,000
(2) conduct a cooldown
- D. (1) 138,000
(2) maintain hot shutdown conditions

Answer: C (1) 138,000 (2) conduct a cooldown

Exam Bank No.: 2750**Source:** New**Modified from****K/A Catalog Number:** E01 EK1.1

Knowledge of the operational implications of the following concepts as they apply to the Rediagnosis: Components, capacity, and function of emergency systems.

RO Importance: 3.1 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 504.08 **Objective Number:** 92103

Given a copy of a step, caution, or note from the EOP, STATE/IDENTIFY its basis.

Reference: LOT504.08 Powerpoint Presentation, Slide 7**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as 485,000 is the TS minimum, but not the analyzed amount to comply with the requirements of the EOP set. The purpose is for a cooldown.
- B: INCORRECT: Plausible as 485,000 is the TS minimum, but not the analyzed amount to comply with the requirements of the EOP set and if the student believes that the plant will only be taken to hot shutdown in preparations for restart.
- C: CORRECT: Per ES00, the crew will initiate refill of the AFWST below 138,000 gallons in order to prevent inventory problems during a cooldown.
- D: INCORRECT: Plausible as 138,000 gallons is the correct amount to initiate a refill, but the purpose is to conduct a cooldown.

Question Level: F **Question Difficulty** 3**Justification:**

The student must know the requirements of the Conditional Information Page in 0POP05-EO-ES00

Exam Bank No.: 2753

Last used on an NRC exam: Never

RO Sequence Number: 10

While performing an emergency boration, the reactor operator will ensure _____(1)_____ on CV-MOV-0218, Alternate Boration Isolation Valve, and also ensure that the flow rate is at least _____(2)_____.

- A. (1) ONLY the red indicating light is lit
(2) 30 gpm
- B. (1) ONLY the red indicating light is lit
(2) 50 gpm
- C. (1) BOTH the red and green indicating lights are lit
(2) 30 gpm
- D. (1) BOTH the red and green indicating lights are lit
(2) 50 gpm

Answer: B (1) only the red indicating light is lit (2) 50 gpm

Exam Bank No.: 2753**Source:** New**Modified from****K/A Catalog Number:** 004 A3.16

Ability to monitor automatic operation of the CVCS, including interpretation of emergency borate valve position indicating lights.

RO Importance: 3.8**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(6)**STP Lesson:** LOT 201.07**Objective Number:** 91056

Describe the six different flowpaths that can be used to borate the reactor to include: A. Source of boric acid B. Boric acid used C. Names of critical valves used to lineup the paths D. If the lineup is made locally or from control board

Reference: OPOP04-CV-0003, Emergency Boration Steps 1-6 and basis**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as MOV-0218 is required to be fully opened by OPOP04-CV-0003, and if the student mistakenly believes that the TS required minimum flow is all that is required by procedure.
- B: CORRECT: MOV-0218 is fully opened by OPOP04-CV-0003 and the operator is required to establish at least 50 gpm flow.
- C: INCORRECT: Plausible if the student believes that MOV-0218 would be throttled to provide the right flow rate instead of charging flow and also if the student mistakenly believes that the TS required minimum flow is all that is required by procedure.
- D: INCORRECT: Plausible if the student believes that MOV-0218 would be throttled to provide the right flow rate instead of charging flow. This is the procedurally required flow rate.

Question Level: F**Question Difficulty** 3**Justification:**

The student must be able to understand indications for a proper emergency boration.

Exam Bank No.: 390

Last used on an NRC exam: 2003

RO Sequence Number: 11

Unit 1 is operating at 100% power when a valid High Alarm is received on RT-8013, RCB Purge Exhaust Monitor.

Which ONE of the following radiation monitors is now INOPERABLE?

- A. GWPS Outlet Radiation Monitor (RT-8032)
- B. RCB Atmosphere Radiation Monitor (RT-8011)
- C. Unit Vent Stack Radiation Monitor (RT-8010A)
- D. RCB High Range Radiation Monitor (RT-8051)

Answer: B RCB Atmosphere Radiation Monitor (RT-8011)

Exam Bank No.: 390**Source:** Bank**Modified from****K/A Catalog Number:** 072 A1.01

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ARM system controls including: Radiation levels

RO Importance: 3.4 **Tier:** 2 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(11)**STP Lesson:** LOT 202.33 **Objective Number:** 11094

Discuss 0PSP03-SI-0016 to include: A. Why RT-8011 is secured prior to testing.

Reference: 0POP04-RA-0001, RT-8012/8013 Alarm Response Section**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as RT-8032 is a process monitor associated with the GWPS but a CVI does not affect its operation.
- B: CORRECT: RT-8011 sample lines isolate on a CVI rendering the monitor inoperable.
- C: INCORRECT: Plausible as RT-8010A is a process monitor associated with the Unit Vent Stack Exhaust but a CVI does not affect its operation.
- D: INCORRECT: Plausible as RT-8051 is an area monitor inside containment but a CVI does not affect its operation.

Question Level: H **Question Difficulty** 3**Justification:**

Candidates must analyze the given condition and determine that RT-8013 has caused a Containment Ventilation Isolation (CVI) signal. The CVI signal will isolate the sample lines for RT-8011, which makes this Tech Spec required monitor inoperable.

Exam Bank No.: 551

Last used on an NRC exam: 2011

RO Sequence Number: 12

A waste gas release is in progress when RT-8032, GWPS Outlet Radiation Monitor, exceeds the HIGH alarm setpoint.

Which one of the below correctly describes how the release will be terminated? The...

- A. MAB Exhaust Fans trip.
- B. GWPS Bellows Compressor trips.
- C. discharge flow valve FV-4671 closes.
- D. inlet header valve FV-4657 shifts to the 'RECIRC' position.

Answer: C discharge flow valve FV-4671 closes.

Exam Bank No.: 551**Source:** Bank**Modified from****K/A Catalog Number:** APE 060 G2.4.2 Knowledge of system setpoints, interlocks, and automatic actions associated with EOP entry conditions: Accidental Gaseous Radwaste Release**RO Importance:** 4.5 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 202.41 **Objective Number:** 92122

List the initiating condition and resultant automatic action for the perms associated with the following systems:

A. BRS B. GWPS C. LWPS D. TGB Sump E. CPS F. SGBD G. CTMT BLDG H. EAB/CRE HVAC I. FHB HVAC

Reference: OPOP04-RA-0001, Addendum 8**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as FHB filtration automatically aligns on the high rad, but not the case here.
- B: INCORRECT: Plausible as this occurs but would not stop the release.
- C: CORRECT: High rad signal sent only to FV-4671, GWPS Discharge Flow Valve.
- D: INCORRECT: Plausible as the RECIRC position is used to secure LWPS discharges on a high rad signal.

Question Level: F **Question Difficulty** 3**Justification:**

Student must know the automatic actions for the various Process Rad Monitors.

Exam Bank No.: 171**Last used on an NRC exam:** 2003**RO Sequence Number:** 13

The crew is operating an RHR Train in MODE 4.

In accordance with OPOP02-RH-0001, Residual Heat Removal System Operation, complete the following:

To lower temperature in the RCS, the operator will _____(1)_____ through the heat exchanger.

If CCW temperature rises above a procedural limit, the first action the crew will take is to _____(2)_____.

- A. (1) raise RHR flow
(2) start another train of CCW
- B. (1) raise RHR flow
(2) shutdown the RHR pump
- C. (1) raise CCW flow
(2) start another train of CCW
- D. (1) raise CCW flow
(2) shutdown the RHR pump

Answer: A (1) raise RHR flow (2) start another train of CCW

Exam Bank No.: 171**Source:** Bank**Modified from** 171**K/A Catalog Number:** 005 A1.03

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RHRS controls including: Closed cooling water flow rate and temperature.

RO Importance: 2.5 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.09 **Objective Number:** 03422

DESCRIBE the flowpath of the RHR system including all valves and components in the main flowpath.

Reference: 0POP02-RH-0001, Residual Heat Removal System Operation**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: To lower RCS temperature, RHR flow through the heat exchanger would be manually raised. CCW flow is not adjustable, it is either in or out of service. Above 105 degrees F, the RHR pump must be shutdown within 4 hours, but a standby CCW train would be started first in order to reduce the heat load on the inservice train.
- B: INCORRECT: Plausible as this is the correct way to lower RCS temperature, and if the student believes the pump needs to be immediately shut down as a conservative action.
- C: INCORRECT: Plausible as raising CCW flow would have the desired effect, but CCW flow is held constant with an RHR train in service. This is the correct action for temperature above 105 degrees F.
- D: INCORRECT: Plausible as raising CCW flow would have the desired effect, but CCW flow is held constant with an RHR train in service and if the student believes the pump needs to be immediately shut down as a conservative action.

Question Level: H **Question Difficulty** 3**Justification:**

Student must decide how to raise temperature in the RCS with knowledge of the system flow paths and controls. Student must also know the limits of operating RHR with high CCW temperature.

Exam Bank No.: 909**Last used on an NRC exam:** Never**RO Sequence Number:** 14

A signal from _____(1)_____ will open _____(2)_____.

- A. (1) logic train "R"
(2) reactor trip breaker "R" ONLY
- B. (1) logic train "R"
(2) reactor trip breaker "R" and reactor trip bypass breaker "S"
- C. (1) logic train "S"
(2) reactor trip breaker "R" ONLY
- D. (1) logic train "S"
(2) reactor trip breaker "R" and reactor trip bypass breaker "S"

Answer: B (1) logic train "R" (2) reactor trip breaker "R" and reactor trip bypass breaker "S"

Exam Bank No.: 909**Source:** New**Modified from****K/A Catalog Number:** 012 A3.07Ability to monitor automatic operation of the RPS,
including: Trip breakers**RO Importance:** 4.0**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(6)**STP Lesson:** LOT 201.20**Objective Number:** 03832

Describe the reactor protection system control and permissive interlocks including inputs, setpoints, coincidence, and functions.

Reference: LOT 201.20, Solid State Protection System, Powerpoint Presentation, slide 45**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student believes the bypass breaker is for testing only as it is normally kept racked out.
- B: CORRECT: A Logic Train "R" Reactor Trip signal will open the same train reactor trip breaker and the opposite train reactor trip bypass breaker.
- C: INCORRECT: Plausible if the student believes the bypass breaker is for testing only and if the logic train always gets the opposite train breaker.
- D: INCORRECT: Plausible as is similar to the correct answer in same train and opposite train relationship.

Question Level: F**Question Difficulty** 2**Justification:**

The student must know the reactor trip breaker logic.

Exam Bank No.: 1117

Last used on an NRC exam: 2003

RO Sequence Number: 15

The unit is operating at 75% power.

- A steam pressure instrument on the steam line from SG 'A' is out of service and in the tripped condition.

An ESF actuation will occur if a...

- A. second steam pressure instrument on steam line 'A' fails low.
- B. steam pressure instrument from any other steam line fails low.
- C. second steam pressure instrument on steam line 'A' detects steam pressure dropping greater than 100 psig/50 sec.
- D. steam pressure instrument from any other steam line detects steam pressure dropping at greater than 100 psig/50 sec.

Answer: A second steam pressure instrument on steam line 'A' fails low.

Exam Bank No.: 1117**Source:** Bank**Modified from****K/A Catalog Number:** 013 K6.01

Knowledge of the effect of a loss or malfunction on the following will have on the ESFAS: Sensors and detectors

RO Importance: 2.7**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.22**Objective Number:** 80802

Describe the function of the instrumentation and controls available for operation and monitoring of the engineered safety features.

Reference: LOT 201.22 Powerpoint Presentation**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: Tripping of more than 1 channel per SG at a time will initiate a reactor trip.
- B: INCORRECT: Plausible as this is a total of 2 channels failed, but must be on the same steam generator.
- C: INCORRECT: Plausible as this is a signal for MSLI but need 2 of the same type of signal
- D: INCORRECT: Plausible as this is a signal for MSLI but need 2 of the same type of signal on 1 steam generator.

Question Level: F**Question Difficulty** 2**Justification:**

Student must analyze the given conditions and know the logic for ESFAS actuations.

Exam Bank No.: 1303

Last used on an NRC exam: 2005

RO Sequence Number: 16

The Unit is at 100% power.

- A loss of offsite power then occurred.
- Plant conditions are as follows:
 - Tave is 531°F in all RCS loops.
 - Tcold is at 527°F in all RCS loops.
 - That is at 534°F in all RCS loops.
 - Core exit thermocouples are reading 538 °F.
 - Pressurizer pressure is at 2185 psig.

Which of the following is the Subcooling Margin?

- A. 111 °F
- B. 115 °F
- C. 118 °F
- D. 122 °F

Answer: A 111F

Exam Bank No.: 1303**Source:** Bank**Modified from**

K/A Catalog Number: APE 056 AK1.03 Knowledge of the operational implications of the following concepts as they apply to Loss of Offsite Power: Definition of subcooling: use of steam tables to determine it.

RO Importance: 3.1 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(5)

STP Lesson: LOT 102.54 **Objective Number:** 99793

Define the following terms: Subcooling

Reference: Steam Tables

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:** Steam Tables as part of separate reference package.

Distractor Justification

- A: CORRECT: 2185 psig equates to 2200 psia. From the steam tables, a saturation temperature of 649°F is determined. Using CET temperatures, a calculation of $649^{\circ}\text{F} - 538^{\circ}\text{F} = 111^{\circ}\text{F}$.
- B: INCORRECT: Plausible if student mistakenly uses T_{hot} instead of CET temperatures.
- C: INCORRECT: Plausible if student mistakenly uses T_{ave} instead of CET temperatures.
- D: INCORRECT: Plausible if student mistakenly uses T_{cold} instead of CET temperatures.

Question Level: H **Question Difficulty** 3

Justification:

The student must be able to assess the information given, use steam tables, and calculate subcooling margin.

Exam Bank No.: 1384

Last used on an NRC exam: Never

RO Sequence Number: 17

The crew is discharging a Waste Monitor Tank per OPOP02-WL-0100, Liquid Waste Release.

If discharge flow exceeds a high radiation level setpoint, then _____(1)_____ will cause _____(2)_____.

- A. (1) RT-8045, LWPS Monitor #2
(2) discharge flow to recirculate back to the Waste Monitor Tank
- B. (1) RT-8045, LWPS Monitor #2
(2) the Waste Monitor Tank pump to trip
- C. (1) RT-8038, LWPS Monitor #1
(2) discharge flow to recirculate back to the Waste Monitor Tank
- D. (1) RT-8038, LWPS Monitor #1
(2) the Waste Monitor Tank pump to trip

Answer: C (1) RT-8038, LWPS Monitor #1 (2) cause discharge flow to recirculate back to the Waste Monitor Tank

Exam Bank No.: 1384**Source:** Bank**Modified from****K/A Catalog Number:** 073 K4.01

Knowledge of PRM system design feature(s) and/or interlocks which provide for the following: Release termination when radiation exceeds setpoint.

RO Importance: 4.0**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(11)**STP Lesson:** LOT 203.11**Objective Number:** 92084

GIVEN an abnormal plant condition concerning equipment associated with the Liquid Waste Processing System (LWPS), DETERMINE the probable cause of the condition and any corrective actions necessary (if applicable).

Reference: LOT202.41 Handout 1**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as terminology is similar and this is the correct action.
- B: INCORRECT: Plausible as terminology is similar and tripping the pump would cause the discharge to stop, but not the case here.
- C: CORRECT: RT-8038 monitors discharges and will cause a three way valve to reposition to RECIRC.
- D: INCORRECT: Plausible as RT-8038 is the correct monitor and tripping the pump would cause the discharge to stop, but not the case here.

Question Level: F**Question Difficulty** 3**Justification:**

The candidate must know that on high radiation detected by RT-8038, discharge flow recirculates to the Waste Monitor Tank.

Exam Bank No.: 1742

Last used on an NRC exam: 2009

RO Sequence Number: 18

The unit is shutting down for a refueling outage.

- Permissive P-8 did not actuate as power was reduced
- Power is currently 30%

At this current condition, the reactor will...

- A. trip if one RCP trips.
- B. trip if the turbine trips.
- C. NOT trip if pressurizer level rises to 93%.
- D. NOT trip if a Safety Injection signal occurs.

Answer: A trip if one RCP trips

Exam Bank No.: 1742

Source: New

Modified from

K/A Catalog Number: 012 K6.03

Knowledge of the effect a loss or malfunction of the following will have on the RPS: Trip logic circuits

RO Importance: 3.1

Tier: 2

Group/Category: 1

10CFR Reference: 55.41(b)(7)

STP Lesson: LOT 201.20

Objective Number: 26026

Given a description of plant conditions DETERMINE if an automatic reactor trip signal would be generated.

Reference: LOT201.20 Powerpoint Presentation, slide 140

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: CORRECT: A single loop loss of flow would normally be blocked by P-8 with power less than 40%.
- B: INCORRECT: Plausible if the student has confusion about P-8 and P-9 which enables a reactor trip from a turbine trip above 50%.
- C: INCORRECT Plausible if the student has confusion about P-8 and P-7 which give at-power trips above 10% power..
- D: INCORRECT: Plausible if the student has confusion about P-8 and P-4 which relates the reactor trip signal to the SI reset circuit.

Question Level: H

Question Difficulty 3

Justification:

The candidate must have a knowledge of the RPS blocks and be able to apply this knowledge to the given conditions to formulate a correct reponse.

Exam Bank No.: 1744

Last used on an NRC exam: 2011

RO Sequence Number: 19

Following an event, AFW Pump 11 is running.

- Total flowrate is 540 gpm.
- Discharge pressure is 1550 psig.
- The pump is providing equal amounts of flow to SG 1A, 1B, and 1C.

If the SG 1A Regulating Valve is fully closed, then AFW flow to SG 1B and 1C will...

- A. rise because the discharge pressure of AFW Pump 11 has gone up.
- B. lower because the Auto Recirc Valve for AFW Pump 11 has opened fully.
- C. rise because QDPS has opened the AFW Regulating Valves for SG 1B and 1C.
- D. remain the same because the Auto Recirc Valve for AFW Pump 11 has opened to pass 180 gpm.

Answer: A rise because the discharge pressure of AFW Pump 11 has gone up.

Exam Bank No.: 1744**Source:** Bank**Modified from****K/A Catalog Number:** 061 K5.03

Knowledge of the operational implications of the following concepts as they apply to the AFW: Pump head effects when control valve is shut.

RO Importance: 2.6**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(5)**STP Lesson:** LOT 202.28**Objective Number:** 43808

STATE the function and design bases of the AFWS including major components, instrumentation, and sources of water.

Reference: LOT202.28 Powerpoint Presentation**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: As the AFW Reg Valve to 1A SG is closed, AFW Pump 11 discharge pressure will rise due to the increase in system head. This will create a greater DP across the AFW Reg Valves for SG's 1B and 1C causing their flows to rise.
- B: INCORRECT: Plausible if the student does not understand that the auto recirc valve on AFW Pump 11 will not open because there is still adequate pump flow going to SG's 1B and 1C.
- C: INCORRECT: Plausible as QDPS does provide an automatic control to the AFW Reg Valves, but that control had to have been overridden by the operator to establish the initial conditions given, therefore there will not be any adjustments made to the SG 1B and 1C AFW Reg. Valves from QDPS.
- D: INCORRECT: Plausible if the student does not understand that the auto recirc valve on AFW Pump 11 will not open because there is still adequate pump flow going to SG's 1B and 1C.

Question Level: H**Question Difficulty** 3**Justification:**

The candidate must have a knowledge of AFW system/component design and operation. This knowledge along with a fundamental knowledge of pump operation and system characteristics must be combined to determine the correct response.

Exam Bank No.: 1820

Last used on an NRC exam: 2013

RO Sequence Number: 20

Unit 1 is operating at full power.

- 03M3-F-3, 480V LC E1A2 TRBL, alarm occurs.
- 480V Load Center E1A2 Bus Volts = 0 volts.
- 03M2-A-1, 125 VDC SYSTEM E1A11 TRBL, alarms.
- Channel 1 BATT CUR indicates 30 amps discharge.

Assuming the plant responds as designed and without operator action...

- A. Bus E1A11 is being powered from its respective ESF Battery.
- B. Bus E1A11 is being powered from its Standby Battery Charger.
- C. DP001 is now powered from its Voltage Regulating Transformer.
- D. DP1201 is now powered from its Voltage Regulating Transformer.

Answer: A Bus E1A11 is being powered from its respective ESF Battery.

Exam Bank No.: 1820**Source:** Bank**Modified from****K/A Catalog Number:** APE 058 AA1.03 Ability to operate and/or monitor the following as they apply to the Loss of DC Power: Vital and battery bus components.**RO Importance:** 3.1 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.37 **Objective Number:** 63901

GIVEN a loss of power, PREDICT the operation of the class 1E DC Electrical Distribution System to include automatic actions and interlocks.

Reference: LOT 201.37 PowerPoint slide 14**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: The Class 1E 125 VDC Bus E1A11 would not lose power with the given conditions. The symptoms indicate that a loss of the in-service Battery Charger has occurred. This will not result in a loss of power to Class 1E 120 volt vital DP 1201 and 001. Class 1E Battery E1A11 will automatically supply power to DP 1201 and 001 through their respective inverters.
- B: INCORRECT: Plausible because each battery has two chargers, each powered from a different load center, but only one is normally in service.
- C: INCORRECT: Plausible because the 480V inputs to the 120V DP panel systems are split between the two load centers and the applicant may believe the loss of the 480V input will cause a loss of the normal supply, causing it to swap to the voltage regulating transformer. However, as long as battery voltage is available, the swap to the voltage regulating transformer will not occur.
- D: INCORRECT: Plausible because the 480V inputs to the 120V DP panel systems are split between the two load centers and the applicant may believe the loss of the 480V input will cause a loss of the normal supply, causing it to swap to the voltage regulating transformer. However, as long as battery voltage is available, the swap to the voltage regulating transformer will not occur.

Question Level: H **Question Difficulty** 3**Justification:**

The student must be able to determine whether a loss of Vital DC power has occurred from the symptoms given. Then, based on what was lost, determine how the 125 VDC System will respond.

Exam Bank No.: 2796

Last used on an NRC exam: Never

RO Sequence Number: 21

The Unit is at 100% power, middle of core life.

- While swapping CVCS letdown orifices, the CVCS Letdown Relief Valve lifts and does not reseat.
- The PRT fills and then the rupture disc lifts.
- Prior to the relief valve reseating, approximately 500 gallons of water exits the PRT into containment.

As a result of this event...

Level indicated by SI-LT-3925, Containment Water Level, will _____(1)_____.

RT-8011, RCB Atmosphere Radiation Monitor, levels will _____(2)_____.

- A. (1) rise
(2) rise
- B. (1) not change
(2) rise
- C. (1) rise
(2) not change
- D. (1) not change
(2) not change

Answer: B (1) not change (2) rise

Exam Bank No.: 2796**Source:** Bank**Modified from****K/A Catalog Number:** 007 K3.01

Knowledge of the effect that a loss or malfunction of the PRTS will have on the following: Containment

RO Importance: 3.3**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(5)**STP Lesson:** LOT 201.10**Objective Number:** 30997

Describe the location of ECCS components, controls, and/or instrumentation.

Reference: LOT 201.10 Powerpoint Presentation, slide 104; LOT 202.41 Powerpoint Presentation, slide 112**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student confuses Containment Water Level with the level of the normal sump inside containment which would rise and is also displayed on QPDS. RT-8011 levels do rise.
- B: CORRECT: The Containment Water Level on QDPS is from discrete sensors mounted on the containment wall. The lowest one is approximately 10" off the bottom floor and it would take several thousand gallons to rise to this level. RT-8011 is a sensitive monitor for normal operations and levels would rise.
- C: INCORRECT: Plausible if the student confuses Containment Water Level with the level of the normal sump inside containment which would rise and is also displayed on QPDS and if the student confuses RT-8011 with RT-8050, which is a radiation monitor reserved for accidents and its levels would not change.
- D: INCORRECT: Plausible as Containment Water Level does not change and if the student confuses RT-8011 with RT-8050, which is a radiation monitor reserved for accidents and its levels would not change

Question Level: H**Question Difficulty** 3**Justification:**

The candidate must determine the effect of the stuck open PORV on the overall containment system, and then apply that determination to containment parameters listed and determine if there will be an effect.

Exam Bank No.: 1973

Last used on an NRC exam: Never

RO Sequence Number: 22

A High Radiation Alarm on RT-8039, located on the CVCS Letdown Line, is indicative of which of the following?

- A. Fuel cladding failure
- B. RCS leakage into the CCW System
- C. High activity in the Radioactive Filter Changeout Area
- D. Packing leak on MOV-0025, CVCS Charging Line OCIV

Answer: A Fuel cladding failure

Exam Bank No.: 1973**Source:** Bank**Modified from**

K/A Catalog Number: APE 076 AK2.01 Knowledge of the interrelations between the High Reactor Coolant Activity and the following: Process Radiation Monitors.

RO Importance: 2.6 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(11)

STP Lesson: LOT 202.41 **Objective Number:** 92120

PREDICT the probable PERMS alarm(s) that would be energized under the following conditions:

- A. Loss-of-Coolant Accident (LOCA)
- B. Excessive fuel cladding leakage
- C. Gaseous waste processing system charcoal beds rupture
- D. High activity in the Mechanical Electrical Auxiliary Building (MEAB)
- E. Reactor Coolant System (RCS) to Component Cooling Water System (CCWS) leak
- F. Excessive radioactive liquid effluent release from the plant
- G. Steam Generator Tube Rupture (SGTR)
- H. Fuel Handling Accident
- I. Main Steamline Break (MSLB)

Reference: LOT 202.41, slide 112

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: CORRECT: RT-8039 samples monitors the CVCS letdown line and is designed to detect a fuel failure condition.
- B: INCORRECT: An RCS leak into the CCW System would be picked up on the CCW System Process Monitor. CCW supplies the Letdown Heat Exchanger and if the student believes leakage would be detected this way.
- C: INCORRECT: A leak in the Filter Changeout area would be picked up on an Area Radiation Monitor or MAB HVAC Exhaust Monitor and is not in the area of RT-8039.
- D: INCORRECT: A packing leak on CV-MOV-0025 would be picked up on an Area Radiation Monitor or MAB HVAC Exhaust Monitor and is not in the area of RT-8039.

Question Level: F **Question Difficulty** 3

Justification:

The Student needs to know which Plant System might be affect given a Process Monitor High Rad Alarm.

Exam Bank No.: 2022

Last used on an NRC exam: Never

RO Sequence Number: 23

Unit 1 is at 100% power.

- ESF DG #11 is ready to be paralleled to ESF Bus 1A.
- Electrical parameters are as follows:
 - 11 ESF DG frequency is 60.0 Hz.
 - The synchroscope is moving slowly in the SLOW direction.

For the conditions listed above, complete the following:

(1) If the ESF DG 11 output breaker were closed, then _____(1)_____ of the diesel generator would occur.

(2) Before actually closing the output breaker, the RO will _____(2)_____ engine speed.

- A. (1) motoring
(2) raise
- B. (1) motoring
(2) lower
- C. (1) overload
(2) raise
- D. (1) overload
(2) lower

Answer: A (1) motoring (2) raise

Exam Bank No.: 2022**Source:** Bank**Modified from****K/A Catalog Number:** 064 A2.09

Ability to (a) predict the impacts of the following malfunctions or operations on the EDG System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Synchronization of the ED/G with other electric power supplies.

RO Importance: 3.1 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 107.09 **Objective Number:** N100089

Describe how to adjust generators in connected in parallel for variations in shared load.

Reference: LOT 107.09 Powerpoint Presentation Slide 270; 0POP02-DG-0001, step 6.1.23**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: With the synchroscope moving slowly in the SLOW direction, grid frequency is higher than engine frequency and the diesel generator will not pick up real load and will be motoring. The RO will raise engine speed by procedure.
- B: INCORRECT: Plausible with misconceptions of the relationship between grid and engine conditions.
- C: INCORRECT: Plausible with misconceptions of the relationship between grid and engine conditions.
- D: INCORRECT: Plausible with misconceptions of the relationship between grid and engine conditions.

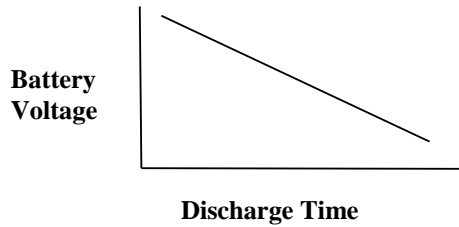
Question Level: H **Question Difficulty** 3**Justification:**

The student must be able to apply principles of electrical theory to determine the response of the DG when paralleled and have knowledge of procedural actions for paralleling the ESF DGs to offsite power.

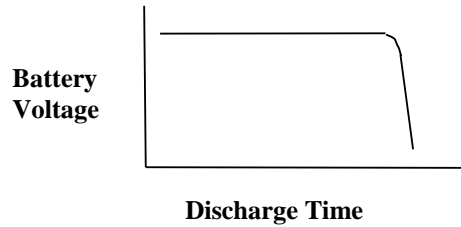
The in-service Battery Charger for 125 VDC Bus E1A11 has tripped. 125 VDC Bus E1A11 is being supplied ONLY by its 125 VDC Battery.

With the loads on 125 VDC Bus E1A11 remaining the same, the expected response of Battery E1A11 voltage is correctly depicted by...

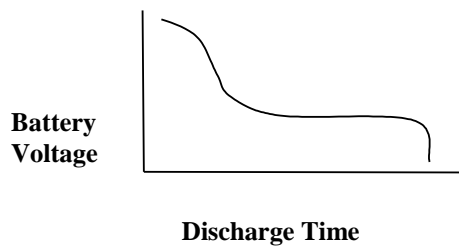
A.



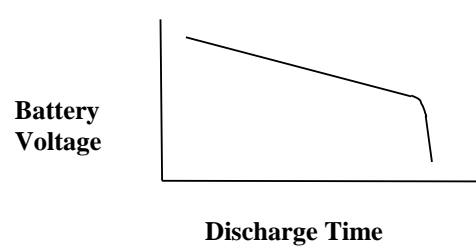
C.



B.



D.



Answer: D None. Answer is a figure only.

Exam Bank No.: 2088**Source:** Bank**Modified from****K/A Catalog Number:** 063 A1.01

Ability to predict and/or monitor changes in parameters associated with operating the DC electrical system controls including: Battery capacity as it is affected by discharge rate.

RO Importance: 2.5**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(5)**STP Lesson:** LOT 201.37**Objective Number:** 82197

STATE the effects that varying the Class 1E 125 VDC System battery discharge rates will have on their capacity.

Reference: LOT 201.37 Powerpoint Presentation, Slide 31**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Battery capacity will continually lower as it's being discharged, as shown. However, it will reach a point where an abrupt change occurs and thereafter the battery capacity rapidly declines.
- B: INCORRECT: Battery capacity will continually lower as shown in the first segment and if the student thinks a plateau will be reached when actions of DC components have occurred.
- C: INCORRECT: Battery capacity represents the stored energy of a battery. As this energy is used, the remaining capacity will continually lower unless the battery is re-charged. The characteristic or a rapid decline in battery capacity after an extended discharge is a correct response for a battery.
- D: CORRECT: Battery capacity will continuously lower as it's being discharged for a period of time then a rapid decline will occur which indicates it has reached the end of its useful capacity.

Question Level: F**Question Difficulty** 3**Justification:**

The student must know how the capacity of a battery will vary as the battery discharges.

Exam Bank No.: 2797

Last used on an NRC exam: Never

RO Sequence Number: 25

The Unit is in MODE 4.

- RCS temperature is 343°F and slowly lowering.
- RCS pressure is 315 psig.
- The RO reports that CCW Surge Tank level is rising unexpectedly.

The cause of the level rise is a leak in ____ (1) _____. The leak ____ (2) _____.

- A. (1) an RHR Heat Exchanger
(2) cannot be isolated
- B. (1) an RHR Heat Exchanger
(2) can be stopped by removing the affected RHR train from service
- C. (1) the Excess Letdown Heat Exchanger
(2) cannot be isolated
- D. (1) the Excess Letdown Heat Exchanger
(2) can be stopped by removing Excess Letdown from service

Answer: B (1) an RHR Heat Exchanger
(2) can be stopped by removing the affected RHR train from service

Exam Bank No.: 2797**Source:** Modified**Modified from** 2233

K/A Catalog Number: APE 025 AA2.04 Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System:
Location and isolability of leaks

RO Importance: 3.3 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(5)**STP Lesson:** LOT 201.12 **Objective Number:** 4096

State the potential sources of RCS inleakage to the Component Cooling Water System.

Reference: LOT201.12 Powerpoint presentation, p. 45, OPOP04-RC-0003, Addendum 5, Steps 11 and 12.**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the leakage is from the RHR system into CCW at the RHR Heat Exchanger and if the student believes that the leak is not isolable.
- B: CORRECT: Leakage is from the RHR system into CCW at the RHR Heat Exchanger. OPOP04-RC-0003, Excessive RCS Leakage, will require the operator to swap RHR trains and maintain the affected train isolated.
- C: INCORRECT: Plausible as normal letdown is removed from service at this point, but low pressure letdown not excess letdown is in service, and if the student believes that the heat exchanger is not isolable.
- D: INCORRECT: Plausible as normal letdown is removed from service at this point, but low pressure letdown not excess letdown is in service. CCW can be isolated to the excess letdown heat exchanger locally inside containment.

Question Level: H **Question Difficulty** 3**Justification:**

The student must know assess plant conditions and understand the effect of a RHR Heat Exchanger Tube Leak and also know how to isolate it.

Exam Bank No.: 2793

Last used on an NRC exam: Never

RO Sequence Number: 26

The unit is at 100% power.

- ESF D/G #11 is paralleled to ESF 4160V Bus E1A.

Subsequently:

- A Loss of Offsite Power (LOOP) occurs.
- The “C” Train ESF Load Sequencer fails to operate.

Based on the above information, complete the following:

____(1)____ RCFCs are running with _____(2)_____.

- A. (1) 6
(2) cooling supplied by CCW
- B. (1) 6
(2) no cooling water supplied
- C. (1) 4
(2) cooling supplied by CCW
- D. (1) 4
(2) no cooling water supplied

Answer: D (1) 4 (2) no cooling water supplied

Exam Bank No.: 2793**Source:** New**Modified from****K/A Catalog Number:** 064 K3.03Knowledge of the effect that a loss or malfunction of the ED/G system will have on the following:
ED/G (manual loads)**RO Importance:** 3.6**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.41**Objective Number:** 98035

Given a plant or system condition, predict the operation of the ESF Load Sequencer.

Reference: LOT 201.41 Lesson Plan PPT on ESF Load Sequencers**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student has confusion about ESF Load Sequencer MODE II operation and cooling water supplies.
- B: INCORRECT: Plausible if the student has confusion about ESF Load Sequencer MODE II operation and cooling water supplies.
- C: INCORRECT: Plausible as this is the correct number of RCFCs running, and if the student believes that CCW is aligned as it is on a Safety Injection signal.
- D: CORRECT: With a loss of offsite power and the failure of the "C" ESF Load Sequencer to operate, the "C" RCFCs will not restart. The "A" and "B" train RCFCs will strip and then sequence on. The normal RCB chilled water supply will isolate and CCW will not align.

Question Level: H**Question Difficulty** 3**Justification:**

The student must be able to evaluate the given conditions to determine which components auto started and the configuration they are in.

Exam Bank No.: 2791

Last used on an NRC exam: Never

RO Sequence Number: 27

The unit is at 100% power.

- A plant operator is required to check the position of CV-MOV-0112C, CVCS Charging Pumps Suction from RWST.

Using the provided survey map and RWP, complete the following:

1. The plant operator can enter Room 044 with _____(1)_____.
 2. Locally opening CV-MOV-0112C would require the operator to be in ____ (2) ____.
- A. (1) no permission required
(2) a lab coat and surgeon's gloves with RP permission
- B. (1) no permission required
(2) normal work clothing and PPE
- C. (1) ONLY with permission from the Shift Manager
(2) a lab coat and surgeon's gloves with RP permission
- D. (1) ONLY with permission from the Shift Manager
(2) normal work clothing and PPE

Answer: B (1) no permission required (2) normal work clothing and PPE

Exam Bank No.: 2791**Source:** New**Modified from****K/A Catalog Number:** G2.3.7

Ability to comply with radiation work permit requirements during normal or abnormal conditions.

RO Importance: 3.5**Tier:** 3**Group/Category:****10CFR Reference:** 55.41(b)(12)**STP Lesson:** LOT 507.01**Objective Number:** 92186

Given the title of an administrative procedure, DISCUSS the requirements associated with the referenced procedure.

Reference: Survey Map for Room 044, 0POP05-EO-ECOO, Step 3, 0PGP03-ZO-0055, Protected Components, Section 7.0.

Attached Reference **Attachment:** Survey Map for Room 044 and RWP 2018-0-0003

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible as no permission is required for the plant operator to enter the room, and if the student wrongly assumes that this is a contaminated area.
- B: CORRECT: Room 044 is a protected area. Per 0PGP03-ZG-0055, Protected Components, operators may enter these areas without permission for operator rounds and activities. This is a radiation area only.
- C: INCORRECT: Plausible as Shift Manager permission is required for most personnel to cross Protected Area boundaries and if the student wrongly assumes that this is a contaminated area.
- D: INCORRECT: Plausible as Shift Manager permission is required for most personnel to cross Protected Area boundaries. This is a radiation area.

Question Level: H**Question Difficulty** 3**Justification:**

The student must interpret the survey map and apply it to the operational situation given.

Exam Bank No.: 2614

Last used on an NRC exam: Never

RO Sequence Number: 28

The Unit is at 100% power with the following conditions:

- The Component Cooling Water (CCW) 'MODE SEL' switches are in the following position:
 - Train A is in 'RUN'
 - Train B is in 'STANDBY'
 - Train C is in 'OFF'
- CCW Pumps Control Room handswitches are as follows:
 - CCW Pump 1A is in 'AUTO' and is running.
 - CCW Pump 1B is in 'AUTO' and is secured.
 - CCW Pump 1C is in 'AUTO' and is secured.
- Charging Pump 1A is running.

Subsequently:

- CCW Pump 1A trips.
- CCW common discharge header pressure lowered to 74 psig.

As a result, Charging Pump (CCP) 1A...

- A. must be secured due to a total loss of cooling to both CCPs.
- B. can remain running as long as Train C CCW is manually started.
- C. can remain running since CCW Pump 1B is now supplying cooling to it.
- D. must be secured and manually start CCP 1B since CCW Pump 1B is now supplying cooling.

Answer: C can remain running since CCW Pump 1B is supplying cooling to it.

Exam Bank No.: 2614**Source:** Bank**Modified from****K/A Catalog Number:** 008 K4.01

Knowledge of CCWS design feature(s) and/or interlocks which provide for the following: Automatic start of standby pump.

RO Importance: 3.1**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.12**Objective Number:** 5213

GIVEN a plant or system condition, PREDICT the operation of the Component Cooling Water System.

Reference: LOT 201.12 Powerpoint Presentation, Slide 22**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: There is not a total loss of cooling. It is plausible the student may believe that Train B and Train C could not supply cooling to CCP 1A .
- B: INCORRECT: Plausible but not necessary since Train B will auto start on the given conditions and if the student does not realize this.
- C: CORRECT: CCW Pump 1B will auto start at a common header discharge pressure of 76 psig since its Mode Select switch is in the Standby position. Any of the CCW pumps can supply cooling to either of the CCPs in a normal lineup. Normal lineup is with the cross-connect valves open.
- D: INCORRECT: CCP 1A is being supplied by Train B CCW. Plausible if the student believes that CCP cooling is train specific and that CCP 1B must be started since Train B CCW is running.

Question Level: H**Question Difficulty** 3**Justification:**

Student must analyze given plant conditions and predict the operation of the CCW system and understand how it affects the cooling to CCPs.

Exam Bank No.: 2628

Last used on an NRC exam: Never

RO Sequence Number: 29

Automatic makeup to the Volume Control Tank (VCT) is controlled by VCT level transmitter(s) (1).

AND

The VCT will automatically be diverted to the Recycle Holdup Tanks if VCT level transmitter(s) (2) fail HIGH.

- A. (1) LT-113 ONLY
(2) LT-112 AND LT-113
- B. (1) LT-113 ONLY
(2) LT-112 OR LT-113
- C. (1) LT-112 ONLY
(2) LT-112 AND LT-113
- D. (1) LT-112 ONLY
(2) LT-112 OR LT-113

Answer: D (1) LT-112 ONLY
(2) LT-112 OR LT-113

Exam Bank No.: 2628**Source:** Bank**Modified from****K/A Catalog Number:** 016 K5.01

Knowledge of the operational implications of the following concepts as they apply to the NNIS: Separation of control and protection circuits.

RO Importance: 2.7**Tier:** 2**Group/Category:** 2**10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.06**Objective Number:** 507226

Given a description of plant conditions, ANALYZE the conditions and PREDICT how the CVCS will respond.

Reference: LOT 201.06 Powerpoint Presentation, slide 54**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible with confusion over functions of the two level transmitters and if the student believes that both transmitters failing high are necessary for a divert signal.
- B: INCORRECT: Plausible with confusion over functions of the two level transmitters and either LT-112 or LT-113 will cause a divert signal.
- C: INCORRECT: Plausible as LT-112 is the only channel that provides the control of auto makeup to the VCT and if the student believes that both transmitters failing high are necessary for a divert signal.
- D: CORRECT: LT-112 is the only channel that provides the control of auto makeup to the VCT, and both LT-112 and LT-113 have the protection circuit that will cause the VCT to divert at 95%.

Question Level: F**Question Difficulty** 3**Justification:**

Student must recall which transmitters provide the control channel and which transmitters provide the protection for the VCT.

Exam Bank No.: 2630

Last used on an NRC exam: Never

RO Sequence Number: 30

A reactor startup is being performed at the End of Life (EOL) with the following conditions:

- Reactor power is 10%.
- Control Rods are in manual.
- Steam Dumps are in Steam Pressure Mode.
- Header Pressure Controller PK-0557 is in AUTO with a setting of 8.46 on the potentiometer.

If the potentiometer on PK-0557 were to be changed to 9.00, RCS Tave would (1) and reactor power would (2).

- A. (1) lower
(2) lower
- B. (1) rise
(2) rise
- C. (1) lower
(2) rise
- D. (1) rise
(2) lower

Answer: D (1) rise
(2) lower

Exam Bank No.: 2630**Source:** Bank**Modified from****K/A Catalog Number:** 041 K3.04

Knowledge of the physical connections and/or cause-effect relationships between the SDS and the following systems: Reactor Power

RO Importance: 3.5 **Tier:** 2 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(5)**STP Lesson:** LOT 202.09 **Objective Number:** 22107

DISCUSS the operation of the Steam Dump System.

Reference: LOT 202.09 Powerpoint Presentation, slides 54--56**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible the student may think the potentiometer setting is similar to a demand signal. If that was the case then raising this setting would cause dumps to open and lower Tave.
- B: INCORRECT: Tave would rise. However, power would go down with a negative MTC. Plausible because if the reactor had a positive MTC at BOL then power would go up.
- C: INCORRECT: Plausible the student may think the potentiometer setting is similar to a demand signal. If that was the case then raising this setting would cause dumps to open and lower Tave. And if Tave were to lower with a negative MTC then reactor power would rise.
- D: CORRECT: At a setting of 8.46 the dumps maintain a no load value of 1185 psig. A higher pot setting would equate to a higher pressure. In order to raise pressure, the dumps would close to release less steam to the condenser. Less steam flow would make RCS Tave go up. And since the reactor is at EOL it would have a negative MTC. With a negative MTC and a rise in Tave, reactor power would go down.

Question Level: H **Question Difficulty** 3**Justification:**

Student must analyze the given conditions and predict the operation of the steam dump system.

Exam Bank No.: 2677

Last used on an NRC exam: 2017

RO Sequence Number: 31

The Unit is at 100% power when the following occur at the same time:

- An inadvertent Safety Injection signal.
- QDPS APC A2 loses power.

Based on this occurrence,

the Train 'A' AFW Reg Valve will be (1).

AND

the Train 'A' AFW Flow Indicator, FI-7525, will indicate (2).

- A. (1) throttled
(2) no flow
- B. (1) throttled
(2) actual flow
- C. (1) full open
(2) no flow
- D. (1) full open
(2) actual flow

Answer: C (1) full open
(2) no flow

Exam Bank No.: 2677**Source:** Bank**Modified from****K/A Catalog Number:** 061 K6.01Knowledge of the effect of a loss or malfunction of the following will have on the AFW components:
Controllers and positioners.**RO Importance:** 2.5 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 202.44 **Objective Number:** 97939

Given a change in plant or system condition, EXPLAIN the operation and indications of the QDPS System.

Reference: LOT 202.44 Powerpoint Presentation slide 60**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible because a failure of different parts of QDPS affect different systems in different ways. The student has to know what systems are affected by QDPS and how a specific failure affects the system.
- B: INCORRECT: Plausible because a failure of different parts of QDPS affect different systems in different ways. The student has to know what systems are affected by QDPS and how a specific failure affects the system.
- C: CORRECT: QDPS A2 being denergized will cause the AFW flow control valve for that train to fail as is and cause the flow indication to read zero gpm. At 100% power the AFW Reg valves are aligned full open.
- D: INCORRECT: Plausible because a failure of different parts of QDPS affect different systems in different ways. The student has to know what systems are affected by QDPS and how a specific failure affects the system.

Question Level: H**Question Difficulty** 3**Justification:**

The student must be able to analyze the given condition to determine the effect on the AFW system.

Exam Bank No.: 2789

Last used on an NRC exam: Never

RO Sequence Number: 32

The unit is at 45% power when RCP 1A trips.

Complete the following regarding this occurrence.

Following the trip of RCP 1A, Steam Generator 1A level ____ (1) ____.

Feedwater to Steam Generator 1A is supplied by _____ (2) _____.

- A. (1) rises
(2) Main Feedwater
- B. (1) rises
(2) Auxiliary Feedwater
- C. (1) lowers
(2) Main Feedwater
- D. (1) lowers
(2) Auxiliary Feedwater

Answer: D (1) lowers (2) Auxiliary Feedwater

Exam Bank No.: 2789**Source:** New**Modified from****K/A Catalog Number:** 003 K3.02

Knowledge of the effect that a loss or malfunction of the Reactor Coolant Pump System (RCPS) will have on the following: S/G

RO Importance: 3.5 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.05 **Objective Number:** 86369

Describe the effects on the plant due to tripping of a Reactor Coolant Pump

Reference: LOT201.05 Powerpoint Presentation**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student confuses shrink and swell after a reactor trip and the source of feedwater.
- B: INCORRECT: Plausible if the student confuses shrink and swell after a reactor trip and the source of feedwater.
- C: INCORRECT: Plausible as level does lower and if the student believes at 45% power AFW will not actuate, and MFW will remain in service.
- D: CORRECT: At 45% power, a trip of RCP 1A will cause a reactor trip since the reactor is above P-8 (40% power). With a reactor trip, all SG levels will lower to the AFW actuation setpoint at 20% power. Main Feedwater will isolate on a reactor trip with Tave below 574 degrees F.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the conditions and determine the condition of the steam generator

Exam Bank No.: 2735

Last used on an NRC exam: Never

RO Sequence Number: 33

A smoke detector in the Emergency Diesel Generator (EDG) 12 Room has failed and has actuated the fire protection system.

For this failure, the EDG 12 room will be automatically deluged with ____ (1) _____. This deluge ____ (2) _____ prevent engine operation if required.

- A. (1) water ONLY
(2) will
- B. (1) water ONLY
(2) will NOT
- C. (1) a foam-water mixture
(2) will
- D. (1) a foam-water mixture
(2) will NOT

Answer: B (1) water ONLY
(2) will NOT

Exam Bank No.: 2735**Source:** New**Modified from****K/A Catalog Number:** 086 K6.04Knowledge of the effect of a loss or malfunction on the Fire Protection System will have on the following:
Fire, smoke, and heat detectors.**RO Importance:** 2.6**Tier:** 2**Group/Category:** 2**10CFR Reference:** 55.41(b)(4)**STP Lesson:** LOT 201.29**Objective Number:** 53554

DESCRIBE the Fire Detection System response to a generic alarm condition to include local panel indications and control room indications.

Reference: LOT 201.29, ESF Diesel Generators, Powerpoint Presentation, slide 41, OPGP03-ZF-0018, Addendum 2, UFSAR Section 3.1.2.1.3**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the ESF Diesel Generator room receives water from sprinklers automatically upon actuation of a heat or smoke detector. It is reasonable to conclude that water deluging a diesel generator would impact operation.
- B: CORRECT: The ESF Diesel Generator room receives water from sprinklers automatically upon actuation of a heat or smoke detector. Operation of this system will not preclude operation of the diesel, if required.
- C: INCORRECT: Plausible as the DG Fuel Oil Storage Tank room, located immediately above the EDG receives a foam-water mixture. It is reasonable to conclude that water deluging a diesel generator would impact operation.
- D: INCORRECT: Plausible as the DG Fuel Oil Storage Tank room, located immediately above the EDG receives a foam-water mixture. Operation of the actual system will not preclude operation of the diesel, if required.

Question Level: F**Question Difficulty** 3**Justification:**

Student must know the impact of a detector failure that cause a fire protection system actuation on EDG operation.

Exam Bank No.: 2748

Last used on an NRC exam: Never

RO Sequence Number: 34

During the performance of OPOP04-FH-0001, Fuel Handling Accident, the crew is required to place the Containment Carbon Filter Units in service.

The Containment Carbon Filter Units are placed in service in order to remove ____ (1) ____ from the containment to reduce radioactivity levels _____ (2) _____.

- A. (1) Iodine 131
(2) prior to personnel access
- B. (1) Cesium 137
(2) prior to personnel access
- C. (1) Iodine 131
(2) to ensure proper functioning of containment instrumentation
- D. (1) Cesium 137
(2) to ensure proper functioning of containment instrumentation

Answer: A (1) Iodine 131 (2) prior to personnel access

Exam Bank No.: 2748**Source:** New**Modified from**

K/A Catalog Number: APE 036 AK3.03 Knowledge of the reasons for the following responses as they apply to the Fuel Handling Incident: Guidance contained in EOP for fuel handling incidents.

RO Importance: 3.7 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(10)

STP Lesson: LOT 505.01 **Objective Number:** 92110

Given a precaution, note, or step(s) and the context in which it is used from the referenced procedure, DESCRIBE its basis and any applicable limits.

Reference: OPOP04-FH-0001, Step 10.0 and basis

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: CORRECT: Per the basis of OPOP04-FH-0001, the carbon filter units remove radioactivity with the reason being to ready the containment for entry. Following a fuel handling accident, iodine would be the isotope of interest and is removed by carbon filters.
- B: INCORRECT: Plausible as Cs-137 is an isotope of interest for fuel damage, but only if the fuel rods themselves undergo significant overheating, which is not the case here, since they are not uncovered. This is the correct reason for placing the carbon filter units in service.
- C: INCORRECT: Plausible as this is the correct isotope, but containment instrumentation is designed to withstand significant amounts of radiation.
- D: INCORRECT: Plausible as Cs-137 is an isotope of interest for fuel damage, but only if the fuel rods themselves undergo significant overheating, which is not the case here, since they are not uncovered and if the crew does not understand the design of containment instrumentation.

Question Level: F **Question Difficulty** 3

Justification:

The student must recall the basis for steps on OPOP04-FH-0001.

Exam Bank No.: 2749

Last used on an NRC exam: Never

RO Sequence Number: 35

With the unit at 100% power, a flaw in the RCB Equipment Hatch seal develops which allows leakage to the environment.

With this condition, which of the following accidents would the leak rate from the containment to the environment be the highest? A Design Basis...

- A. Large Break LOCA with 1 train of ECCS injecting.
- B. Large Break LOCA with 3 trains of ECCS injecting.
- C. MSLB inside containment with 1 train of ECCS injecting.
- D. MSLB inside containment with 3 trains of ECCS injecting.

Answer: B Large Break LOCA with 3 trains of ECCS injecting

Exam Bank No.: 2749**Source:** New**Modified from**

K/A Catalog Number: APE 069 AK1.01 Knowledge of the operational implications of the following concepts as they apply to Loss of Containment Integrity:
Effect of pressure on leak rate.

RO Importance: 2.6 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(5)**STP Lesson:** LOT 502.08 **Objective Number:** 50381

DESCRIBE the limiting analysis for the Containment Critical Safety Function.

Reference: LOT 502.08, Containment, Powerpoint slide 32**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the LOCA is the design basis accident for containment pressure response and if the student believes less ECCS flow will result in a higher containment peak pressure due to core heating.
- B: CORRECT: The Design Basis LOCA with minimum heat removal (2 Trains CS and 3 RCFCs) with 3 trains of ECCS injecting results in the highest peak pressure thus the highest leakage.
- C: INCORRECT: Plausible as the MSLB produces the design basis containment temperature response, but a lower peak pressure and if the student believes with less ECCS flow, the core will heat more and more steam will be produced, but not the case here.
- D: INCORRECT: Plausible as the MSLB produces the design basis containment temperature response, but a lower peak pressure. 3 trains of ECCS injecting is part of the design basis containment pressure response.

Question Level: F**Question Difficulty** 3**Justification:**

The student must be able to recall knowledge of specific plant events and their impact on containment.

Exam Bank No.: 2754

Last used on an NRC exam: Never

RO Sequence Number: 36

The unit was at 100% power when a Safety Injection signal occurred. Which of the following is correct concerning this plant event?

- (1) Charging pump suction will _____(1)_____.
- (2) Accumulator outlet isolation valves _____(2)_____.
- A. (1) immediately swap to the RWST
(2) do NOT receive an open signal because they are already open
- B. (1) immediately swap to the RWST
(2) receive an open signal
- C. (1) swap to the RWST when VCT level drops below 3%
(2) do NOT receive an open signal because they are already open
- D. (1) swap to the RWST when VCT level drops below 3%
(2) receive an open signal

Answer: B (1) immediately swap to the RWST (2) receive an open signal

Exam Bank No.: 2754**Source:** New**Modified from****K/A Catalog Number:** 006 K4.09

Knowledge of ECCS design features and/or interlocks which provide for the following: Valve positioning on safety injection signal

RO Importance: 3.9 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.10 **Objective Number:** 29419

Given a plant condition, PREDICT the operation of the ECCS to include automatic actuations, interlocks and/or trips.

Reference: LOT 201.10, Emergency Core Cooling System, Powerpoint Presentation, Slide 88, LOT 201.06 Chemical Volume and Control System, Powerpoint Presentation, Slide 54 and 57

Attached Reference **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the charging pump suction does immediately swap to the RWST, and if the student believes the accumulator outlet isolation valves open instead of being open already with power locked out.
- B: CORRECT: The Charging Pump suction swaps to the RWST directly from a SI signal. The accumulator outlet isolation valves receive an SI signal to open, but are maintained open with power locked out.
- C: INCORRECT: Plausible as the valves do open if VCT level drops below 3% and if the student does not recall the direct signal from SI. The accumulator outlet isolation valves receive an SI signal to open, but are maintained open with power locked out.
- D: INCORRECT: Plausible as the valves do open if VCT level drops below 3% and if the student does not recall the direct signal from SI. The accumulator outlet isolation valves are open with power locked out.

Question Level: F **Question Difficulty** 3**Justification:**

The student must recall interlocks associated with accumulator outlet isolation valves.

Exam Bank No.: 2767

Last used on an NRC exam: Never

RO Sequence Number: 37

The Unit is at 100% power with the following conditions:

- Rod Control is in automatic.

Subsequently:

- An inadvertent dilution occurs that raises Tave by 4°F.

Control rods will step in at a maximum of (1) steps per minute and will stop stepping in when the Tave-Tref deviation is (2).

- A. (1) 6 (2) 1°F
- B. (1) 6 (2) 0°F
- C. (1) 39 (2) 1°F
- D. (1) 39 (2) 0°F

Answer: C (1) 39 (2) 1°F

Exam Bank No.: 2767

Source: Modified

Modified from 2580

K/A Catalog Number: 001 K1.03

Knowledge of the physical connections and/or cause effect relationships between the CRDS and the following systems: CRDM

RO Importance: 3.4

Tier: 2

Group/Category: 2

10CFR Reference: 55.41(b)(7)

STP Lesson: LOT 201.18

Objective Number: 86061

Describe the instrumentation and controls available to monitor and operate the Rod Control System.

Reference: LOT 201.18, Powerpoint Presentation, slide 60

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible as this is an actual rod speed, but for 3 degree deviation. The rods will stop with a 1 degree deviation.
- B: INCORRECT: Plausible as this is an actual rod speed, but for 3 degree deviation and it is desired to bring the Tave-Tref deviation back to 0 degrees.
- C: CORRECT: With a 4 degree Tave - Tref deviation, the rods will step in at 39 steps per minute. They will continue to step in until they make it through the dead band at 1 degree.
- D: INCORRECT: Plausible as this is the correct rod speed and it is desired to bring the Tave-Tref deviation back to 0 degrees.

Question Level: H

Question Difficulty 3

Justification:

The student must be able to analyze the given conditions and have fundamental knowledge of how the RCS is affected by Control Rod movement.

Exam Bank No.: 2776

Last used on an NRC exam: Never

RO Sequence Number: 38

The unit is in a refueling outage.

- Fuel assemblies are being offloaded to the spent fuel pool.

If the weight on the refueling machine hoist exceeds an upper limit, the hoist will _____(1)_____. The refueling machine operator is alerted to this condition by the _____(2)_____ light lit.

- A. (1) reverse
(2) GRIPPER OVERLOAD
- B. (1) reverse
(2) GRIPPER FAILURE ALARM
- C. (1) stop
(2) GRIPPER OVERLOAD
- D. (1) stop
(2) GRIPPER FAILURE ALARM

Answer: C (1) stop (2) GRIPPER OVERLOAD

Exam Bank No.: 2776**Source:** New**Modified from****K/A Catalog Number:** 034 A3.02

Ability to monitor automatic operation of the Fuel Handling System, including: Load limits

RO Importance: 2.5**Tier:** 2**Group/Category:** 2**10CFR Reference:** 55.41(b)(4)**STP Lesson:** LOT 201.45**Objective Number:** 66410

Describe the controls associated with the operation of the Refueling Bridge, Trolley, and Hoist

Reference: LOT 201.45 Refueling Operations RCB, Powerpoint Presentation, Slide 43**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as this could put the fuel assembly back in its place and would relieve the load on the hoist, but not used here. This is the correct light.
- B: INCORRECT: Plausible as this could put the fuel assembly back in its place and would relieve the load on the hoist, but not used here. This alarm is associated with the gripper but alarms for a failure to properly engage or disengage.
- C: CORRECT: With an overload condition, the hoist will stop and the GRIPPER OVERLOAD light on the Refueling Machine Control Panel.
- D: INCORRECT: Plausible as the hoist will stop. This alarm is associated with the gripper but alarms for a failure to properly engage or disengage.

Question Level: F**Question Difficulty** 3**Justification:**

The student must know the hoist load limits and the indications associated with them.

Exam Bank No.: 736**Last used on an NRC exam:** 2003**RO Sequence Number:** 39

A plant heatup was in progress in accordance with OPOP03-ZG-0001, Plant Heatup. The following RCS temperatures were observed at the given times:

<u>TIME</u>	<u>TEMP</u>
1030	372°F
1045	383°F
1100	397°F
1115	408°F
1130	419°F

It is now 1145. What is the MAXIMUM RCS temperature allowed per the administrative limit of OPOP03-ZG-0001?

- A. 433°F
- B. 444°F
- C. 463°F
- D. 483°F

Answer: A 433 degrees F

Exam Bank No.: 736**Source:** Bank**Modified from****K/A Catalog Number:** G2.1.32

Ability to explain and apply all system limits and precautions.

RO Importance: 3.8**Tier:****Group/Category:****10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 506.01**Objective Number:** 92160

Given a plant condition, state whether it is in violation of a precaution or step as allowed by the referenced procedure and describe and/or interpret the requirements and/or limits of the precaution or step.

Reference: OPOP03-ZG-0001 step 3.7**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: The administrative limit for heatup of the RCS excluding the pressurizer is 50 degrees in any one hour period.
- B: INCORRECT: Plausible if the student believes that the plant cannot exceed a rate of 100 degrees/hour and calculates on the final 15 minute period.
- C: INCORRECT: Plausible as the administrative RCS cooldown limit for the RCS is 80 degrees in any one hour period.
- D: INCORRECT: Plausible as the Tech. Spec. heatup or cooldown limit on the RCS is 100 degrees in any one hour period.

Question Level: H**Question Difficulty** 2**Justification:**

Student must be able to calculate when the administrative limits will be exceeded.

Exam Bank No.: 2781

Last used on an NRC exam: Never

RO Sequence Number: 40

The unit is at 20% power when the following occurs:

- 7M03-B-3, TURB AUTO STOP PRESS RX PRETRP, alarms.
- 6M03-B-5, SGFPT 11 TRIP, alarms.
- 5M24-A-3, C9 COND AVAILABLE FOR STEAM DUMP, extinguishes.

The above alarm conditions are consistent with which plant condition?

- A. A reactor trip
- B. A turbine trip
- C. Lowering condenser vacuum
- D. The trip of a running circulating water pump

Answer: C Lowering condenser vacuum

Exam Bank No.: 2781**Source:** New**Modified from****K/A Catalog Number:** G2.4.46

Ability to verify that the alarms are consistent with the plant conditions.

RO Importance: 4.2**Tier:** 3**Group/Category:****10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 505.01**Objective Number:** 92107

Discuss automatic actions expected to occur on entry conditions for the reference procedure.

Reference: OPOP04-CR-0001, Loss of Condenser Vacuum, Page 2; OPOP04-AN-06M3, SGFPT 11 TRIP**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as a reactor trip would cause a turbine trip, and a feedwater isolation, but not the trip of feed pumps.
- B: INCORRECT: Plausible as a turbine trip would cause the auto stop oil pressure low alarm but would not cause a feed pump trip or other alarms.
- C: CORRECT: Lowering condenser vacuum causes trip of the running feed pumps, a turbine trip, and loss of the C9 permissive.
- D: INCORRECT: Plausible as circulating water pump status feeds into the C9 permissive, but the trip of one pump would not cause the other alarms.

Question Level: H**Question Difficulty** 3**Justification:**

The student must assess plant conditions and determine what would have caused these conditions.

Exam Bank No.: 2780**Last used on an NRC exam:** Never**RO Sequence Number:** 41

The unit is at 100% power. Using the attached picture, complete the following statements:

- 1) The UAT LOAD TAP CHANGER position is ____ (1) ____ adjusted for the current power level.
 - 2) The result of placing the UAT LOAD TAP CHANGER MODE SELECT switch in MANUAL would be ____ (2) ____.
- A. (1) properly
(2) a reactor trip due to RCP undervoltage
- B. (1) properly
(2) two offsite sources declared inoperable
- C. (1) improperly
(2) a reactor trip due to RCP undervoltage
- D. (1) improperly
(2) two offsite sources declared inoperable

Answer: B (1) properly (2) two offsite sources declared inoperable.

Exam Bank No.: 2780**Source:** New**Modified from****K/A Catalog Number:** G2.2.44

Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.

RO Importance: 4.2**Tier:** 3**Group/Category:****10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.30**Objective Number:** 14

With regard to OPOP02-AE-0002, Transformer Normal Breaker and Switch Lineup, discuss the following: a. Purpose b. Prerequisites c. Notes and Precautions.

Reference: OPOP02-AE-0002, Transformer Normal Breaker and Switch Lineup, Steps 4.16, 4.32**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the LTC is properly adjusted and if the student believes that taking the control to MANUAL will cause the output to lower and the associated auxiliary buses on which the RCPs are powered would lose voltage and cause an undervoltage trip on the RCPs.
- B: CORRECT: The LTC must be adjusted between 5L and 12L in order to maintain adequate voltage levels. The current setting is 8L. If the LTC is taken to manual, two offsite sources would be declared inoperable as a requirement for operability is to have the LTC in AUTO.
- C: INCORRECT: Plausible if the student misinterprets the different indications on the meter and if the student believes that taking the control to MANUAL will cause the output to lower and the associated auxiliary buses on which the RCPs are powered would lose voltage and cause an undervoltage trip on the RCPs.
- D: INCORRECT: Plausible if the student misinterprets the different indications on the meter. This is the result of taking the LTC to manual.

Question Level: H**Question Difficulty** 3**Justification:**

The student must understand the status and operation of the load tap changer and the effect their actions can have on the plant.

UAT LOAD TAP CHANGER

AUX BUS
1F VOLTS



STBY BUS
1F VOLTS



Exam Bank No.: 2779

Last used on an NRC exam: Never

RO Sequence Number: 42

The unit is at 100% power.

- A loss of all control room annunciators occurs.

With this event, the crew will...

- A. take the unit offline immediately.
- B. take the unit offline within the next hour.
- C. maintain the current power level except if a power reduction is required to comply with Technical Specifications.
- D. maintain the current power level and suspend LCO actions that require a mode change until annunciators are restored.

Answer: C maintain the current power level except if a power reduction is required to comply with Technical Specifications.

Exam Bank No.: 2779**Source:** New**Modified from****K/A Catalog Number:** G2.4.32

Knowledge of operator response to loss of all annunciators.

RO Importance: 3.6**Tier:** 3**Group/Category:****10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 505.01**Objective Number:** 92110

Given a precaution, note, or step and the context in which it is used from the referenced procedure, describe its basis and any applicable limits.

Reference: OPOP04-AN-0001, Loss of Control Room Annunciator Alarms**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student believes it is safer to have the unit offline quickly.
- B: INCORRECT: Plausible if the student believes it is safer to have the unit offline and 6 hours is a common TS time to have this action accomplished.
- C: CORRECT: Per OPOP04-AN-0001, Loss of Control Room Annunciator Alarms, if some or all annunciators are lost, the crew is required to maintain the current power level unless Technical Specifications requires a power reduction.
- D: INCORRECT: Plausible as the crew is required to maintain the current power level and the Auxiliary Feedwater has a requirement to suspend mode changes if all four AFW pumps are inoperable.

Question Level: F**Question Difficulty** 3**Justification:**

The student must recall the requirements of a step in this procedure.

Exam Bank No.: 2775**Last used on an NRC exam:** Never**RO Sequence Number:** 43

The unit is at 100% power.

- The following annunciators alarm:
 - 7M03-E-7, MAIN COND VACUUM LO
 - 9M01-F-8, BASEMENT SHELTER PANEL TRBL

Upon receiving these alarms, the reactor operator will first respond to _____(1)_____. In accordance with OPOP04-CR-0001, Loss of Condenser Vacuum, the operator's top priority will be to _____(2)_____.

- A. (1) 7M03-E-7
(2) verify main turbine is NOT operating in the "Restrictive Zone"
- B. (1) 7M03-E-7
(2) lower turbine load until MAIN COND VACUUM LO alarm clears
- C. (1) 9M01-F-8
(2) verify main turbine is NOT operating in the "Restrictive Zone"
- D. (1) 9M01-F-8
(2) lower turbine load until MAIN COND VACUUM LO alarm clears

Answer: A (1) 7M03-E-7 (2) verify the main turbine is NOT operating in the "Restrictive Zone"

Exam Bank No.: 2775**Source:** New**Modified from****K/A Catalog Number:** 055 G2.4.45

Condenser Air Removal: Ability to prioritize and interpret the significance of each annunciator or alarm.

RO Importance: 4.1**Tier:** 2**Group/Category:** 2**10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 202.25**Objective Number:** 33958

State the automatic actions and interlocks associated with the condenser air removal system.

Reference: 0POP04-CR-0001, Loss of Condenser Vacuum, Step 7**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: MAIN COND VACUUM LO is the highest priority alarm (it is a YELLOW alarm on the control panel). The significance of this alarm is the effect of lowering vacuum on main turbine operation.
- B: INCORRECT: Plausible as this is the correct alarm to address first, and a load reduction could improve vacuum, but not the procedural method for handling this situation.
- C: INCORRECT: Plausible as the basement shelter alarm panel would potentially have insight into the lowering vacuum because this panel has alarms for CARS Pump Trouble and CARS Pump Trip, but not the highest priority alarm received. The effect of lowering vacuum on main turbine operations is of the highest significance.
- D: INCORRECT: Plausible as the basement shelter alarm panel would potentially have insight into the lowering vacuum because this panel has alarms for CARS Pump Trouble and CARS Pump Trip, but not the highest priority alarm received and a load reduction could improve vacuum, but not the procedural method for handling this situation.

Question Level: H**Question Difficulty** 3**Justification:**

The student must assess the affects of lowering vacuum on the CARS system and the main turbine.

Exam Bank No.: 2766

Last used on an NRC exam: Never

RO Sequence Number: 44

The unit was at 100% when a LOCA in containment occurred.

- Containment Isolation Phase “A” and “B” did NOT automatically actuate.
- All other equipment functioned as designed.
- The crew is proceeding through OPOP05-EO-EO00, Reactor Trip or Safety Injection.

Based on this information, complete the following:

- 1) If not corrected, one consequence of this malfunction will be contaminated water flowing from the RCB to the _____(1)_____.
 - 2) The crew will correct the identified consequence by _____(2)_____ OPOP05-EO-EO00.
- A. (1) MAB
(2) manually actuating Phase “A” Containment Isolation per Addendum 5 of
- B. (1) MAB
(2) manually closing Phase “B” containment isolation valves in accordance with
- C. (1) FHB
(2) manually actuating Phase “A” Containment Isolation per Addendum 5 of
- D. (1) FHB
(2) manually closing Phase “B” containment isolation valves in accordance with

Answer: A (1) MAB (2) manually actuating Phase "A" Containment Isolation per Addendum 5 of

Exam Bank No.: 2766**Source:** New**Modified from****K/A Catalog Number:** 103 A2.03

Containment: Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations.

Phase A and B isolation

RO Importance: 3.5 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 504.05 **Objective Number:** 80483

Given a copy of a subsequent step or from memory an immediate action step from POP05-EO-EO00, STATE/IDENTIFY how the action is performed and the basis for the action to include the action itself, its purpose and result.

Reference: LOT 504.05 Powerpoint Presentation**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: Without a proper Phase A signal, the Containment Normal Sump will automatically pump its contents from the RCB into a tank in the MAB. This Phase A signal is addressed in Addendum 5, where the operator will manually actuate.
- B: INCORRECT: Plausible as without a Phase A signal, the Containment Normal Sump will automatically pump its contents from the RCB into a tank in the MAB, and if the student confuses the Phase B actions with the Phase A actions.
- C: INCORRECT: Plausible as the FHB does have direct penetrations to the RCB but none where a transfer of liquid occur on a Phase A failure. This is the correct action for the failures.
- D: INCORRECT: Plausible as the FHB does have direct penetrations to the RCB but none where a transfer of liquid would occur on a Phase A failure and if the student confuses the Phase B actions with the Phase A actions.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the conditions and determine the impact on buildings at the site and then state the required operator actions to mitigate the failure.

Exam Bank No.: 2762

Last used on an NRC exam: Never

RO Sequence Number: 45

The unit is at 100% power.

- Power is lost to Class 1E 125VDC Bus E1A11.

Which of the following describes a result of this loss?

- A. TDAFWP 14 will not start on an automatic signal.
- B. Pressurizer PORV PCV-0655A will not open if required.
- C. Reactor Trip Breaker "S" will not open on an automatic signal.
- D. Centrifugal Charging Pump 1A cannot be stopped from the control room.

Answer: B Pressurizer PORV PCV-0655A will not open if required.

Exam Bank No.: 2762**Source:** New**Modified from****K/A Catalog Number:** 063 K2.01

DC Electrical Distribution: Knowledge of bus power supplies to the following: Major DC loads

RO Importance: 2.9**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 505.01**Objective Number:** 38635

Given an abnormal operating event, predict the symptoms expected to occur in accordance with the appropriate off normal operating procedure.

Reference: OPOP04-DJ-0001, Loss of Class 1E 125 VDC Power**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as TDAFWP 14 is disabled on a loss of Class 1E "D" Train DC, and this bus is on the same elevation as Class 1E "A" Train DC, and the buses are both powered from "A" train battery chargers.
- B: CORRECT: This is a Class 1E A train DC component. Without power, it will not open when required.
- C: INCORRECT: Plausible as the "R" train Reactor Trip and Bypass breaker Shunt feature is disabled and if the student confuses trains.
- D: INCORRECT: Plausible as this is CCP 1A, but the pump has a C train power supply. 4160V breaker operation is affected by the loss of Class 1E DC Control Power.

Question Level: H**Question Difficulty** 3**Justification:**

The student must assess the impact of a loss of 125 VDC Class 1E power on various ESF and safety-related systems at the facility.

Exam Bank No.: 2761

Last used on an NRC exam: Never

RO Sequence Number: 46

With Unit 1 at 100% power, the 250V DC Switchboard deenergizes.

If an automatic Main Generator Trip signal then occurs, _____(1)_____ will open and may be verified open by indications on _____(2)_____.

- A. (1) breakers Y510 and Y520
(2) CP-007 ONLY
- B. (1) breakers Y510 and Y520
(2) CP-007 and CP-010
- C. (1) the Main Generator output breaker
(2) CP-007 ONLY
- D. (1) the Main Generator output breaker
(2) CP-007 and CP-010

Answer: B (1) breakers Y510 and Y520 (2) CP-007 and CP-010

Exam Bank No.: 2761**Source:** New**Modified from****K/A Catalog Number:** 062 A4.01

AC Electrical Distribution: Ability to manually operate and/or monitor in the control room: All breakers (including available switchyard)

RO Importance: 3.3**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 505.01**Objective Number:** 92109

Given a plant condition, describe the applicable requirements and limits of a precaution or step of a referenced POP04.

Reference: 0POP04-DC-0001, Loss of 250VDC Bus, Basis page 3 of 10**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the correct breakers open, and if the student does not remember that although the breakers may be operated and indicate on CP-007, they also have indications on CP-010
- B: CORRECT: Without 250VDC power, the Main Generator Output Breaker has no control power and will not respond to automatic signals. Breakers Y510 and &520 will open automatically. The breaker status is indicated and may be operated on CP-007 and has indication only on CP-010.
- C: INCORRECT: Plausible if the student does not connect 250VDC power with breaker control and if they do not remember that although the breakers may be operated and indicate on CP-007, they also have indications on CP-010.
- D: INCORRECT: Plausible if the student does not connect 250VDC power with breaker control. These are the correct panels.

Question Level: F**Question Difficulty** 3**Justification:**

The student must know the impact of a loss of the 250V DC switchboard on breaker operations. They must also know where these breakers indicate in the main control room.

Exam Bank No.: 2760

Last used on an NRC exam: Never

RO Sequence Number: 47

With the unit at 100% power, Steam Pressure channel PT-514 fails low.

With this failure, Steam Generator 1A level will __(1)__. The operator will respond to this failure by taking manual control of the _____(2)_____ in accordance with OPOP04-FW-0001, Loss of Steam Generator Level Control.

- A. (1) rise
(2) Steam Generator 1A MFRV ONLY
- B. (1) rise
(2) Steam Generator 1A MFRV and the SGFP Master Speed Controller
- C. (1) lower
(2) Steam Generator 1A MFRV ONLY
- D. (1) lower
(2) Steam Generator 1A MFRV and the SGFP Master Speed Controller

Answer: D (1) lower (2) Steam Generator 1A MFRV and the SGFP Master Speed Controller

Exam Bank No.: 2760**Source:** New**Modified from****K/A Catalog Number:** 059 A2.12

Main Feedwater: Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of feedwater regulating valves

RO Importance: 3.1 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 202.15 **Objective Number:** 21005

Identify the level controller, the manual/auto station, all input signals to and all output signals from the SGWLCS. State how a change in each input signal will affect the position of the Main Feed Regulating Valves

Reference: LOT 202.15, SGWLCS, Slide 35**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student confuses the impact on SG level and does not recognize the impact on feed pump speed.
- B: INCORRECT: Plausible if the student confuses the impact on SG level and these are the correct actions that must be taken.
- C: INCORRECT: Plausible as SG 1A level will lower, and taking manual control of the SG 1A MFRV is required, and if the student does not recognize the impact on feed pump speed.
- D: CORRECT: With a failure of PT-514, which is a density compensation input to FT-512 (Main Steam Flow for SG 1A), steam flow will fail low, which will cause the SG 1A MFRV to go closed to reduce feed flow to match steam flow. Additionally, with 1A steam flow failed low, the total steam flow signal that sets the SGFP speed program will lower, causing the master speed controller to lower SGFP flow. The correct operator action in OPOP04-FW-0001 is to take manual control of the affected SG MFRV first and restore level, and then take manual control of the SGFP master speed controller to restore feed pump speed.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the given conditions and failure and determine the effect on steam generator level and the actions that must be taken in accordance with the referenced procedure.

Exam Bank No.: 2759

Last used on an NRC exam: Never

RO Sequence Number: 48

The Unit was in MODE 3 with RCS temperature at 550°F when all steam dumps failed open.

- The RCS cooled down over 100°F.

To stop the cooldown, the operators will place either Steam Dump Interlock Selector Switch to _____(1)_____.

The basis for the RCS cooldown limit is to prevent _____(2)_____ failure of the reactor vessel.

- A. (1) BYPASS INTERLOCK
(2) non-ductile
- B. (1) BYPASS INTERLOCK
(2) ductile
- C. (1) OFF/RESET
(2) non-ductile
- D. (1) OFF/RESET
(2) ductile

Answer: C (1) OFF/RESET (2) non-ductile

Exam Bank No.: 2759**Source:** New**Modified from****K/A Catalog Number:** 039 K5.05

Main and Reheat Steam System: Knowledge of the operational implications of the following concepts as they apply to the MRSS: Bases for RCS Cooldown Limits.

RO Importance: 2.7 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(2)**STP Lesson:** LOT 202.09 **Objective Number:** 81477

Describe the instrumentation and controls available to monitor and operate the Steam Dumps.

Reference: LOT 202.09, Slide 106, Technical Specification Bases 3/4/4.9**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as this is another position on the same switch that is used during cooldown. This is the correct reason for the basis of the RCS cooldown limits.
- B: INCORRECT: Plausible as this is another position on the same switch that is used during cooldown and also if the student confuses types of failures.
- C: CORRECT: Taking either switch to the OFF/RESET position will close all steam dumps as one safety grade solenoid will reposition, closing off air to the steam dump valves. The cooldown limits serve to prevent brittle fracture of the reactor vessel (non-ductile failure).
- D: INCORRECT: Plausible as this is the correct switch position and if the student confuses types of failures.

Question Level: F **Question Difficulty** 3**Justification:**

The student must be able to recall the operation of the steam dumps.

Exam Bank No.: 2757

Last used on an NRC exam: Never

RO Sequence Number: 49

With the unit in MODE 5, a loss of instrument air occurred.

- The crew enters OPOP04-IA-0001, Loss of Instrument Air.
- Instrument Air pressure is 98 psig and slowly lowering.
- The Unit Supervisor is performing Step 3, DISPATCH Operator to Verify all Available IA Compressors Running.

If necessary, the operator can start Instrument Air Compressor #14 from the ____ (1) ____.

IA-PV-8568, Instrument Air to Yard Isolation, is currently ____ (2) ____.

- A. (1) compressor ONLY
(2) open
- B. (1) compressor ONLY
(2) closed
- C. (1) compressor or Basement Operator Station
(2) open
- D. (1) compressor or Basement Operator Station
(2) closed

Answer: A (1) compressor ONLY (2) open

Exam Bank No.: 2757**Source:** Bank**Modified from****K/A Catalog Number:** APE065 AA1.04 Ability to operate and/or monitor the following as they apply to the Loss of Instrument Air: Emergency Air Compressor.**RO Importance:** 3.5 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(4)**STP Lesson:** LOT 202.26 **Objective Number:** 80556

Describe the instrumentation and controls available to operate and monitor the Instrument Air and Service Air system.

Reference: POP04-IA-0001 page 2, NLO200.15 handout page 1**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: IA #14 (emergency compressor) can only be operated/monitored at the compressor itself. The IA to yard valve auto closes at 90 psig, so it will still be open under these conditions.
- B: INCORRECT: Valve status is plausible because this would be correct if IA pressure was a few pounds lower.
- C: INCORRECT: Location is plausible because the other 3 compressors can be operated/monitored at both locations.
- D: INCORRECT: Location is plausible because the other 3 compressors can be operated/monitored at both locations. Valve status is plausible because this would be correct if IA pressure was a few pounds lower.

Question Level: F **Question Difficulty** 3**Justification:**

Student must have knowledge of system design and operation.

Exam Bank No.: 2800

Last used on an NRC exam: Never

RO Sequence Number: 50

The unit is in a refueling outage.

- The RCS is in a Reduced Inventory status.
- A single train of RHR is in service.

The running RHR pump trips and the crew enters OPOP04-RH-0001, Loss of Residual Heat Removal.

- The crew is not able to start any RHR pumps.

Regarding this event, complete the following statements:

For the current plant condition, containment closure __ (1) __ required.

For RCFC operations, _____ (2) _____ is the preferred cooling water source.

- A. (1) is
(2) CCW
- B. (1) is NOT
(2) CCW
- C. (1) is
(2) RCB Chilled Water
- D. (1) is NOT
(2) RCB Chilled Water

Answer: C (1) is (2) RCB Chilled Water

Exam Bank No.: 2800**Source:** New**Modified from****K/A Catalog Number:** 022 G2.4.9

Knowledge of low power/shutdown implications in accident (e.g. loss of coolant accident or loss of residual heat removal) mitigation strategies: Containment Cooling

RO Importance: 3.8**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 504.05**Objective Number:** 80483

Given a copy of a subsequent step or from memory an immediate action step from OPOP05-EO-EO00, STATE/IDENTIFY how the action is performed and the basis for the action to include the action itself, its purpose and result.

Reference: OPOP04-RH-0001, Step 4 and Addendum 3**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as containment closure is required and if the student believes that CCW is the source of cooling water, since it is safety related.
- B: INCORRECT: Plausible if the student does not understand that the procedure assumes that leakage may be occurring from the RCS and the safety related source of cooling water would be required.
- C: CORRECT: In reduced inventory in this condition, containment closure is required and RCFCs are lined up to chilled water.
- D: INCORRECT: Plausible if the student does not understand that the procedure assumes that leakage may be occurring from the RCS and this is the correct source of cooling water.

Question Level: H**Question Difficulty** 3**Justification:**

This question requires the student to apply a procedure to a given plant situation.

Exam Bank No.: 2752

Last used on an NRC exam: Never

RO Sequence Number: 51

A Design Basis LOCA has occurred inside containment. Complete the following statements regarding this event.

The operator could recognize an upward trend on containment water level by monitoring ____ (1) ____.

If containment water level is higher than expected, a reason could be a break in the CCW piping to the _____ (1) _____.

- A. (1) the indicator on CP-001
(2) RCPs
- B. (1) the indicator on CP-001
(2) RCFCs
- C. (1) the recorder on CP-018
(2) RCPs
- D. (1) the recorder on CP-018
(2) RCFCs

Answer: D (1) the recorder on CP-018 (2) RCFCs

Exam Bank No.: 2752**Source:** New**Modified from****K/A Catalog Number:** E15 G2.4.47

Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material: Containment Flooding

RO Importance: 4.2 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 504.41 **Objective Number:** 92138

State/Identify the conditions under which OPOP05-EO-FRZ2 is entered.

Reference: Westinghouse Background Document for FR-Z.2**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as CP-001 has RWST level and ECCS equipment including SI-MOV-0016 which is the isolation valve from the containment emergency sump and if the student does not understand that RCPs are isolated upon a Containment Isolation Phase B during a LOCA.
- B: INCORRECT: Plausible as CP-001 has RWST level and ECCS equipment including SI-MOV-0016 which is the isolation valve from the containment emergency sump. This is the correct source.
- C: INCORRECT: Plausible as this is the correct place to trend containment water level and if the student does not understand that RCPs are isolated upon a containment isolation Phase B during a LOCA.
- D: CORRECT: Containment water level may be trended on the recorder on CP-018. A possible source of additional flood water into containment is listed as the Component Cooling Water System. Since CCW to the RCPs isolates on a Phase B Containment Isolation, CCW to the RCFCs is the only possible source of the two listed .

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess containment conditions and decide upon a course of action. The student must recall the proper location to trend and then assess conditions inside containment and draw a conclusion about leakage source.

Exam Bank No.: 2751

Last used on an NRC exam: Never

RO Sequence Number: 52

Unit 1 has had a reactor trip, safety injection, and main steam line isolation.

- The crew is performing OPOP05-EO-FRH2, Response to Steam Generator Overpressure, for Steam Generator 1D.
- Due to equipment malfunctions, Steam Generator 1D PORV is NOT available.
 - The Main Steam Line Isolation signal has been reset.

To depressurize Steam Generator 1D, the crew will _____(1)_____.

In order to accomplish this, the crew must first _____(2)_____.

- A. (1) start TDAFWP 14 to depressurize the affected steam generator
(2) reset Safety Injection
- B. (1) start TDAFWP 14 to depressurize the affected steam generator
(2) momentarily place Train A and B MAIN STM ISOL switches to OPEN
- C. (1) use the Main Steam Isolation Bypass Valves to cross-connect steam generators
(2) reset Safety Injection
- D. (1) use the Main Steam Isolation Bypass Valves to cross-connect steam generators
(2) momentarily place Train A and B MAIN STM ISOL switches to OPEN

Answer: D (1) use the Main Steam Isolation Bypass Valves to cross-connect steam generators (2) momentarily place Train A and B MAIN STM ISOL switches to OPEN

Exam Bank No.: 2751**Source:** New**Modified from****K/A Catalog Number:** E13 EA1.1

Ability to operate and/or monitor the following as they apply to the Steam Generator Overpressure:
Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

RO Importance: 3.1 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 504.34 **Objective Number:** 83142

Given a step, note, or caution from 0POP05-EO-FRH2, state its basis.

Reference: 0POP05-EO-FRH2, Response to Steam Generator Overpressure, Step 4.0**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the correct method is stated here and SI needs to be reset to operate other key equipment for steam generator control on CP-006.
- B: INCORRECT: Plausible as TDAFWP 14 is used in this procedure to depressurize Steam Generator 1D in certain cases but not applicable here and if the user believes the safety grade switches are necessary to provide steam flow to TDAFWP 14.
- C: INCORRECT: Plausible as TDAFWP 14 is used in this procedure to depressurize Steam Generator 1D in certain cases but not applicable here. SI would need to be reset to use TDAFWP 14.
- D: CORRECT: If SG 1D PORV is not available, the MSIB is used to cross-connect the affected and unaffected steam generators. To use the MSIB, the RO must momentarily open the safety grade switches on CP-006.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the conditions then determine a correct course of action in FRH2.

Exam Bank No.: 2747

Last used on an NRC exam: Never

RO Sequence Number: 53

Following a reactor trip, no feedwater sources are available.

- The crew enters OPOP05-EO-FRH1, Response to Loss of Secondary Heat Sink.
- While establishing RCS Bleed and Feed, the following conditions are noted:
 - Two HHSI Pumps are running.
 - Maximum charging flow is established.
 - One Pressurizer PORV is open.
 - BOTH Reactor Vessel Head Vent paths are open.

For these conditions, the FEED path is ____ (1) ____ and the BLEED path is ____ (2) ____,

- A. (1) adequate
(2) NOT adequate
- B. (1) NOT adequate
(2) NOT adequate
- C. (1) adequate
(2) adequate
- D. (1) NOT adequate
(2) adequate

Answer: A (1) adequate (2) NOT adequate

Exam Bank No.: 2747**Source:** New**Modified from****K/A Catalog Number:** WE05 EK1.1

Knowledge of the operational implications of the following concepts as they apply to the Loss of Secondary Heat Sink: Components, capacity, and function of emergency systems.

RO Importance: 3.8 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 504.33 **Objective Number:** 83089

Describe the indications and anticipated readings used to determine that the Reactor Colant System bleed path is adequate.

Reference: OPOP05-EO-FRH1, step 14**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: The RCS feed path is deemed adequate with two or more HHSI pumps are injecting into the RCS and maximum charging flow is established. However, a bleed path is only adequate when both pressurizer PORVs are open. As a RNO, both Reactor Vessel Head vent paths are opened to help, but does not constitute an adequate vent path.
- B: INCORRECT: Plausible if the student thinks the feed path is inadequate since only two of the three HHSI pumps are injecting. The bleed path is inadequate.
- C: INCORRECT: Plausible if the student believes that two head vent paths take the place of one PORV path. The feed path is adequate.
- D: INCORRECT: Plausible if the student thinks the feed path is inadequate since only two of the three HHSI pumps are injecting and thinks that two head vent pants take the place of one PORV path.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the conditions and equipment available and determine their adequacy.

Exam Bank No.: 2746

Last used on an NRC exam: Never

RO Sequence Number: 54

A Large Break LOCA occurred.

- The crew could NOT establish cold leg recirculation and has entered OPOP05-EO-EC11, Loss of Emergency Coolant Recirculation.
- Containment pressure is 8.5 psig and lowering.
- RWST level is 75,500 gallons.

Based on these conditions, to complete Step 5, MONITOR Containment Spray Requirements (Suction From RWST), the crew needs to stop...

- A. three Containment Spray Pumps NOW.
- B. two Containment Spray Pumps NOW.
- C. one Containment Spray Pump NOW.
- D. zero Containment Spray Pumps NOW.

Answer: B two Containment Spray Pumps NOW.

Exam Bank No.: 2746**Source:** New**Modified from****K/A Catalog Number:** WE11 EK2.1

Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

RO Importance: 3.6 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 504.27 **Objective Number:** 82524

Describe the readings and indicators which confirm that a Safety Injection or Containment Spray pump should be stopped.

Reference: OPOP05-EO-EC11, Loss of Emergency Coolant Recirculation, Step 5**Attached Reference** **Attachment:** OPOP05-EO-EC11, Loss of Emergency Coolant Recirculation, Step 5**NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: One containment spray pump has already been stopped per the CIP of OPOP05-EO-EO00.
- B: CORRECT: There are two containment spray pumps running at this point in the EOPs and both must be stopped due to the current RWST level, containment pressure and 6 RCFCs in service.
- C: INCORRECT: Plausible as running 1 CS pump is an output of the table on step 5.
- D: INCORRECT: Plausible as below 32,500 gallons, all ECCS and CS pumps must be secured and if the student believes that CS pump operation is necessary at the present time.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess plant conditions and make a determination of proper CS pump configuration for those conditions.

Exam Bank No.: 2742

Last used on an NRC exam: Never

RO Sequence Number: 55

The unit is at 40% power.

- Because of issues with with the Main Generator Voltage Regulator, it has been placed in OFF and adjustments are being made with the Base Voltage Adjustor.
- Due to a grid disturbance, grid voltage is steadily dropping.
- The following annunciators alarm:
 - 07M1-C-4 GEN MAX EXCT
 - 07M1-D-4 GEN MAX EXCT TIMING
 - 07M1-E-4 GEN VOLT REG FIELD FORCING

With these conditions, the crew will...

- A. trip the turbine.
- B. trip the reactor.
- C. perform a rapid load reduction.
- D. place all 4.16KV ESF Buses on their respective Emergency Diesel Generators.

Answer: A trip the turbine

Exam Bank No.: 2742**Source:** New**Modified from****K/A Catalog Number:** APE 77 AA2.08

Ability to determine and interpret the following as they apply to Generator Voltage and Electric Grid Disturbances: Criteria to trip the turbine or reactor.

RO Importance: 4.3**Tier:** 1**Group/Category:** 1**10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 505.01**Objective Number:** 92109

Given a plant condition, DESCRIBE and/or INTERPRET the requirements and/or limits of a precaution or step of a referenced procedure.

Reference: 0POP04-AN-07M1, C4, D4, and E4.**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: With the Voltage Regulator in OFF and a grid disturbance causing max excitation with these alarms, a turbine trip is required.
- B: INCORRECT: Plausible if the student decides a reactor trip is warranted even though the plant is below P-9.
- C: INCORRECT: Plausible if the student believes the conservative action is to take the plant off line as quickly as possible.
- D: INCORRECT: Plausible since the grid voltage would affect the ability to properly power up these buses, but not a required action here.

Question Level: H**Question Difficulty** 4**Justification:**

The student must assess the conditions given and then using plant references decide to trip the turbine.

Exam Bank No.: 2741

Last used on an NRC exam: Never

RO Sequence Number: 56

The unit is at 100% power.

- The ECW pond has begun to accumulate debris which is effecting ECW system pressure and flow rate.
- The crew enters OPOP04-EW-0001, Loss of Essential Cooling Water.

Answer the following questions about this event:

A normal ECW temperature on the outlet of the CCW Heat Exchanger is approximately __ (1) __ °F.

If the ECW temperature determined above rises to an upper procedural limit, the crew will take actions that will cause _____ (2) _____.

- A. (1) 90
(2) RCB temperature to rise
- B. (1) 90
(2) pressurizer level to rise
- C. (1) 110
(2) RCB temperature to rise
- D. (1) 110
(2) pressurizer level to rise

Answer: B (1) 90 (2) pressurizer level to rise

Exam Bank No.: 2741**Source:** New**Modified from****K/A Catalog Number:** APE 62 AA2.04

Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: The normal values and upper limits for the temperatures of the components cooled by SWS.

RO Importance: 2.5**Tier:** 1**Group/Category:** 1**10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 505.01**Objective Number:** 92109

Given a plant condition, DESCRIBE and/or INTERPRET the requirements and/or limits of a precaution or step of a referenced procedure.

Reference: OPOP04-EW-0001, Step 6.0**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as this is the correct ECW temperature and if the student believes that RCFCs are normally cooled by CCW and would be secured to reduce heat load on ECW/CCW.
- B: CORRECT: ECW temperature at the CCW HX outlet is approximately 90 degrees F. At the upper procedural limit of 110 degrees F, the crew is required to isolate letdown and minimize charging to lower heat load on the CCW/ECW systems. With letdown secured, seal injection is still supplied which will slowly cause pressurizer level to rise.
- C: INCORRECT: Plausible as this is the procedural limit prior to actions being taken and if the student believes that RCFCs are normally cooled by CCW and would be secured to reduce heat load on ECW/CCW.
- D: INCORRECT: Plausible as this is the procedural limit prior to actions being taken. Pressurizer level would rise.

Question Level: H**Question Difficulty** 3**Justification:**

The student must assess plant conditions, and determine what actions must be taken to control ECW temperature.

Exam Bank No.: 2738

Last used on an NRC exam: Never

RO Sequence Number: 57

Both units are at 100% power.

- High winds in the area of the site were felt for several hours but did not cause any interruption of electric power.
- While responding, Centerpoint Energy crews inadvertently caused a loss of all offsite power and reactor trip.
- ALL ESF Diesel Generators tripped and locked out upon start.

Based on this information, Technical Specification LCO 3.8.1, Offsite Sources, is _____(1)_____ and the crew would _____(2)_____.

- A. (1) NOT met
(2) immediately enter 0POP05-EO-EC00, Loss of All AC Power
- B. (1) NOT met
(2) enter 0POP05-EO-EC00, after completing the immediate actions (steps 1-4) of 0POP05-EO-EO00, Reactor Trip or Safety Injection
- C. (1) met ONLY when the Emergency Transformer is aligned to each unit
(2) immediately enter 0POP05-EO-EC00, Loss of All AC Power
- D. (1) met ONLY when the Emergency Transformer is aligned to each unit
(2) enter 0POP05-EO-EC00, after completing the immediate actions (steps 1-4) of 0POP05-EO-EO00, Reactor Trip or Safety Injection

Answer: A (1) NOT met (2) immediately enter 0POP05-EO-EC00, Loss of all AC Power

Exam Bank No.: 2738**Source:** New**Modified from**

K/A Catalog Number: EPE 55 G2.2.36 Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operation: Station Blackout

RO Importance: 3.1 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(10)

STP Lesson: LOT 503.01 **Objective Number:** 92102

Given the topic or title of a specification included in the Technical Specifications, or the Technical Requirements Manual, DESCRIBE the general requirements of the specification to include components or administrative requirements affected, limitations, major time frames involved, major surveillances in order to comply, and the bases for the specification.

Reference: 0PSP03-EA-0002, Addendum 2, 0POP05-EO-EO00, Reactor Trip or Safety Injection, 0POP05-EO-EC00, Loss of all AC Power, 0POP01-ZA-0018, EOP Users Guide

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: CORRECT: With no offsite power available, the emergency transformer can not be used to satisfy TS requirements, therefore TS 3.8.1 is not met. If EDG power is not available, then the crew will immediately transition to 0POP05-EO-EC00, Loss of all AC Power per the requirements of 0POP01-ZA-0018 Emergency Operation Procedures Users Guide
- B: INCORRECT: Plausible as TS LCO 3.8.1 is not met and if the student believes that 0POP05-EO-EC00, Loss of all AC Power, is not direct entry but must be entered after the immediate actions are complete.
- C: INCORRECT: Plausible if the student believes that any power available from the emergency transformer to ESF buses would satisfy TS requirements. An immediate transition to 0POP05-EO-EC00, Loss of all AC Power, is made.
- D: INCORRECT: Plausible if the student believes that any power available from the emergency transformer to ESF buses would satisfy TS requirements and also if the student believes that 0POP05-EO-EC00, Loss of all AC Power, is not direct entry but must be entered after the immediate actions are complete.

Question Level: H **Question Difficulty** 3

Justification:

The student must assess switchyard conditions and make a determination if the TS LCO 3.8.1, Offsite Sources, is met.

Exam Bank No.: 2737

Last used on an NRC exam: Never

RO Sequence Number: 58

The unit is at 100% power. The controlling Pressurizer Pressure channel is PT-0457.

- PT-0457 fails high.
- The primary reactor operator performs the immediate actions of OPOP04-RP-0001, Loss of Automatic Pressurizer Pressure Control.
- Pressurizer pressure drops to 2140 psig and begins to recover.

Which of the following alarms are consistent with the given conditions?

- A. 4M08-F-6, PRZR HTRS TRIP
- B. 4M08-F-8, PRZR PRESS LO PORV BLKD
- C. 5M04-A-6 PRZR PRESS LO FIRST OUT
- D. 5M23-D-5, PRZR PRESS SI BLOCKED, TRAIN R

Answer: B 4M08-F-8, PRZR PRESS LO PORV BLKD

Exam Bank No.: 2737**Source:** New**Modified from****K/A Catalog Number:** APE 27 G2.4.46 Ability to verify that the alarms are consistent with the plant conditions.
Pressurizer Pressure Control Malfunction**RO Importance:** 4.2 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 505.01 **Objective Number:** 38635

Given an abnormal operating event, PREDICT the symptoms expected to occur in accordance with the appropriate off-normal operating procedure.

Reference: OPOP04-RP-0001, Symptoms and Entry Conditions, 5M04-A-6 Annunciator Response**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student believes this failure would cause pressurizer pressure to rise and heater input would no longer be necessary.
- B: CORRECT: PT-457 is the controlling channel in a normal plant lineup. With a high failure, PORV PCV-055A will open until actual pressurizer pressure drops below 2185 psig, at which time the PORV interlock channel PT-458 will automatically close the PORV. The operator will deselect the failed channel, thus closing the spray valves as an immediate action. This alarm comes when Pressurizer Pressure transmitter PT-458 drops below 2185 psig.
- C: INCORRECT: Plausible because if immediate actions are not taken, both spray valves would remain open and the reactor would trip on low pressurizer pressure.
- D: INCORRECT: Plausible because if the pressure drop continues unabated, pressurizer pressure would drop below 1985 psig, where the Low Pressurizer Pressure SI can be blocked.

Question Level: H **Question Difficulty** 3**Justification:**

The student must analyze plant conditions and operator actions and draw a conclusion about alarms that would sound after the event.

Exam Bank No.: 2736

Last used on an NRC exam: Never

RO Sequence Number: 59

Unit 1 has lost offsite power.

- Shortly thereafter, a large break LOCA occurred.

Regarding long term event response, if ___(1)___ Emergency Diesel Generator(s) trip(s), the crew will be unable to establish ___(2)___ recirculation.

- A. (1) 1
(2) cold leg
- B. (1) 1
(2) hot leg
- C. (1) 2
(2) cold leg
- D. (1) 2
(2) hot leg

Answer: D (1) 2 (2) hot leg

Exam Bank No.: 2736**Source:** New**Modified from****K/A Catalog Number:** EPE 11 EK3.09

Knowledge of the reasons for the following as they apply to the Large Break LOCA: Maintaining D/Gs available to provide standby power.

RO Importance: 4.2**Tier:** 1**Group/Category:** 1**10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 504.11**Objective Number:** 92256

State why Hot Leg Recirculation and Cold Leg Recirculation are simulataneously in service.

Reference: LOT 504.11, Transfer to Hot Leg Recirculation, Powerpoint Presentation slide 13**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student believes that all 3 trains are required to provide balanced water removal from the containment floor and balanced injection is required during cold leg recirculation.
- B: INCORRECT: Plausible if the student believes that in addition to 1 train aligned to a cold leg during hot leg recirculation, 2 trains must be aligned to the hot legs.
- C: INCORRECT: Plausible if the student belives that cold leg recirculation requires 2 trains of ECCS equipment like hot leg recirculation.
- D: CORRECT: Following the trip of 2 EDGs, only one train of ECCS equipment is available. For hot leg recirculation, one train must remain aligned to the cold leg in case the break is on a hot leg, thus the user is directed to consult the TSC on the inability to establish hot leg recirculation

Question Level: H**Question Difficulty** 3**Justification:**

Operator must be able to assess the conditions and apply the conditions to establishing hot leg recirculation following a Large Break LOCA.

Exam Bank No.: 2568

Last used on an NRC exam: Never

RO Sequence Number: 60

The preferred emergency boration suction source in 0POP05-EO-FRS1, Response to Nuclear Power Generation ATWS, is the (1).

AND

According to 0POP05-EO-FRS1, the reason for using this suction source is to (2).

- A. (1) Boric Acid Tanks
(2) limit RCS inventory concerns
- B. (1) Boric Acid Tanks
(2) ensure less time is required to achieve adequate shutdown margin
- C. (1) Refueling Water Storage Tank
(2) limit RCS inventory concerns
- D. (1) Refueling Water Storage Tank
(2) ensure less time is required to achieve adequate shutdown margin

Answer: A (1) Boric Acid Tanks
(2) limit RCS inventory concerns

Exam Bank No.: 2568**Source:** New**Modified from****K/A Catalog Number:** EPE 029 EK1.03 Knowledge of the operational implications of the following concepts as they apply to the ATWS: Effects of boron on reactivity.**RO Importance:** 3.6 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(6)**STP Lesson:** LOT 504.28 **Objective Number:** 83555

Given a step, note, or caution from OPOP05-EO-FRS1, state its basis.

Reference: LOT 504.28 Powerpoint Presentation, slide 20**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: The boron concentration in the Boric Acid Tanks is much greater than in the RWST. If the boration is from a lower concentration source it will take more volume to insert the same amount of negative reactivity. You could end up water solid in the Pressurizer.
- B: INCORRECT: Plausible as this is the correct suction source and if the student does not realize the large size of the RWST compared with the amount of water that would be required for an emergency boration.
- C: INCORRECT: Plausible with confusion over tank size and purpose and this is the correct basis.
- D: INCORRECT: Plausible with confusion over suction sources and if the student does not realize the large size of the RWST compared with the amount of water that would be required for an emergency boration.

Question Level: F**Question Difficulty** 3**Justification:**

Student must have fundamental knowledge of emergency boration during ATWS condition.

Exam Bank No.: 2524

Last used on an NRC exam: Never

RO Sequence Number: 61

The crew is performing OPOP05-EO-ES03, Natural Circulation Cooldown With Steam Void In Vessel.

Step 5.0, MONITOR RVWL Plenum Indication, is being performed. The following is observed:

- RVWL Plenum level is 66%.
- RCS pressure is 1100 psig.
- RCS Hot Leg temperature is 500°F.
- PZR level is 70%.

Per OPOP05-EO-ES03, The Unit Supervisor should direct the Reactor Operator to...

- A. raise RCS pressure.
- B. lower charging flow.
- C. place HHSI Pumps in PTL.
- D. isolate Safety Injection Accumulators.

Answer: A raise RCS pressure.

Exam Bank No.: 2524**Source:** Bank**Modified from****K/A Catalog Number:** E09 EA2.2Natural Circulation Operations:
Adherence to appropriate procedures and operation within
the limitations in the facility's license and amendments.**RO Importance:** 3.4 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 504.26 **Objective Number:** 92142

STATE the reasons for the difference between cooldown rates as specified in OPOP05-EO-ES02 and OPOP05-EO-ES03.

Reference: LOT 504.26 Powerpoint Presentation; OPOP05-EO-ES03, Step 5**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: With RVWL level lower than 85% natural circulation flow is at risk of being disrupted to the point of stopping. Raising RCS pressure would help raise Plenum level.
- B: INCORRECT: Plausible because PZR level is also controlled during OPOP05-EO-ES03 to help control plenum level but it is controlled between 22% and 90%. Lowering charging flow would lower PZR level.
- C: INCORRECT: Plausible because placing HHSI Pumps in PTL is one of the next steps in the procedure but with Plenum level less than 85% and RCS pressure greater than 1000 psig this step would not be performed yet.
- D: INCORRECT: Plausible because isolating SI Accumulators is one of the next steps in the procedure but with Plenum level less than 85% and RCS pressure greater than 1000 psig this step would not be performed yet.

Question Level: H **Question Difficulty** 4**Justification:**

The student must be able to analyze the given conditions and have knowledge of OPOP05-EO-ES03.

Exam Bank No.: 2798

Last used on an NRC exam: Never

RO Sequence Number: 62

Given the following:

- 0POP05-EO-ES12, Post LOCA Cooldown and Depressurization is in progress
- Natural circulation cooldown is in progress.
- Pressurizer level is 12% and slowly rising.
- Pressurizer pressure is 445 psig and stable.
- Core Exit Thermocouples (CETs) are 400°F and lowering.

The Primary RO has been directed to maintain RCS subcooling between 35°F and 45°F. Which of the following describes the action the Primary RO should take?

- A. Use Auxiliary Spray to lower RCS pressure.
- B. Use Normal Pressurizer Spray to lower RCS pressure.
- C. Start an additional HHSI Pump to raise RCS pressure.
- D. Energize additional Pressurizer Heaters to raise RCS pressure.

Answer: A Use Auxiliary Spray to lower RCS pressure.

Exam Bank No.: 2798**Source:** Modified**Modified from** 2309**K/A Catalog Number:** EPE E03 EK2.2

Knowledge of the interrelations between the (LOCA Cooldown and Depressurization) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

RO Importance: 3.7 **Tier:** 1 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 504.12 **Objective Number:** 92172

Given a step from POP05-EO-ES12 , STATE/IDENTIFY how the action is performed and the basis for the action to include the action itself, its purpose and the result.

Reference: POP05-EO-ES12, Step 17h**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: Based of the given conditions, the procedure instructs use of the Aux Spray valve to lower RCS subcooling.
- B: INCORRECT: Plausible as this would lower pressure but RCPs are not in service and spray flow is not available.
- C: INCORRECT: Plausible (and in accordance with procedure) if the applicant determined subcooling must be raised.
- D: INCORRECT: Plausible if pressure needed to be raised, however Pressurizer level is too low for heater operation.

Question Level: H **Question Difficulty** 3**Justification:**

The applicant must first determine actual subcooling, then compare the results to the given band, and then determine the correct action to get back in the band.

Exam Bank No.: 2107

Last used on an NRC exam: Never

RO Sequence Number: 63

Due to a LOCA inside the FHB, the crew manually tripped the reactor and initiated Safety Injection.

- 0POP05-EO-EC12, LOCA Outside Containment is in progress.
- RWST level is 150,000 gallons and dropping slowly.
- The crew has reset SI and ESF Load Sequencers from the control room panels.

Complete the following regarding these circumstances:

(1) SI AUTO RECIRC has _____(1)_____.

(2) Resetting SI AUTO RECIRC will _____(2)_____.

- A. (1) NOT occurred
(2) allow the ECCS pumps to be manually stopped
- B. (1) NOT occurred
(2) ensure the Emergency Sump Outlet Valves will remain closed
- C. (1) occurred
(2) allow the ECCS pumps to be manually stopped
- D. (1) occurred
(2) ensure the Emergency Sump Outlet Valves to remain closed

Answer: B (1) NOT occurred (2) ensure the Emergency Sump Outlet Valves will remain closed.

Exam Bank No.: 2107**Source:** New**Modified from**

K/A Catalog Number: EPE W/E04 EK2.1 Knowledge of the interrelations between the (LOCA Outside Containment) and the following: Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

RO Importance: 3.5 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)

STP Lesson: LOT 201.10 **Objective Number:** 29419

GIVEN a plant condition, PREDICT the operation of the ECCS to include automatic actuations, interlocks and/or trips.

Reference: OPOP05-EO-EC12; LOT 504.46, Powerpoint slide 18

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible as SI AUTO RECIRC has not occurred, and if the student confuses resetting SI, which does allow the manual stopping of ECCS pumps, with resetting SI AUTO RECIRC.
- B: CORRECT: SI AUTO RECIRC has not occurred since RWST level has not reached 75,000 gallons. This action is taken since establishing suction to containment with a LOCA outside containment would result in losing suction to the ECCS pumps.
- C: INCORRECT: Plausible since there is a RWST LO LEVEL alarm illuminated by this point and if the operator confuses resetting SI, which does allow the manual stopping of ECCS pumps, with resetting SI AUTO RECIRC.
- D: INCORRECT: Plausible since there is a RWST LO LEVEL alarm illuminated by this point and this is the correct reason for resetting SI AUTO RECIRC.

Question Level: H **Question Difficulty** 3

Justification:

Student must know the control features of the ECCS and be able to use them to predict their effect when used under the given plant conditions.

Exam Bank No.: 28

Last used on an NRC exam: 2015

RO Sequence Number: 64

A plant operator is directed to locally open the 1A SG PORV for temperature control using OPOP04-VA-0001, Loss of 120VAC Class Vital Distribution.

- A caution directs the plant operator to NOT open the SG PORV more than 50%.

The reason for this caution is to...

- A. limit the amount of positive reactivity due to cooldown.
- B. ensure the ability to reclose the 1A SG PORV following opening.
- C. minimize the mass loss out of the 1A SG with limited AFW capability.
- D. prevent excessive cooldown with limited RCS instrumentation available.

Answer: B Ensure the ability to reclose the 1A SG PORV following opening.

Exam Bank No.: 28**Source:** Bank**Modified from**

K/A Catalog Number: APE 057 AK3.01 Knowledge of the reasons for the following responses as they apply to the Loss of Vital AC Instrument Bus:
Actions contained in EOP for loss of vital AC electrical instrument bus

RO Importance: 4.1 **Tier:** 1 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(5)

STP Lesson: LOT 505.01 **Objective Number:** 92109

Given a plant condition, describe and/or interpret the requirements and/or limits of a precaution or step of a referenced abnormal operating procedure.

Reference: OPOP04-VA-0001, Addendum 4, Addendum 9, Note before Step 1

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible because this is a legitimate concern for a SG PORV that is open too far without the ability to be reclosed.
- B: CORRECT: This is the correct basis for the SG PORV stroke limit. There is only sufficient stored energy in the SG PORV accumulators for only one and one half full strokes of the valve. The caution limits the stroke of the SG PORV to ensure that the valve can be closed.
- C: INCORRECT: Plausible as automatic control of the AFW regulating valve will be lost, but manual control is still available.
- D: INCORRECT: Plausible as some RCS instrumentation will be de-energized, but not to the extent that monitoring capabilities will be jeopardized.

Question Level: F **Question Difficulty** 2

Justification:

The candidate must analyze the given plant conditions and determine the correct basis for the procedure precaution associated with the SG PORV valve stroke limit upon a loss of power. What complicates this test item is the plausibility of the distractors which are closely linked to the given conditions in the question stem.

Exam Bank No.: 2758

Last used on an NRC exam: Never

RO Sequence Number: 65

With the unit at 100% power, a Large Break LOCA occurs.

- RCS pressure rapidly equalizes with containment pressure.

Complete the following statements regarding these conditions:

The Containment Spray pumps started on a(an) _____(1)_____ signa\

When the _____(2)_____ alarm sounds the Containment Spray pumps will have suction aligned to the containment emergency sump.

- A. (1) HI-2
(2) RWST LO LEVEL
- B. (1) HI-2
(2) RWST LO-LO LEVEL
- C. (1) ESF Load Sequencer MODE I
(2) RWST LO LEVEL
- D. (1) ESF Load Sequencer MODE I
(2) RWST LO-LO LEVEL

Answer: D (1) ESF Load Sequencer MODE 1 (2) RWST LO-LO LEVEL

Exam Bank No.: 2758**Source:** New**Modified from****K/A Catalog Number:** 026 K4.08

Knowledge of CSS design features and/or interlocks which provide for the following: Automatic swapper to containment sump suction for recirculation phase after LOCA (RWST low-low level alarm).

RO Importance: 4.1 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.11 **Objective Number:** 02777

List the automatic actions/interlocks associated with the Containment Spray System Components and/or Controls.

Reference: LOT 201.11, Containment Spray, Powerpoint Presentation, slides 33 and 36**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student confuses the HI-2 signal with the HI-3 signal which is required before the sequencer starts the pump, and if the student confuses alarms.
- B: INCORRECT: Plausible if the student confuses the HI-2 signal with the HI-3 signal which is required before the sequencer starts the pump. This is the correct alarm.
- C: INCORRECT: Plausible as the pumps will start on a MODE 1 signal, and if the student confuses alarms.
- D: CORRECT: With a large break LOCA, an SI will occur and the MODE 1 sequencer will run. The CS pump will get a start signal with an SI if containment pressure exceeds 9.5 psig. When the RWST LO-LO LEVEL alarm sounds, the RWST will be at 75000 gallons and the suction valve from the containment emergency sump will automatically align.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the conditions and determine system response based on the interlocks and features.

Exam Bank No.: 2763

Last used on an NRC exam: Never

RO Sequence Number: 66

The screen shown below may be viewed in the _____(1)_____. The current color shown indicates that monitor RT-8038 _____(2)_____.

- A. (1) control room and TSC
(2) has an operate failure
- B. (1) control room ONLY
(2) has an operate failure
- C. (1) control room AND TSC
(2) has a communications failure
- D. (1) control room ONLY
(2) has a communications failure

Answer: A (1) control room and TSC (2) has an operate failure

Exam Bank No.: 2763**Source:** New**Modified from****K/A Catalog Number:** 073 A4.02

Process Radiation Monitoring: Ability to manually operate and/or monitor in the control room:

Radiation monitoring system control panel,

RO Importance: 3.7 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(11)**STP Lesson:** LOT 202.41 **Objective Number:** 92938

Summarize the Process and Effluent Radiation Monitor information available on RM-11 and RM-23 displays.

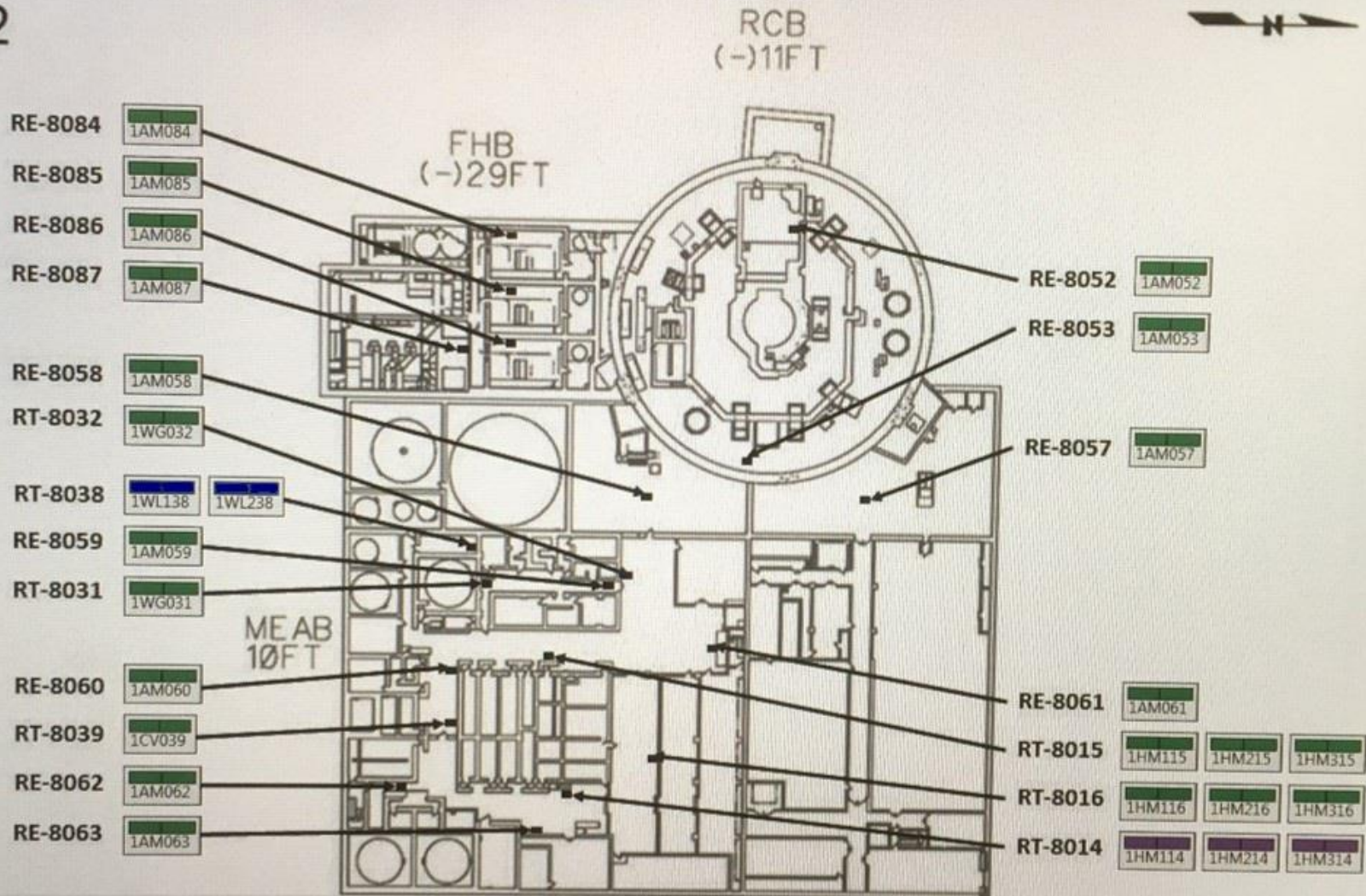
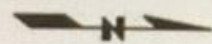
Reference: LOT 202.41, Radiation Monitoring System, Powerpoint Presentation, slides 66-70**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: RM-11s are in the Control Room, TSC, and HP Office. Dark blue indicates an operate failure.
- B: INCORRECT: RM-11s are in the Control Room, TSC, and HP Office. Dark blue indicates an operate failure.
- C: INCORRECT: RM-11s are in the Control Room, TSC, and HP Office. Plausible if the student confuses colors and locations.
- D: INCORRECT: RM-11s are in the Control Room, TSC, and HP Office. Plausible if the student confuses colors and locations.

Question Level: F **Question Difficulty** 3**Justification:**

The student must recall colors associated with radiation monitor conditions and the radiation monitor function by number.

GRID 2



Selected Channel (Loop: 1 Address: 12 Chnl: 2)
 Chan ID: 1AM092 Activity: 3.34E-02 mR/HR
 Type: AREA - Area Monitor Tag #: RT-8093
 Desc: RE8092 TGB29 COND POLISH

Checksource

Alarms

- Operate (ALM) High (HI)
- Equipment (EF) Alert (ALR)

Horn Ack
 Ack All Alarms

System Health

Driver:	Ready	06/20 08:49:29
Server 1:	Ready	06/20 08:49:29
Server 2:	Active	06/20 08:49:29

Exam Bank No.: 2755

Last used on an NRC exam: Never

RO Sequence Number: 67

In order to use CVCS Auxiliary Spray, the RO must _____(1)_____.

Auxiliary Spray is used _____(2)_____.

- A. (1) start an additional charging pump
(2) to assist Normal Pressurizer Spray
- B. (1) start an additional charging pump
(2) when Reactor Coolant Pumps are not running
- C. (1) close both the Normal and Alternate Charging Loop MOVs
(2) to assist Normal Pressurizer Spray
- D. (1) close both the Normal and Alternate Charging Loop MOVs
(2) when Reactor Coolant Pumps are not running

Answer: D (1) close both the Normal and Alternate Charging Loop MOVs (2) when Reactor Coolant Pumps are not running

Exam Bank No.: 2755**Source:** New**Modified from****K/A Catalog Number:** 010 K1.06

Knowledge of the physical connections and/or cause-effect relationships between the PZR PCS and the following systems: CVCS

RO Importance: 2.9**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.06**Objective Number:** 48241

Describe the CVCS system flowpaths to include: 1. Letdown 2. Charging (Normal, Alternate, and Auxiliary Spray) 3. Seal Injection 4. Seal Water Return 5. Excess Letdown 6. Interfaces with other

Reference: LOT 201.14 Pressurizer Pressure/Level Control, Powerpoint Presentatipon, slide 52, LOT 201.06, Chemical Volume Control System, Powerpoint Presentation, Slide 18

Attached Reference **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student believes that since the normal spray valves are capable of 525 gpm, and the charging pump can only provide 200 gpm flow, then starting an additional charging pump would be effective.
- B: INCORRECT: Plausible if the student believes that since the normal spray valves are capable of 525 gpm, and the charging pump can only provide 200 gpm flow, then starting an additional charging pump would be effective. Auxiliary spray is used when RCPs are not running.
- C: INCORRECT: Plausible as closing off charging to the RCS loops is required and if the student believes there is a need to augment normal spray if RCPS are not running, for instance.
- D: CORRECT: In order to utilize Auxiliary Spray, the RO must close off charging to the RCS loops in order to force charging flow up the auxiliary spray line. When RCPs are not running, normal spray is not available.

Question Level: F**Question Difficulty** 2**Justification:**

The student must know the auxiliary spray flowpath and the cause and that they are used when RCPs are not running.

Exam Bank No.: 2764

Last used on an NRC exam: Never

RO Sequence Number: 68

Unit 1 is at 15% power and preparing to raise turbine load at 10%/hr.

During this load ascension, CL-ACW temperature will _____(1)_____.

CL-ACW heat loads will be controlled by _____(2)_____
changing position automatically.

- A. (1) remain the same
(2) the CLACW individual component outlet valves
- B. (1) remain the same
(2) the OLACW outlet valve for the SW/FW Heat Exchanger
- C. (1) rise
(2) the CLACW individual component outlet valves
- D. (1) rise
(2) the OLACW outlet valve for the SW/FW Heat Exchanger

CLACW – Closed Loop Auxiliary Cooling Water

OLACW – Open Loop Auxiliary Cooling Water

Answer: C (1) rise (2) the CLACW individual component outlet valves

Exam Bank No.: 2764**Source:** New**Modified from****K/A Catalog Number:** 076 A1.02

Service Water: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SWS controls including;

Reactor and turbine building closed cooling water temperatures.

RO Importance: 2.6 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 202.24 **Objective Number:** 23903

Given a plant or system condition, PREDICT the operation of the Closed Loop ACW System.

Reference: LOT 202.24, Closed Loop Auxiliary Cooling Water, Powerpoint Presentation, Slide 35**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student believes that the SW/FW HX outlet valve is a TCV or if other CLACW system loads are removed from service as power changes.
- B: INCORRECT: Plausible if the student believes that the SW/FW HX outlet valve is a TCV or if other CLACW system loads are removed from service as power changes.
- C: CORRECT: As turbine load rises, seal oil, exciter, isophase bus, EHC, and stator winding temperatures will all rise placing more heat load on the system. The system has individual TCVs on these coolers that automatically position to allow more flow to the components.
- D: INCORRECT: Plausible as temperatures do rise, but not the correct method of temperature control. A common heat exchanger alignment is to throttle the discharge valve of the cooling medium to control system temperature.

Question Level: H **Question Difficulty** 2**Justification:**

The student must understand system response when systems condition change and then understand the method of controlling system temperatures.

Exam Bank No.: 2765

Last used on an NRC exam: Never

RO Sequence Number: 69

What is the power supply for the Containment Spray Pump 1C Discharge Valve?

- A. 480V MCC E1A2
- B. 480V MCC E1C2
- C. 125VDC Bus E1A11
- D. 125VDC Bus E1C11

Answer: B 480V MCC E1C2

Exam Bank No.: 2765**Source:** New**Modified from****K/A Catalog Number:** 026 K2.02

Containment Spray: Knowledge of bus power supplies to the following:

MOVs

RO Importance: 2.7 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 201.11 **Objective Number:** 10283

State the power supply for the Containment Spray Pumps discharge valves.

Reference: LOT 201.11, Containment Spray, Powerpoint Presentation, Slide 31**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as other safety related system components use cross train power supplies such as CCP 1A which is powered from "C" Train power.
- B: CORRECT: The power supply is a "C" Train 480V MCC.
- C: INCORRECT: Plausible as DC power can be used for MOVs in safety related systems, such as AFW MOV-0143, and cross-train power supplies are used in different systems.
- D: INCORRECT: Plausible as DC power can be used for MOVs in safety related systems, such as AFW MOV-0143.

Question Level: F **Question Difficulty** 3**Justification:**

The student must recall the CS pump discharge valve power supply.

Exam Bank No.: 2778

Last used on an NRC exam: Never

RO Sequence Number: 70

The crew is performing a surveillance test on nightshift.

- While performing the surveillance, a piece of test equipment malfunctions at 0200.
- When replacement equipment becomes available at 0900, the dayshift crew is scheduled to complete the surveillance.

Per OPGP03-ZE-0004, Plant Surveillance Program, the crew _____ the surveillance at 0200.

- A. failed
- B. terminated
- C. suspended
- D. indefinitely suspended

Answer: C suspended

Exam Bank No.: 2778**Source:** Bank**Modified from** L50701-92186-145**K/A Catalog Number:** G2.2.12

Knowledge of surveillance procedures

RO Importance: 3.7**Tier:** 3**Group/Category:****10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 507.01**Objective Number:** 92186

Given the title of an administrative procedure, discuss the requirements associated with the referenced procedure.

Reference: OPGP03-ZE-0004, Section 6.4 and Addendum 2**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as this is another definition in the procedure used when an unexpected condition occurs during a surveillance.
- B: INCORRECT: Plausible as this is another definition in the procedure used when an unexpected condition occurs during a surveillance.
- C: CORRECT: A surveillance may be suspended if it can be reasonably concluded that test equipment is malfunctioning.
- D: INCORRECT: Plausible as this is another definition in the procedure used when an unexpected condition occurs during a surveillance.

Question Level: F**Question Difficulty** 2**Justification:**

The student assess the conditions given and apply the requirements of the procedure to those conditions.

Exam Bank No.: 2734

Last used on an NRC exam: Never

RO Sequence Number: 71

The unit is at 100% power with the main turbine in IMP OUT.

- A single Group 1 Steam Dump fails OPEN.

With this failure, RCS Tave will ____ (1) ____ and the crew will isolate the Steam Dump using guidance from ____ (2) ____.

- A. (1) stay the same
(2) OPOP03-ZG-0008, Power Operations
- B. (1) stay the same
(2) OPOP04-MS-0001, Excessive Steam Demand
- C. (1) lower
(2) OPOP03-ZG-0008, Power Operations
- D. (1) lower
(2) OPOP04-MS-0001, Excessive Steam Demand

Answer: D (1) lower (2) OPOP04-MS-0001

Exam Bank No.: 2734**Source:** New**Modified from****K/A Catalog Number:** 045 A2.08

Ability to (a) predict the impacts of the following malfunctions or operations on the MT/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Steam dumps are not cycling properly at low load, or stick open at higher load (isolate and use atmospheric reliefs when necessary)

RO Importance: 2.8 **Tier:** 2 **Group/Category:** 2 **10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 202.09 **Objective Number:** 93002

Given plant conditions, DETERMINE their effects on the Steam Dump System

Reference: OPOP04-MS-0001, Excessive Steam Demand, step 2.0**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student misunderstands IMP IN vs. IMP OUT. It is also plausible that the student could select OPOP03-ZG-0008, Power Operations, as it is in effect at 100% power, and contains operational guidance for lowering power.
- B: INCORRECT: Plausible if the student misunderstand IMP IN vs. IMP OUT. OPOP04-MS-0001, Excessive Steam Demand is the correct procedure for this failure.
- C: INCORRECT: Plausible because with a steam dump unexpectedly stuck open, steam demand has risen and Tave will lower. It is plausible that the student could select OPOP03-ZG-0008, Power Operations, as it is in effect at 100% power, and contains operational guidance for lowering power.
- D: CORRECT: With a steam dump unexpectedly stuck open, steam demand has risen and Tave will lower. The crew will enter OPOP04-MS-0001, Excessive Steam Demand, and reduce power and then isolate the steam dump per Step 2.0.

Question Level: H **Question Difficulty** 3**Justification:**

The student must analyze the given conditions and determine the effect on steam dumps. Following this, the student must select a procedure to manage the failure.

Exam Bank No.: 2586

Last used on an NRC exam: 2016

RO Sequence Number: 72

The Reactor Operator can monitor Instrument and Service Air header pressures on ___(1)___ and the normal operating pressure is approximately ___(2)___ .

- A. (1) CP-008
(2) 110 psig
- B. (1) CP-002
(2) 110 psig
- C. (1) CP-008
(2) 125 psig
- D. (1) CP-002
(2) 125 psig

Answer: C (1) CP-008 - (2) 125 psig

Exam Bank No.: 2586**Source:** Bank**Modified from****K/A Catalog Number:** 078 G2.1.31

Instrument Air:
Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.

RO Importance: 4.6 **Tier:** 2 **Group/Category:** 1 **10CFR Reference:** 55.41(b)(7)**STP Lesson:** LOT 202.26 **Objective Number:** 80556

Describe the instrumentation and controls available to monitor and operate the Instrument Air and Service Air systems.

Reference: OPOP04-IA-0001, Page 2**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible because 110 psig is above the pressure for parts of IA/SA to start isolating. Incorrect because at this pressure all of the IA/SA Compressors would be running and loaded.
- B: INCORRECT: Plausible because IA OCIV is operated on CP-002 and this is the only control for IA/SA on the control panels. Incorrect because the IA/SA header pressure indication is on CP-008. Plausible because 110 psig is above the pressure for parts of IA/SA to start isolating. Incorrect because at this pressure all of the IA/SA Compressors would be running and loaded.
- C: CORRECT: IA Header and SA Header Indications can be found on CP-008 and the normal operating pressure for both is about 120 to 125 psig.
- D: INCORRECT: Plausible because IA OCIV is operated on CP-002 and this is the only control for IA/SA on the control panels. Incorrect because the IA/SA header pressure indication is on CP-008.

Question Level: F **Question Difficulty** 2**Justification:**

The student must have fundamental knowledge of location of control room indication and IA/SA System pressures.

Exam Bank No.: 2507

Last used on an NRC exam: Never

RO Sequence Number: 73

Normal makeup to the CCW Surge Tank is from ___(1)___ and is made up ___(2)___.

- A. (1) Demineralized Water (2) manually
- B. (1) Demineralized Water (2) automatically
- C. (1) Reactor Makeup Water (2) manually
- D. (1) Reactor Makeup Water (2) automatically

Answer: B (1) Demineralized Water (2) automatically

Exam Bank No.: 2507**Source:** Bank**Modified from****K/A Catalog Number:** 008 K1.05

Knowledge of the physical connections and/or cause effect relationships between the CCWS and the following systems: Sources of makeup water.

RO Importance: 3.0**Tier:** 2**Group/Category:** 1**10CFR Reference:** 55.41(b)(8)**STP Lesson:** LOT 201.12**Objective Number:** 30421

LIST all the systems that interface with the Component Cooling Water System and STATE the function of each interface.

Reference: LOT 201.12 Powerpoint Presentation, slide 39**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible because Reactor Makeup Water is the backup source which must be manually opened.
- B: CORRECT: Demineralized Water is the normal source which opens automatically.
- C: INCORRECT: Plausible because Reactor Makeup Water is the backup source which must be manually opened.
- D: INCORRECT: Plausible because Reactor Makeup Water is the backup source which must be manually opened.

Question Level: F**Question Difficulty** 2**Justification:**

The student must have fundamental knowledge of the makeup sources of water for the CCW System.

Exam Bank No.: 2415

Last used on an NRC exam: 2015

RO Sequence Number: 74

Per OPGP03-ZA-0010, Performing and Verifying Station Activities, for continual use operational procedures, verifying the revision is current “prior to use” means...

- A. each shift.
- B. every 7 days.
- C. every 14 days
- D. when notified by Document Control.

Answer: A each shift

Exam Bank No.: 2415**Source:** Bank**Modified from****K/A Catalog Number:** G2.1.21

Ability to verify the controlled procedure copy.

RO Importance: 3.5**Tier:** 3**Group/Category:** 1**10CFR Reference:** 55.41(b)(10)**STP Lesson:** LOT 507.01**Objective Number:** 92186

GIVEN the title of an administrative procedure, DISCUSS the requirements associated with the referenced procedure.

Reference: 0PGP03-ZA-0010, Performing and Verifying Station Activities**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: 0PGP03-ZA-0010, Performing and Verifying Station Activities directs continual use procedures must be verified each shift.
- B: INCORRECT: Plausible based on common sense and normal frequency of evolutions conducted at power plants.
- C: INCORRECT: Plausible based on common sense and normal frequency of evolutions conducted at power plants.
- D: INCORRECT: Plausible based on common sense and normal frequency of evolutions conducted at power plants.

Question Level: F**Question Difficulty** 2**Justification:**

Must have general knowledge of 0PGP03-ZA-0010.

Exam Bank No.: 2380

Last used on an NRC exam: 2015

RO Sequence Number: 75

Centrifugal Charging Pump 1A is powered from Class 1E 4.16KV ____ (1) ____, and
Centrifugal Charging Pump 1B is powered from Class 1E 4.16KV ____ (2) ____.

- A. (1) E1A
(2) E1B
- B. (1) E1A
(2) E1C
- C. (1) E1C
(2) E1B
- D. (1) E1C
(2) E1A

Answer: D (1) E1C (2) E1A

Exam Bank No.: 2380

Source: Bank

Modified from

K/A Catalog Number: 011 K2.01

Knowledge of bus power supplies to the following:
Charging pumps

RO Importance: 3.1

Tier: 2

Group/Category: 2

10CFR Reference: 55.41(b)(7)

STP Lesson: LOT 201.36

Objective Number: 92396

LIST the major loads associated with the ESF Electrical System.

Reference: LOT 201.36, Class 1E 4.16 KV and 480 Volt Electrical, and LOT201.06, Chemical and Volume Control System

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible with confusion about nomenclature and power supplies.
- B: INCORRECT: Plausible with confusion about nomenclature and power supplies.
- C: INCORRECT: Plausible with confusion about nomenclature and power supplies.
- D: CORRECT: CCP 1A is powered from E1C and CCP 1B is powered from E1A

Question Level: F

Question Difficulty 2

Justification:

The student is required to have knowledge of power supplies for CCPs.

Exam Bank No.: 2792

Last used on an NRC exam: Never

SRO Sequence Number: 76

The unit was at 100% power when a reactor trip and safety injection occurred.

- RCS pressure is 1765 psig and slowly rising.
- Core Exit TCs are 555°F and stable.
- Pressurizer level is 48% and rising.
- Containment pressure is 8 psig.
- SG NR levels are A – 35%, B – 35%, C – 0%, D – 36%.
- Total AFW flow is 400 gpm.

0POP05-EO-EO00, Reactor Trip or Safety Injection, AND 0POP05-EO-EO20, Faulted Steam Generator Isolation, have BOTH been completed.

The crew is currently performing Step 15 of 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant.

Based on this information, the Unit Supervisor will direct a transition to...

- A. 0POP05-EO-ES11, SI Termination.
- B. 0POP05-EO-ES12, Post LOCA Cooldown and Depressurization.
- C. 0POP05-EO-FRH5, Response to Steam Generator Low Level.
- D. 0POP05-EO-FRZ1, Response to High Containment Pressure.

Answer: A 0POP05-EO-ES11, SI Termination

Exam Bank No.: 2792**Source:** New**Modified From****K/A Catalog Number:** EPE 009 EA2.34 Ability to determine or interpret the following as they apply to a small break LOCA: Conditions for throttling or stopping HPI.**SRO Importance:** 4.2 **Tier:** 1 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Knowledge of diagnostic steps and decision points in the emergency operating procedures (EOPs) that involve transitions to event-specific sub-procedures or emergency contingency procedures.

STP Lesson: LOT 504.09 **Objective Number:** 81187

Discuss the indications available to determine plant status during a loss of primary or secondary coolant.

Reference: OPOP05-EO-EO00, Step 15**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: With the given conditions, SI may be terminated per Step 15 of EO10.
- B: INCORRECT: Plausible as this is the procedural flowpath in EO10 for most small break LOCAs.
- C: INCORRECT: Plausible as "C" SG NR level is at 0%, but this is a low priority, and the other SGs have adequate level for a heat sink.
- D: INCORRECT: Plausible as containment pressure is elevated above normal, and if the student confuses the adverse containment setpoint of 5 psig with the entry condition of 9.5 psig for FRZ1.

Question Level: H **Question Difficulty** 3**Justification:**

The student must be able to analyze the given conditions to determine the correct procedure to enter.

Exam Bank No.: 790

Last used on an NRC exam: 2017

SRO Sequence Number: 77

A Field Change (FC) is being written against a Plant Operating Procedure that does NOT require review by the Plant Operations Review Committee (PORC).

In accordance with OPAP01-ZA-0102, Plant Procedures, when is the FC considered “Effective?”

As soon as it is approved by the...

- A. Plant Manager
- B. Cognizant Manager
- C. Technical Reviewer
- D. Senior Reactor Operator

Answer: D Senior Reactor Operator

Exam Bank No.: 790**Source:** Bank**Modified From****K/A Catalog Number:** G2.2.6

Knowledge of the process for making changes to procedures.

SRO Importance: 3.6 **Tier:** 3 **Group/Category:****10CFR Reference or SRO Objective:** 55.43(b)(3)**SRO Justification:**

Unique to the SRO position

STP Lesson: LOT 507.01**Objective Number:** 92183

Given the title of an administrative procedure, IDENTIFY the individuals (by job title) with specific responsibilities in the procedure.

Reference: 0PAP01-ZA-0102, Section 21**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible because if the procedure was required to be reviewed by PORC then the final signature would come from the Plant Manager.
- B: INCORRECT: Plausible because the cognizant manager must give concurrence to the FC preparer and sign Form 7. This is done before it is sent for approval.
- C: INCORRECT: Plausible because the Technical Reviewer is required to sign the FC but the FC is not effective until signed by the SRO.
- D: CORRECT: The SRO approves the field change and this is when it is effective.

Question Level: F **Question Difficulty** 2**Justification:**

Student must have fundamental knowledge of the plant procedure for field changes.

Exam Bank No.: 2180

Last used on an NRC exam: 2013

SRO Sequence Number: 78

Given the following:

- A Waste Monitor Tank release needs to be performed.
- RT-8038, LWPS Monitor #1, was declared inoperable 3 days ago.

In accordance with 0PSP07-WL-LDP2, Liquid Effluent Permit with RT-8038 Inoperable:

The _____(1)_____ approves the discharge.

The additional ODCM actions for this release are _____(2)_____.

- A. (1) Shift Manager
(2) continuous surveys of the discharge piping during release
- B. (1) Shift Manager
(2) at least two independent samples of the monitor tanks are analyzed prior to the release
- C. (1) Radiation Protection Manager
(2) continuous surveys of the discharge piping during release
- D. (1) Radiation Protection Manager
(2) at least two independent samples of the monitor tanks are analyzed prior to the release

Answer: B (1) Shift Manager (2) at least two independent samples of the monitor tank are analyzed prior to the release

Exam Bank No.: 2180 **Source:** Bank **Modified From**

K/A Catalog Number: G2.3.6 Ability to approve release permits.

SRO Importance: 3.8 **Tier:** 3 **Group/Category:**

10CFR Reference or SRO Objective: 55.43(b)(2)

SRO Justification:

Unique to the SRO position.

STP Lesson: LOT 503.03 **Objective Number:** 92103

Given the topic or title of a requirement in the ODCM, describe the general requirements to include components or administrative requirements affected, limitations, and the major time frames involved in order to comply and the basis for the requirement.

Reference: 0PSP07-WL-LDP2 step 5.23, ODCM Table 3.3-12

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible because continuous surveys could give an indication of a release of excess activity, however it does not match the requirements.
- B: CORRECT: Approval and requirements correct per the given references.
- C: INCORRECT: Plausible because Radiation Protection is involved with radioactive releases, but they are not the approval authority for a discharge. Although continuous surveys could give an indication of a release of excess activity, it does not match the requirements.
- D: INCORRECT: Plausible because Radiation Protection is involved with radioactive releases, but they are not the approval authority for a discharge.

Question Level: F **Question Difficulty** 2

Justification:

The SRO applicant must have a knowledge of release and ODCM requirements

Exam Bank No.: 2743

Last used on an NRC exam: Never

SRO Sequence Number: 79

The unit was at 100% power when a Large Break LOCA occurred.

- Due to high CET temperatures, the crew entered 0POP05-EO-FRC1, Response to Inadequate Core Cooling.
- Containment H2 Concentration reads ↓LO % on QDPS.

With these conditions, per 0POP05-EO-FRC1, the Unit Supervisor will...

- A. consult the TSC staff for additional recovery actions.
- B. direct the RO to perform Addendum 2, Establishing Containment H2 Monitoring.
- C. direct the RO to place Hydrogen Recombiners in service per 0POP02-CG-0001, Electric Hydrogen Recombiners.
- D. direct Chemistry to determine Containment H2 concentration using 0PCP08-AP-0003, Post-Accident Sampling of Liquids and RCB Atmosphere at PASS.

Answer: B direct the RO to perform Addendum 2, Establishing Containment H2 Monitoring.

Exam Bank No.: 2743**Source:** New**Modified From****K/A Catalog Number:** EPE 74 G2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual:
Inadequate Core Cooling**SRO Importance:** 4.0 **Tier:** 1 **Group/Category:** 2**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Knowledge of when to implement attachments and appendices, including how to coordinate these items with procedure steps.

STP Lesson: LOT 504.30 **Objective Number:** 82891

Given a step, note, or caution from 0POP05-EO-FRC1, STATE its basis.

Reference: 0POP05-EO-FRC1, Response to Inadequate Core Cooling, Step 8 and Addendum**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as consulting the TSC staff is required if Containment H2 Concentration is above 4.0%, and if the student believes that the monitor reading is unusual and would warrant TSC assistance.
- B: CORRECT: With high CET temperatures, a RED Path and an alarm on the ICS computer would direct the crew to 0POP05-EO-FRC1. With the reading given, the Hydrogen Monitors have not yet been placed in service. The correct direction is to perform Addendum 2,
- C: INCORRECT: Plausible as this is a required action between 0.5% and 4.0% Containment H2 Concentration and if the student believes that a conservative action would be to place the system in service prior to reaching these values.
- D: INCORRECT: Plausible as the reading given could lead the student to believe the system is inoperable. PASS can be used to draw containment gas samples.

Question Level: H **Question Difficulty** 3**Justification:**

The student is required to assess plant conditions and choose an appropriate course of action in an emergency operating procedure.

Exam Bank No.: 2744

Last used on an NRC exam: Never

SRO Sequence Number: 80

In accordance with the STPNOC Operating License as listed in the UFSAR, for a main steam line break, the feedwater isolation signal from _____(1)_____ is required in order to prevent _____(2)_____.

- A. (1) P-14
(2) a steam generator tube rupture
- B. (1) P-14
(2) overpressurizing containment
- C. (1) Safety Injection
(2) a steam generator tube rupture
- D. (1) Safety Injection
(2) overpressurizing containment

Answer: D (1) Safety Injection (2) overpressurizing containment

Exam Bank No.: 2744**Source:** New**Modified From****K/A Catalog Number:** 059 G2.2.38 Knowledge of conditions and limitations in the facility license: Main Feedwater**SRO Importance:** 4.5 **Tier:** 2 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(1)**SRO Justification:**

Conditions and limitations in the facility license. The UFSAR is part of the licensing basis of the STPEGS.

STP Lesson: LOT 201.21 **Objective Number:** 91256

State the types of automatic containment isolations, the reasons for each, and what causes each actuation.

Reference: USFAR, Page 7.3-17**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as this is a valid feedwater isolation signal and swell in the SGs does occur shortly after a main steam line break, and if the student believes that after a main steam line break, additional feedwater on uncovered steam generator u-tubes could cause a tube rupture.
- B: INCORRECT: Plausible as this is a valid feedwater isolation signal and swell in the SGs does occur shortly after a main steam line break. This is the correct reason.
- C: INCORRECT: Plausible as this is the correct signal and if the student believes that after a main steam line break, additional feedwater on uncovered steam generator u-tubes could cause a tube rupture.
- D: CORRECT: According to the UFSAR, the feedwater isolation signal from SI is required to protect the containment from overpressurization.

Question Level: F **Question Difficulty** 3**Justification:**

The student is required to recall knowledge from the UFSAR that describes the operation and reason for the Feedwater Isolation Valve automatic closure signal.

Exam Bank No.: 2803

Last used on an NRC exam: Never

SRO Sequence Number: 81

The unit is operating at 25% power when the following indications are noted:

- RCP 1C Number 1 Seal DP is 225 psid.
- RCP 1C Number 1 Seal Leakoff Flow is pegged HIGH.

Based on this information, complete the following:

The Unit Supervisor will direct the crew to _____(1)_____.

The basis for this action is to _____(2)_____.

- A. (1) raise CCW flow to the Letdown Heat Exchanger
(2) prevent damage to pump components
- B. (1) raise CCW flow to the Letdown Heat Exchanger
(2) allow the RCP 1C Number 3 Seal to function properly as a backup
- C. (1) isolate RCP 1C seal leakoff flow after stopping RCP 1C
(2) prevent damage to pump components
- D. (1) isolate RCP 1C seal leakoff flow after stopping RCP 1C
(2) allow the RCP 1C Number 3 Seal to function properly as a backup

Answer: C (1) isolate RCP 1C seal leakoff flow between 3 to 5 minutes after stopping RCP 1C (2) prevent damage to pump components

Exam Bank No.: 2803**Source:** New**Modified From****K/A Catalog Number:** APE15 G2.4.6 Knowledge of EOP Mitigation Strategies: Reactor Coolant Pump Malfunctions**SRO Importance:** 4.7 **Tier:** 1 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

This question requires knowledge of a specific mitigative strategy within an AOP and its basis.

STP Lesson: LOT 505.01 **Objective Number:** 92110

Given a precaution, note, or step and the context in which it is used from the referenced procedure, describe its basis and any applicable limits.

Reference: 0POP04-RC-0002, Reactor Coolant Pump Off-Normal, Step 1, Basis p. 4 and p. 9**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Raising CCW flow at panel 4 would cool letdown and subsequently seal injection flow. Cooler seal injection would change seal geometry and could reduce seal leakoff, but not the case here.
- B: INCORRECT: Raising CCW flow at panel 4 would cool letdown and subsequently seal injection flow. Cooler seal injection would change seal geometry and could reduce seal leakoff, but not the case here.
- C: CORRECT: With seal leakoff flow pegged high the crew is required to trip the reactor, trip the RCP, and isolate seal leakoff between 3 to 5 minutes of stopping the RCP. 3 minutes allows the RCP to fully stop because a static condition helps the Number 2 seal act as a backup as it limits debris. 5 minutes is for general pump protection.
- D: INCORRECT: This is the correct action and if the student confuses the Number 2 and Number 3 seals.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess conditions and implement the abnormal condition procedure correctly including selection of the appropriate procedural path and addendum.

Exam Bank No.: 2175

Last used on an NRC exam: 2013

SRO Sequence Number: 82

Unit 1 is in MODE 4 with a plant heat up in progress.

- Train 'B' RHR is in service.
- RCS Temperature is 245°F.

Subsequently, one of the suction isolation valves to 'B' Train RHR closes AND cannot be reopened.

Complete the following statements regarding this event.

The Train 'B' RHR _____(1)_____.

IF another RHR pump cannot be started, then the Unit Supervisor will FIRST _____(2)_____.

- A. (1) pump trips on low flow
(2) establish a secondary heat sink per step 28.0
- B. (1) miniflow valve automatically opens
(2) establish a secondary heat sink per step 28.0
- C. (1) pump trips on low flow
(2) perform Addendum 3, Containment Closure and Non-Essential Personnel Evacuation
- D. (1) miniflow valve automatically opens
(2) perform Addendum 3, Containment Closure and Non-Essential Personnel Evacuation

Answer: C (1) pump trips on low flow
(2) perform Addendum 3, Containment Closure and Non-Essential Personnel Evacuation

Exam Bank No.: 2175**Source:** Bank**Modified From****K/A Catalog Number:** 005 A2.04

Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS and (b) based on those predictions use procedures to correct, control or mitigate those malfunctions or operations: RHR valve malfunction

SRO Importance: 2.9 **Tier:** 2 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations, and then selection of a procedure or section of a procedure to mitigate or recover, or with which to proceed.

STP Lesson: LOT 201.09 **Objective Number:** 4245

Given a plant or system condition, predict the operation to the Residual Heat Removal System.

Reference: OPOP04-RH-0001, Step 4.0, Addendum 3, and Step 28**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible since pump will trip on low flow and establishing a secondary heat sink is plausible as RCS temperature is 245F and this is done after Addendum 3.
- B: INCORRECT: Plausible because most recirc valves will automatically maintain minimum flow for the pump, however the RHR pump recircs have no auto function and establishing a secondary heat sink is plausible as RCS temperature is 245F and this is done after Addendum 3.
- C: CORRECT: RHR Pump will trip on low flow and following the procedural flowpath will come to Addendum 3 first at step 4.
- D: INCORRECT: Plausible because most recirc valves will automatically maintain minimum flow for the pump, however the RHR pump recircs have no auto function. This is the correct Addendum to implement.

Question Level: H **Question Difficulty** 3**Justification:**

The Reactor Operator must evaluate the given conditions to determine the effects of the malfunction and the actions to take.

Exam Bank No.: 2464

Last used on an NRC exam: 2016

SRO Sequence Number: 83

A fire breaks out behind CP-005 causing a loss of control function in Unit 1 Control Room.

The Unit 1 Unit Supervisor's priority would be to use (1) to respond.

AND

Using this procedure the Unit 1 Unit Supervisor will (2).

- A. (1) 0POP04-ZO-0008, Fire/Explosion
(2) notify Unit 2 to announce the Unit 1 Control Room Evacuation
- B. (1) 0POP04-ZO-0008, Fire/Explosion
(2) direct the Unit 1 Secondary RO to announce the Control Room Evacuation
- C. (1) 0POP04-ZO-0001, Control Room Evacuation
(2) notify Unit 2 to announce the Unit 1 Control Room Evacuation
- D. (1) 0POP04-ZO-0001, Control Room Evacuation
(2) direct the Unit 1 Secondary RO to announce the Control Room Evacuation

Answer: D (1) 0POP04-ZO-0001, Control Room Evacuation
(2) direct the Unit 1 Secondary RO to announce the Control Room Evacuation

Exam Bank No.: 2464**Source:** Bank**Modified From****K/A Catalog Number:** G2.1.14

Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.

SRO Importance: 3.1 **Tier:** 3 **Group/Category:****10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

STP Lesson: LOT 505.01 **Objective Number:** 92106

GIVEN plant conditions/symptoms, EVALUATE the conditions/symptoms and STATE whether or not the referenced procedure is to be used.

Reference: 0POP04-ZO-0001, Step 1. 0POP01-ZA-0018, step 7.1.3**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible because 0POP04-ZO-0008 is entered by the unaffected unit per 0POP04-ZO-0001, step 15.
- B: INCORRECT: Plausible because 0POP04-ZO-0008 is entered by the unaffected unit per 0POP04-ZO-0001, step 15. Also, in this case, 0POP04-ZO-0001 has the Unit Supervisor direct the Unit 1 secondary RO to announce the Control Room evacuation NOT the fire.
- C: INCORRECT: Plausible because for a fire where the control room is evacuated the unaffected Unit does NOT make an announcement of the evacuation but they do make the announcement of the fire/explosion because they would implement 0POP04-ZO-0008 per 0POP04-ZO-0001, step 15.
- D: CORRECT: For a fire that requires a control room evacuation the affected Unit's Secondary RO will announce the control room evacuation. The affected Unit's Unit Supervisor will contact the unaffected Unit to enter 0POP04-ZO-0008. 0POP01-ZA-0018, EOP Users Guide, states that if the control room is evacuated then 0POP04-ZO-0001 SHALL take precedence over all EOPs and 0POP04-ZO-0008. Also, for a fire in the control room that has caused unexpected equipment actuation then the Unit Supervisor is required to enter 0POP04-ZO-0001 first.

Question Level: F **Question Difficulty** 2**Justification:**

The student must have fundamental knowledge of who makes announcements during a Fire/Explosion and Control Room Evacuation.

Exam Bank No.: 2730

Last used on an NRC exam: Never

SRO Sequence Number: 84

The crew is monitoring Critical Safety Functions and all are green except for Containment. The Containment conditions are as follows:

- Containment water level is 58 inches.
- Containment radiation level is 2150 R/hr.

Based on the given conditions, the Containment Critical Safety Function status would be indicating _____(1)_____.

AND

The Unit Supervisor would use _____(2)_____ to address it.

- A. (1) yellow
(2) 0POP05-EO-FRZ2, Response to Containment Flooding
- B. (1) yellow
(2) 0POP05-EO-FRZ3, Response to High Containment Radiation Level
- C. (1) orange
(2) 0POP05-EO-FRZ2, Response to Containment Flooding
- D. (1) orange
(2) 0POP05-EO-FRZ3, Response to High Containment Radiation Level

Answer: B (1) yellow
(2) 0POP05-EO-FRZ3, Response to High Containment Radiation Level

Exam Bank No.: 2730**Source:** Bank**Modified From****K/A Catalog Number:** W/E16 EA2.2

Ability to determine and interpret the following as they apply to the High Containment Radiation: Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

SRO Importance: 3.3 **Tier:** 1 **Group/Category:** 2**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Knowledge of when to enter a yellow path procedure.

STP Lesson: LOT 504.42 **Objective Number:** 92271

STATE/IDENTIFY the condition(s) under which 0POP05-EO-FRZ3 is entered.

Reference: 0POP05-EO-FO05 Rev 4 page 2**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: This is the correct color indication for the CSF. However it would be yellow due to containment radiation levels. Therefore, the correct procedure to enter is 0POP05-EO-FRZ3, Response to High Containment Radiation Level.
- B: CORRECT: With these conditions, Containment would be yellow and the correct procedure is 0POP05-EO-FRZ3, Response to High Containment Radiation Level.
- C: INCORRECT: This would be the correct answer if the containment water level was above 69 inches.
- D: INCORRECT: This is the correct procedure. However the CSF for Containment would be yellow and not orange.

Question Level: H **Question Difficulty** 3**Justification:**

Student must analyze given conditions and know the correct CSF status to pick the correct procedure to enter.

Exam Bank No.: 2732

Last used on an NRC exam: Never

SRO Sequence Number: 85

The 1200 Control Room logs are being taken with the unit at 100% power. The following Pressurizer Level readings were recorded from QDPS per 0PSP03-ZQ-0028, Operator Logs:

- LT465: 55.5%
- LT466: 55.4%
- LT467: 51.1%
- LT468: 50.0%

Per Technical Specifications, the Unit Supervisor will...

- A. place LT468 in the BYPASS condition within 72 hours.
- B. place LT468 in the TRIPPED condition within 72 hours.
- C. take action to shutdown the Unit within 1 hour and be in HOT STANDBY within the next 6 hours.
- D. restore at least one inoperable channel to operable within 24 hours or be in HOT STANDBY within the next 6 hours.

Answer: B place LT468 in TRIPPED condition within 72 hours.

Exam Bank No.: 2732**Source:** New**Modified From****K/A Catalog Number:** APE 028 G2.2.37 Ability to determine operability and/or availability of safety related equipment: Pressurizer Level Control Malfunction**SRO Importance:** 4.6 **Tier:** 1 **Group/Category:** 2**10CFR Reference or SRO Objective:** 55.43(b)(2)**SRO Justification:**

Application of required actions (TS Section 3) and SRs (TS Section 4) in accordance with rules of application requirements (TS Section 1).

STP Lesson: LOT 201.14 **Objective Number:** 92779

GIVEN plant conditions, DETERMINE their effects on the Pressurizer pressure and level control systems.

Reference: TS 3.3.1 Item 12 Action 6 and 0PSP03-ZQ-0028 Logsheet 1**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible because there is a bypass capability and the crew is allowed per TS to place the channel in the BYPASS position. However, the channel must be placed in TRIPPED position within 72 hours.
- B: CORRECT: With the given Pressurizer level readings, Channel LT-468 would be inoperable as it does not meet the 5% channel check. TS 3.3.1 Item 12 Action 6 should be applied and the channel shall be placed in the TRIPPED condition within 72 hours.
- C: INCORRECT: Plausible because this would be the correct action for the crew to take if 2 channels were declared inoperable. However, the student must recognize with the given condition only one channel is outside of channel check. Also plausible the student could think that 1% is the channel check since other items in the same logsheet (i.e. OPDT setpoint) have a 1% channel check.
- D: INCORRECT: Plausible because the TS action described is an action taken in the same table of TSs. Incorrect because the action describes one for the Reactor Trip Breakers.

Question Level: H **Question Difficulty** 3**Justification:**

The student must analyze the given Pressurizer level conditions and determine the correct LCO and action to apply.

Exam Bank No.: 2769**Last used on an NRC exam:** Never**SRO Sequence Number:** 86

According to the basis for Technical Specification 2.1, Safety Limits, complete the following statements:

- (1) _____ (1) _____ are the barriers to radioactive release protected by compliance with Technical Specification 2.1.
- (2) _____ (2) _____ is a reactor trip designed to allow the plant to comply with Technical Specification 2.1.
- A. (1) RCS and Containment
(2) Overtemperature ΔT
- B. (1) RCS and Containment
(2) Pressurizer High Level
- C. (1) Fuel Cladding and RCS
(2) Overtemperature ΔT
- D. (1) Fuel Cladding and RCS
(2) Pressurizer High Level

Answer: C (1) Fuel Cladding and RCS (2) Overtemperature Delta T

Exam Bank No.: 2769**Source:** New**Modified From****K/A Catalog Number:** G2.2.25

Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.

SRO Importance: 4.2 **Tier:** 3 **Group/Category:****10CFR Reference or SRO Objective:** 55.43(b)(2)**SRO Justification:**

Knowledge of TS bases that are required to analyze TS required actions and terminology.

STP Lesson: LOT 503.01**Objective Number:** 92102

Describe the general requirements of the Technical Specifications or the Technical Requirements Manual (TRM) to include components or administrative requirements affected, limitations, major time frames involved, major surveillances in order to comply, and the bases for the specification/requirement.

Reference: TS Section 2.0, Bases**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as the RCS is one of the barriers protected and the containment is covered elsewhere in TS. This is the correct trip signal.
- B: INCORRECT: Plausible as the RCS is one of the barriers protected and the containment is covered elsewhere in TS and also if the student believes that high pressurizer water level could prevent an overpressure of the RCS due to a solid plant.
- C: CORRECT: This TS protects the clad by establishing limits on power and temperature. DNB and Bulk Boiling are avoided by operating within the limits. The RCS barrier is also protected by establishing a high RCS pressure limit. Overtemperature DeltaT provides protection against DNB and plays a prominent role in protecting the clad.
- D: INCORRECT: Plausible as these are the correct barriers and if the student believes that high pressurizer water level could prevent an overpressure of the RCS due to a solid plant.

Question Level: F **Question Difficulty** 3**Justification:**

The student must recall the basis for TS 2.0.

Exam Bank No.: 2771

Last used on an NRC exam: Never

SRO Sequence Number: 87

The Unit has just entered MODE 5 and is cooling down for a refueling outage.

- RHR Trains “A” and “B” are OPERABLE.
- RHR Train “A” is in OPERATION.
- Pressurizer PORV PCV-0655A is declared inoperable.

Following maintenance, PORV PCV-0655A needs to be tested for operability.

Complete the following regarding these circumstances.

1. During operability testing, Technical Specification 3.4.9.3, Overpressure Protection Systems, will be MET by Pressurizer PORV PCV-0656A AND _____(1)_____.
 2. The RHR discharge relief valve capacity is based on providing sufficient capacity to relieve _____(2)_____.
- A. (1) RHR Trains “A” AND “B” discharge relief valves
(2) maximum charging flow with a loss of letdown
- B. (1) RHR Trains “A” AND “B” discharge relief valves
(2) the flow resulting from an inadvertent Safety Injection signal
- C. (1) the RHR Train “A” discharge relief valve ONLY
(2) maximum charging flow with a loss of letdown
- D. (1) the RHR Train “A” discharge relief valve ONLY
(2) the flow resulting from an inadvertent Safety Injection signal

Answer: C (1) the RHR Train "A" discharge relief valve ONLY (2) maximum charging flow with a loss of letdown

Exam Bank No.: 2771**Source:** New**Modified From****K/A Catalog Number:** APE025 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**SRO Importance:** 3.4 **Tier:** 1 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(2)**SRO Justification:**

This question involves application of required actions and knowledge of TS bases.

STP Lesson: LOT 503.01 **Objective Number:** 80056

Determine the applicable Technical Specification and/or Technical Requirements Manual (TRM) Limiting Conditions for Operations (LCOs) and the required action(s) to be taken.

Reference: Technical Specification 3.4.9.3, Action d, Note 3 and Basis B3/4 4-14-16**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student believes that two discharge relief valves must be used to replace one PORV, in the same way head vents are used in place of a PORV in FRH1. This is the correct basis.
- B: INCORRECT: Plausible if the student believes that two discharge relief valves must be used to replace one PORV, in the same way head vents are used in place of a PORV in FRH1 and if the student confuses the basis with the one that applies above 200 degrees F
- C: CORRECT: In this situation, the unit has to comply with 3.4.9.3, action d. One PORV is available to meet TS 3.4.9.3 and the RHR discharge relief valve on Train 'A' can also be used. The RHR train must be operable and in operation. The basis is as stated for less than 200 degrees F.
- D: INCORRECT: Plausible as these are the correct valves that are required and if the student confuses the basis with the one that applies above 200 degrees F.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess plant conditions and apply Technical Specifications with knowledge of the basis of the Technical Specification.

Exam Bank No.: 2804

Last used on an NRC exam: Never

SRO Sequence Number: 88

With the unit at 100% power, all steam generators began depressurizing rapidly. The Unit Supervisor entered 0POP05-EO-EC21, Uncontrolled Depressurization Of All Steam Generators.

The strategy for controlling auxiliary feedwater flow is based upon _____(1)_____.

The Unit Supervisor will direct the crew to establish _____(2)_____.

- A. (1) minimizing the containment pressure rise
(2) total AFW flow at a minimum of 576 gpm
- B. (1) minimizing the containment pressure rise
(2) 100 gpm AFW flow to each steam generator
- C. (1) preventing steam generator tube dryout
(2) total AFW flow at a minimum of 576 gpm
- D. (1) preventing steam generator tube dryout
(2) 100 gpm AFW flow to each steam generator

Answer: D (1) preventing steam generator tube dryout (2) 100 gpm AFW flow to each steam generator

Exam Bank No.: 2804**Source:** New**Modified From****K/A Catalog Number:** WE12 G2.4.18 Uncontrolled Depressurization of all Steam Generators:
Knowledge of the specific bases for EOPs**SRO Importance:** 4.0 **Tier:** 1 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

The student must display knowledge of a specific mitigative strategy within EC21. The control of AFW flow is minimizing cooldown rate, preventing overflow of the SGs, controlling RCS temperature following blowdown, and preventing SG tube dryout.

STP Lesson: LOT 504.14 **Objective Number:**

Given a copy of a step from OPOP05-EO-EC21, state/identify how the action is performed and the basis for the action to include the action itself, its purpose and the result.

Reference: OPOP05-EO-EC21, Uncontrolled Depressurization of all Steam Generators, LOT 504.14
Powerpoint Presentation, slide 9**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as containment pressure rise with excessive AFW flow after a main steam line break is a concern, but not the case here.
- B: INCORRECT: Plausible as containment pressure rise with excessive AFW flow after a main steam line break is a concern, but not the case here.
- C: INCORRECT: Plausible as this is the correct reason, and 576 gpm is a normal minimum AFW flow rate in the EOPs.
- D: CORRECT: In EC21, AFW flow is established at 100 gpm per steam generator, to, among other items, prevent steam generator tube dryout.

Question Level: F **Question Difficulty** 3**Justification:**

This question requires the SRO to assess conditions and make a decision on procedural flowpath.

Exam Bank No.: 2773**Last used on an NRC exam:** Never**SRO Sequence Number:** 89

The unit has had a Steam Generator Tube Rupture.

- The crew has completed 0POP05-EO-EO00, Reactor Trip or Safety Injection.
- The crew is currently performing an RCS depressurization in 0POP05-EO-EO30, Steam Generator Tube Rupture.
- The RO notes the following:
 - Ruptured Steam Generator narrow range level is 94% and rising.
 - Ruptured Steam Generator pressure is 1262 psig and stable.

Based on these conditions, complete the following:

- 1) To correct this issue, the Unit Supervisor will enter _____(1)_____.
- 2) This procedure will be entered _____(2)_____.
- A. (1) 0POP05-EO-FRH3, Response to Steam Generator High Level
(2) at the Unit Supervisor's discretion
- B. (1) 0POP05-EO-FRH3, Response to Steam Generator High Level
(2) as soon as the step in progress is completed
- C. (1) 0POP05-EO-FRH4, Response to Loss of Normal Steam Release Capabilities
(2) at the Unit Supervisor's discretion
- D. (1) 0POP05-EO-FRH4, Response to Loss of Normal Steam Release Capabilities
(2) as soon as the step in progress is completed

Answer: A (1) 0POP05-EO-FRH3, Response to Steam Generator High Level (2) at the Unit Supervisor's discretion

Exam Bank No.: 2773**Source:** New**Modified From**

K/A Catalog Number: EPE 38 EA2.16 Ability to determine and interpret the following as they apply to a SGTR: Actions to be taken if S/G goes solid and water enters steam line.

SRO Importance: 4.6 **Tier:** 1 **Group/Category:** 1

10CFR Reference or SRO Objective: Objective

SRO Justification:

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Specifically, this question requires knowledge of entry into a Yellow FRP and also knowledge of administrative procedures that specify hierarchy, implementation, and/or coordination of plant normal, abnormal, and emergency procedures.

STP Lesson: LOT 504.04 **Objective Number:** 92283

Given a set of conditions and the occurrence of a Red, Orange, or Yellow path CSF, state the action required per OPOP01-ZA-0018, EOP Users Guide.

Reference: OPOP01-ZA-0018 Section 6.10; OPOP05-EO-FO03, Heat Sink CSF Status Tree

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: CORRECT: With level in the ruptured SG at 94% and rising, this procedure could be used to respond, and if used, would be based on Unit Supervisor judgment.
- B: INCORRECT: Plausible as this procedure could be entered for this condition, and if the student confuses orange path with yellow path criteria.
- C: INCORRECT: Plausible as SG pressure is abnormally high, but this is due to EO30 procedural actions and if the student confuses orange path with yellow path criteria.
- D: INCORRECT: Plausible as SG pressure is abnormally high, and yellow path procedures are at the judgment of the operator.

Question Level: H **Question Difficulty** 3

Justification:

The student must assess conditions and determine the required procedure entry and the proper method for using the procedure.

Exam Bank No.: 2774

Last used on an NRC exam: Never

SRO Sequence Number: 90

The unit is at 100% power.

- The following alarms are in:
 - 4M07-C-1, RCP 1A NO 2 SEAL LKF FLOW HI
 - 4M07-C-2, RCP 1A STDPIPE LVL HI
 - 4M07-E-3, RCDT LEVEL HI-HI/LO-LO

These alarms are in because the RCP 1A _____(1)_____ has failed. The Unit Supervisor will direct the crew to perform _____(2)_____.

- A. (1) #2 seal
(2) 0POP04-RC-0002, RCP Off Normal, Addendum 4, RCP #2 Seal Leakoff Flow High
- B. (1) #2 seal
(2) 0POP04-RC-0003, Excessive RCS Leakage, Addendum 2,RCS Leakage to the RCDT
- C. (1) #3 seal
(2) 0POP04-RC-0002, RCP Off Normal, Addendum 4, RCP #2 Seal Leakoff Flow High
- D. (1) #3 seal
(2) 0POP04-RC-0003, Excessive RCS Leakage, Addendum 2,RCS Leakage to the RCDT

Answer: A (1) #2 seal (2) 0POP04-RC-0002, RCP Off Normal, Addendum 4, RCP #2 Seal Leakoff Flow High

Exam Bank No.: 2774**Source:** New**Modified From****K/A Catalog Number:** 003 A2.01

Ability to (a) predict the impacts of the following malfunctions or operations on the RCPS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Problems with RCP seals, especially rates of seal leak-off

SRO Importance: 3.9 **Tier:** 2 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Knowledge of when to implement attachments and appendices, including how to coordinate these items with procedure steps.

STP Lesson: LOT 505.01 **Objective Number:** 92108

Given a plant condition, state the actions required to be performed per the applicable off-normal procedure.

Reference: OPOP04-RC-0002, Addendum 2, OPOP04-RC-0003, Addendum 2**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: With a #2 seal failure, the #2 seal passes more flow and will more quickly fill the RCDDT and also can backflow into the RCP standpipe through the #3 seal. The proper procedure is OPOP04-RC-0002, Addendum 4.
- B: INCORRECT: Plausible as this is the correct failure, and if the student wrongfully equates seal leakage with RCS leakage.
- C: INCORRECT: Plausible as the standpipe does provide water for the #3 seal operation, but with a #3 seal failure the standpipe would drain more quickly or empty. It is also plausible that OPOP04-RC-0002, Addendum 4 could be chosen as the #2 and #3 seal both affect the standpipe and the RCDDT and both seals are addressed in Addendum 4.
- D: INCORRECT: Plausible as the standpipe does provide water for the #3 seal operation, but with a #3 seal failure the standpipe would drain more quickly or empty, and if the student equates seal issues to RCS leakage.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the conditions given and choose a course of action.

Exam Bank No.: 2783

Last used on an NRC exam: Never

SRO Sequence Number: 91

A reactor startup is in progress.

- Source range channel N31 indicates 5.0 E+4 cps.
- Source range channel N32 indicates 4.0 E+4 cps.
- Intermediate range channel N35 indicates 1.3 E-10 amps.
- Intermediate range channel N36 indicates 3.0 E-11 amps.

Complete the following statements:

Based on the indications shown above, _____(1)_____.

Technical Specifications will require the Unit Supervisor to maintain power below a MAXIMUM of _____(2)_____.

- A. (1) N35 is undercompensated
(2) P-6
- B. (1) N35 is undercompensated
(2) 10%
- C. (1) N36 is overcompensated
(2) P-6
- D. (1) N36 is overcompensated
(2) 10%

Answer: D (1) N36 is overcompensated (2) maintain reactor power below 10%

Exam Bank No.: 2783**Source:** New**Modified From**

K/A Catalog Number: APE 033 AA2.02 Ability to determine and interpret the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Indications of unreliable intermediate-range channel operation.

SRO Importance: 3.3 **Tier:** 1 **Group/Category:** 2

10CFR Reference or SRO Objective: 55.43(b)(2)

SRO Justification:

Facility Operating Limitations in the Technical Specifications and their Bases: Application of required actions (TS Section 3)

STP Lesson: LOT 503.01 **Objective Number:** 80056

Determine the applicable Technical Specification and/or Technical Requirements Manual (TRM) Limiting Conditions for Operation (LCOs) and the required actions to be taken.

Reference: Technical Specification 3.3.1, Functional Unit 5, Action 3, 0PSP03-ZQ-0028, page 27.

Attached Reference **Attachment:**

NRC Reference Req'd **Attachment:**

Distractor Justification

- A: INCORRECT: Plausible if the student confuses the effect of compensating voltage and also if the student believes that moving power below P-6 is the correct action per TS.
- B: INCORRECT: Plausible if the student confuses the effect of compensating voltage. This is the correct action for a failed IR instrument.
- C: INCORRECT: Plausible as this is the correct failure and if the student believes that moving power below P-6 is the correct action per TS.
- D: CORRECT: IR 35 is reading correctly for the given SR readings. Since IR 36 is reading over a decade lower, it is overcompensated and does not meet the channel check of less than or equal to a factor of 3 between readings. With an inoperable IR instrument doing a reactor startup, power must be maintained below 10%.

Question Level: H **Question Difficulty** 3

Justification:

The student must assess the conditions presented regarding SR and IR instruments and determine the failure. Then, the student must apply TS to the situation.

Exam Bank No.: 2784

Last used on an NRC exam: Never

SRO Sequence Number: 92

With the unit at 100%, the crew is performing 0PSP03-RS-0001, Control Rod Operability.

- Control Bank D is at 240 steps by DRPI.
- All other Control Banks are at 252 steps by DRPI.

During testing of Control Bank D, Rod D4 moved in 10 steps, then could not be returned to its initial position.

- The crew entered 0POP04-RS-0001, Control Rod Malfunction.

While performing this procedure, the Unit Supervisor will direct the crew to _____(1)_____.

To improve the accuracy of realigning Control Rod D4 to its bank, _____(2)_____ will be utilized.

- A. (1) perform Addendum 2, Recovery of Misaligned Rod
(2) the results of a flux map
- B. (1) perform Addendum 2, Recovery of Misaligned Rod
(2) the outward DRPI transition point of 240 steps
- C. (1) place the unit in MODE 3 within 6 hours of the time of misalignment
(2) the results of a flux map
- D. (1) place the unit in MODE 3 within 6 hours of the time of misalignment
(2) the outward DRPI transition point of 240 steps

Answer: B (1) perform Addendum 2, Recovery of Misaligned Rod (2) the outward DRPI transition point to 240 steps

Exam Bank No.: 2784**Source:** New**Modified From****K/A Catalog Number:** 014 A2.04

Ability to (a) predict the impacts of the following malfunctions or operations on the RPIS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Misaligned Rod

SRO Importance: 3.9 **Tier:** 2 **Group/Category:** 2**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

This question requires assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Specifically, it requires knowledge of when to implement attachments and appendices, including how to coordinate these items with procedure steps.

STP Lesson: LOT 505.01 **Objective Number:** 92108

Given a plant condition, state the actions required to be performed per the applicable Off-Normal procedure.

Reference: OPOP04-RS-0001, Step 4 and Addendum 2**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as Addendum 2 is entered and flux maps are used for various reasons to monitor core parameters and can be used to determine rod position (0PSP10-DM-0002 and TS 3.1.3.2 Action a.1) but are not used in this case.
- B: CORRECT: With only one rod misaligned (in this case 10 steps), Addendum 2 is used to recover the rod. The outward DRPI transition point at the original rod position would be used to realign the misaligned rod. This is obtained from Table 1.3 in the Plant Curve Book.
- C: INCORRECT: Plausible as a shutdown is required for 2 rods misaligned and is the RNO of step 4b. Flux maps are used for various reasons to monitor core parameters and can be used to determine rod position (0PSP10-DM-0002 and TS 3.1.3.2 Action a.1) but are not used in this case.
- D: INCORRECT: Plausible as a shutdown is required for 2 rods misaligned and is the RNO of step 4b. The outward DRPI transition point is used to improve accuracy.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the conditions in the stem and apply the procedure and attachment appropriately.

Exam Bank No.: 2785

Last used on an NRC exam: Never

SRO Sequence Number: 93

The unit is at 100% power at End of Core Life.

- A leak develops from the RCS into an SI accumulator.
- Level in the accumulator rises by 100 gallons.

Based on this information, complete the following statements:

(1) Sampling within 6 hours to verify boron concentration of the affected accumulator
____(1)____ required to satisfy Technical Specifications.

(2) A minimum boron concentration in the accumulator is required in order to ensure
_____(2)_____.

- A. (1) is
(2) the ability to maintain subcriticality on a design basis accident
- B. (1) is
(2) negative moderator temperature coefficient in the RCS is maintained
- C. (1) is NOT
(2) the ability to maintain subcriticality on a design basis accident
- D. (1) is NOT
(2) negative moderator temperature coefficient in the RCS is maintained

Answer: A (1) is (2) the ability to maintain subcriticality on a design basis accident

Exam Bank No.: 2785**Source:** Modified**Modified From** 2701**K/A Catalog Number:** 006 G2.1.32 Emergency Core Cooling: Ability to explain and apply system limits and precautions.**SRO Importance:** 4.0 **Tier:** 2 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(2)**SRO Justification:**

Facility operating limitations in the technical specifications and their bases. Specifically, this question requires knowledge of application of require actions (TS Section 3) and surveillance requirements (SR) in accordance with rules of application requirements (TS, Section 1) Additionally, this question requires knowledge of TS bases that are required to analyze TS-required actions and terminology.

STP Lesson: LOT 201.10 **Objective Number:** 29415

In regards to POP02-SI-0001, discuss the following: A. Purpose and Scope B. Notes and Precautions

Reference: 0POP02-SI-0001, Step 4.7, TS Surveillance 4.5.1.1.b, TS Basis Document, B3/4.5.1**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: CORRECT: With EOL conditions, boron concentration in the RCS would be low, and the accumulator would be diluted. TS requires sampling within 6 hours if there is greater than a 1% volume change (88 gallons) of water that would lower the boron concentration. The basis for minimum boron concentration is to ensure the ability to maintain subcriticality during a DBA.
- B: INCORRECT: Plausible as sampling is required and this is a reason for maintaining certain values of boron concentration during plant operations.
- C: INCORRECT: Plausible if the student does not realize that the RCS water is diluting the accumulator or believes that such a small volume change would not affect TS. This is the correct basis.
- D: INCORRECT: Plausible if the student does not realize that the RCS water is diluting the accumulator or believes that such a small volume change would not affect TS and this is a reason for maintaining certain values of boron concentration during plant operations.

Question Level: H **Question Difficulty** 3**Justification:**

The student determine the impact of an RCS leak into the accumulator, assess this information and apply TS. The student must also recall the TS basis statements and apply them to a plant situation.

Exam Bank No.: 2787

Last used on an NRC exam: Never

SRO Sequence Number: 94

The unit was at 50% power when a loss of offsite power and a small break LOCA occurred.

- All 3 ESF Diesel Generators are supplying power to their respective buses.
- MCC E1A2 cannot be energized.
- The Auxiliary Shutdown Panel room is inaccessible.
- The crew is performing OPOP05-EO-ES12, Post-LOCA Cooldown and Depressurization.
- Containment pressure is 7 psig and dropping slowly.
- SG levels are: A – 51%, B – 48%, C – 49%, D – 18%.
- SG pressures are A – 438 psig, B – 432 psig, C – 450 psig, D – 585 psig.
- AFW flow cannot be established to SG 1D.

Based upon this information, SG 1D is _____(1)_____ and should be depressurized by _____(2)_____.

- A. (1) active
(2) opening either SG 1D MSIV or MSIB
- B. (1) active
(2) operating SG 1D PORV locally using Addendum 3, SG PORV Local Operation
- C. (1) inactive
(2) opening either SG 1D MSIV or MSIB
- D. (1) inactive
(2) operating SG 1D PORV locally using Addendum 3, SG PORV Local Operation

Answer: D (1) inactive (2) operating SG 1D PORV locally using Addendum 3, SG PORV Local Operation

Exam Bank No.: 2787**Source:** New**Modified From****K/A Catalog Number:** 039 A2.01

Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Flow paths of steam during a LOCA.

SRO Importance: 3.2 **Tier:** 2 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

This question tests the assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations, specifically the knowledge of when to implement attachments and appendices including how to coordinate these items with procedure steps.

STP Lesson: LOT 504.12 **Objective Number:** 92172

Given a step from 0POP05-EO-ES12, state/identify how the action is performed and the basis for the action to include the action itself, its purpose and the result.

Reference: 0POP05-EO-ES12, Post LOCA Cooldown and Depressurization, Addendum 3**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the student does not note adverse containment conditions or does not understand active vs. inactive and if the student believes that is advantageous to open an MSIV in this case rather than rely on local operation which time could be lengthy.
- B: INCORRECT: Plausible if the student does not note adverse containment conditions or does not understand active vs. inactive. The PORV will be operated locally.
- C: INCORRECT: Plausible as SG 1D is inactive, but this is not the correct method of depressurization.
- D: CORRECT: With SG 1D level below 14% (34% with adverse containment conditions) and no AFW flow, SG 1D is inactive. With a loss of MCC E1A2 the SG 1D PORV Hydraulic Pump has no power, and with the ASP inaccessible, the SG PORV 1D blackout switch cannot be used to restore power to the SG 1D PORV hydraulic pump. In this case the PORV must be operated locally.

Question Level: H **Question Difficulty** 4**Justification:**

The student must assess conditions and determine the appropriate course of action and addendum to use while performing a cooldown in 0POP05-EO-ES12.

Exam Bank No.: 2788

Last used on an NRC exam: Never

SRO Sequence Number: 95

The unit is in MODE 4 when Instrument Air OCIV, FV-8565, is declared INOPERABLE.

To comply with the action statement of Technical Specification 3.6.3, the Unit Supervisor ___(1)___ be able to use check valve IA-0541 as an “isolation barrier.”

The crew has a MAXIMUM of ___(1)___ hours to restore FV-8565 to an OPERABLE status.

- A. (1) will
(2) 12
- B. (1) will
(2) 24
- C. (1) will NOT
(2) 12
- D. (1) will NOT
(2) 24

Answer: B (1) will (2) 24

Exam Bank No.: 2788**Source:** New**Modified From****K/A Catalog Number:** 079 G2.2.40

Station Air: Ability to apply Technical Specifications for a system.

SRO Importance: 4.7 **Tier:** 2 **Group/Category:** 2**10CFR Reference or SRO Objective:** 55.43(b)(2)**SRO Justification:**

This question requires knowledge of facility operating limitations in the technical specifications and their bases, specifically application of required actions in accordance with rules of application requirements.

STP Lesson: LOT 503.01**Objective Number:** 3

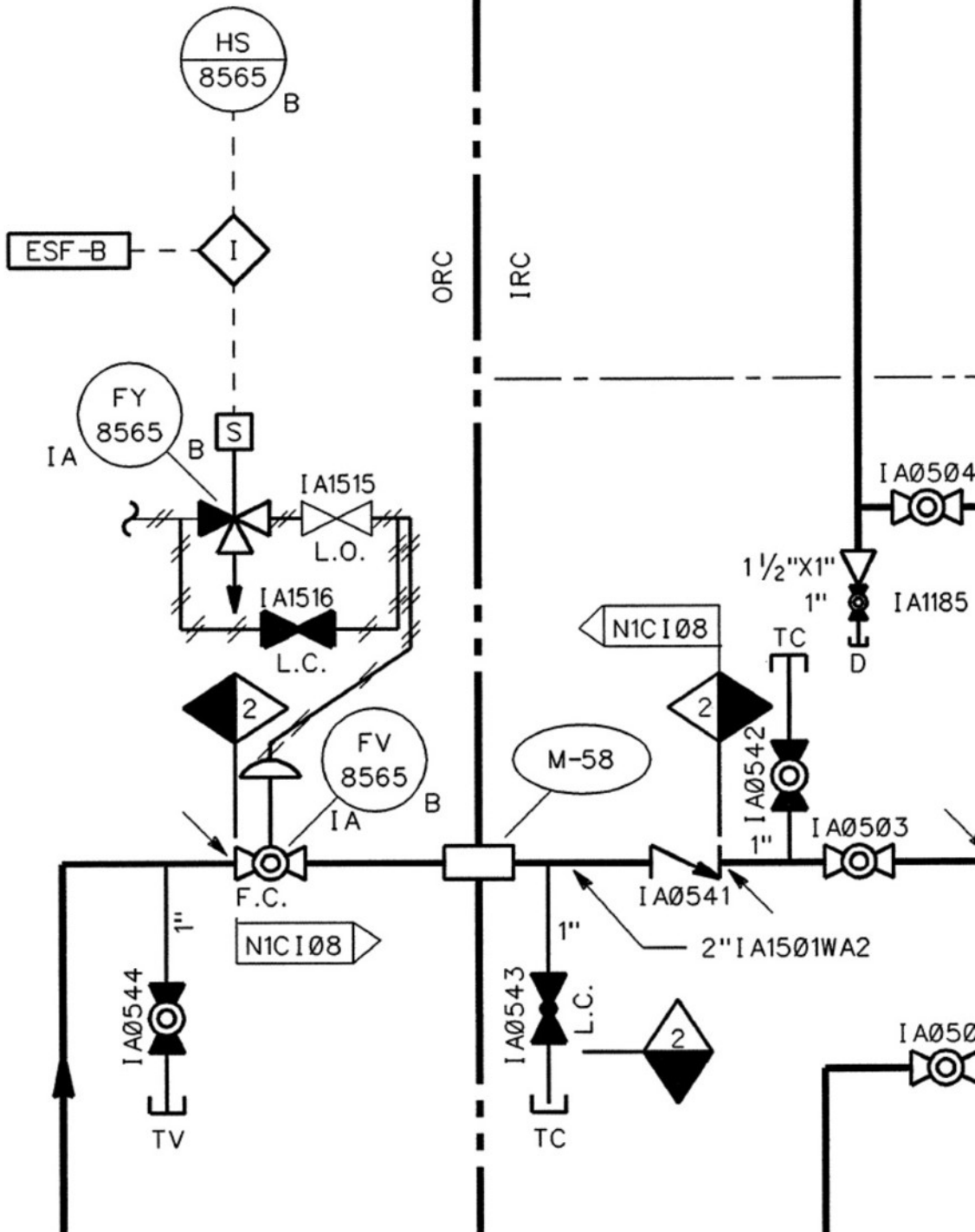
Determine the applicable Technical Specification and/or Technical Requirements Manual (TRM) Limiting Conditions for Operation (LCO) and the required action(s) to be taken.

Reference: Technical Specification 3.6.3, IA P&ID 9F05040**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as IA-0541 will be used as an "isolation barrier" and 12 hours is an action time in TS.
- B: CORRECT: With FV-8565 inoperable, the OCIV (IA-0541) is verified operable and maintained operable. FV-8565 must be restored to an operable status within 24 hours.
- C: INCORRECT: Plausible as a check valve cannot be used for other circumstances under TS 3.6.3 and 12 hours is an action time in TS.
- D: INCORRECT: Plausible as a check valve cannot be used for other circumstances under TS 3.6.3 and 24 hours is the correct time .

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the plant event that occurred and apply TS to the current operational situation. The student must also apply knowledge of the containment penetration for instrument air.



Exam Bank No.: 2745

Last used on an NRC exam: Never

SRO Sequence Number: 96

With the unit at 10% power, THREE DRPI indicators in Control Bank D are declared INOPERABLE.

- The Shift Manager entered Technical Specification 3.0.3.
- Mode 3 was reached in 2 hours.
- Mode 4 was reached in an additional 4 hours.

Complete the following, regarding this information:

The unit will need to reach MODE 5 in ____ (1) ____ additional hours.

Technical Specification 3.0.3 was entered when the LCO is not met and the ____ (2) ____.

- A. (1) 24
(2) action requirements are not met within the specified time limits
- B. (1) 31
(2) action requirements are not met within the specified time limits
- C. (1) 24
(2) condition is not specifically addressed by its associated action requirements
- D. (1) 31
(2) condition is not specifically addressed by its associated action requirements

Answer: D (1) 31 (2) condition is not specifically addressed by its associated action requirements

Exam Bank No.: 2745**Source:** Bank**Modified From****K/A Catalog Number:** G2.1.32

Ability to explain and apply system limits and precautions.

SRO Importance: 4.0 **Tier:** 3 **Group/Category:****10CFR Reference or SRO Objective:** 55.43(b)(2)**SRO Justification:**

Facility operating limitations in the technical specifications and their bases. Specifically, application of generic LCO requirements (LCO 3.01 through 3.0.7 and SR 4.0.1 through 4.0.4)

STP Lesson: LOT 503.01**Objective Number:** 92102

DESCRIBE the general requirements of the Technical Specifications or the Technical Requirements Manual (TRM) to include components or administrative requirements affected, limitations, major time frames involved, major surveillance in order to comply, and the bases for the specification/requirement.

Reference: Technical Specification 3.0.3 and Basis Document**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible if the user believes the time to reach a MODE is explicit and the crew is penalized for reaching a MODE earlier than the time given. Also plausible since not meeting the action time does often cause shutdown actions to be taken but not the reason for a Technical Specification 3.0.3 shutdown.
- B: INCORRECT: Plausible as 31 hours is correct and since not meeting the action time does often cause shutdown actions to be taken but not the reason for a Technical Specification 3.0.3 shutdown.
- C: INCORRECT: Plausible if the user believes the time to reach a MODE is explicit and the crew is penalized for reaching a MODE earlier than the time given. The reason for the Technical Specification 3.0.3 entry is correct.
- D: CORRECT: Technical Specification 3.0.3 gives the user 37 total hours to be in MODE 5 (1 hour to make preparations, 6 hours to reach MODE 3, 6 additional hours to reach MODE 4, and finally 24 additional hours to reach MODE 5. The crew is not penalized if they reach a certain MODE early. With 6 used to achieve MODE 4, 31 additional hours are available to reach MODE 5. This is the correct reason for the TS 3.0.3 entry.

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess the conditions and determine the time left to be in MODE 5.

Exam Bank No.: 2768

Last used on an NRC exam: Never

SRO Sequence Number: 97

The crew is performing the read-through of the immediate actions of 0POP05-EO-EO00, Reactor Trip or Safety Injection.

- A RED path on Core Cooling occurs.

Entry into the applicable Function Restoration Procedure will be made...

- A. immediately.
- B. when the read-through is complete.
- C. when Addendum 5, Verification of SI Equipment Operation, is complete and 0POP05-EO-EO00 is exited.
- D. when the read-through is complete and the crew has verified a heat sink has been established in Addendum 5, Verification of SI Equipment Operation.

Answer: C when Addendum 5, Verification of SI Equipment Operation, is complete and 0POP05-EO-EO00 is exited.

Exam Bank No.: 2768**Source:** New**Modified From****K/A Catalog Number:** G2.4.20

Knowledge of the operational implications of EOP warnings, cautions, and notes.

SRO Importance: 4.3 **Tier:** 3 **Group/Category:****10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Specifically, the knowledge of administrative procedures that specify hierarchy, implementation, and/or coordination of plant normal, abnormal, and emergency procedures.

STP Lesson: LOT 504.04**Objective Number:** 92284

State the conditions, in accordance with OPOP01-ZA-0018, that the CSFs would be monitored but the FRPs not implemented.

Reference: OPOP01-ZA-0018, NOTE on page 25 and page 27**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as entry into an FRP indicates a serious condition that could affect one of the three barriers to radioactive release and a rapid entry is required.
- B: INCORRECT: Plausible as entry into an FRP indicates a serious condition that could affect one of the three barriers to radioactive release and a rapid entry is required.
- C: CORRECT: The crew must verify all SI equipment actuated properly and will only enter an FRP after Addendum 5 is complete and EO00 is exited.
- D: INCORRECT: Plausible as entry into an FRP indicates a serious condition that could affect one of the three barriers to radioactive release and a rapid entry is required. Establishing a heat sink is key to maintaining the C and the H CSF.

Question Level: F **Question Difficulty** 3**Justification:**

The student must understand the application of notes in ZA-0018 in order to properly implement the emergency procedures in terms of hierarchy and coordination.

Exam Bank No.: 2770

Last used on an NRC exam: Never

SRO Sequence Number: 98

The unit is in a Site Area Emergency.

- An individual has life-threatening injuries in an area where the radiation level is 70 Rem/Hr.
- It will take 15 minutes in this area to attend to the individual's injuries and transport him out of the area.

In accordance with 0ERP01-ZV-IN06, Radiological Exposure Guidelines, the _____(1)_____ can authorize this exposure. The individual that will attend to the injured person ___(2)___ be a volunteer.

- A. (1) Emergency Director
(2) must
- B. (1) Emergency Director
(2) does not have to
- C. (1) Radiological Director
(2) must
- D. (1) Radiological Director
(2) does not have to

Answer: B (1) Emergency Director (2) does not have to

Exam Bank No.: 2770**Source:** New**Modified From****K/A Catalog Number:** G2.4.12

Knowledge of general operating crew responsibilities during emergency operations.

SRO Importance: 4.3 **Tier:** 3 **Group/Category:****10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Unique to the SRO position.

STP Lesson: EPT 003.00 **Objective Number:** 4

Discuss radiation exposure controls associated with emergency conditions. Include emergency dose guidelines and access requirements.

Reference: 0ERP01-ZV-IN06, Radiological Exposure Guidelines, Addendum 1**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as this is the correct approval, and if the student makes a math error or does not apply the appropriate range.
- B: CORRECT: At 70 rem/hour for 0.25 hours, the dose is 17.5 rem. This is in the range of 10-25 rem which requires ED approval and must be for lifesaving activities or protect large populations.
- C: INCORRECT: Plausible since this is a dose question, the Radiological Director would have approval authority and if the student does not apply the appropriate range.
- D: INCORRECT: Plausible since this is a dose question, the Radiological Director would have approval authority. Volunteering is not required.

Question Level: H **Question Difficulty** 3**Justification:**

The student must know the limits of 0ERP01-ZV-IN06 and perform a calculation to figure out the dose rate in the area. Then he must apply this set of circumstances to the procedural limitations.

Exam Bank No.: 2782

Last used on an NRC exam: Never

SRO Sequence Number: 99

The unit is at 50% with the following feedwater configuration:

- SGFPs 12 and 13 are in service.
- SGFP 11 is idling at 3300 rpm.
- SUFP 14 is tagged out for corrective maintenance.

The SGFP Master Speed Controller output fails low and does NOT respond when the controller is placed in MANUAL.

The crew performs the immediate actions of OPOP04-FW-0002, Steam Generator Feed Pump Trip.

In accordance with OPOP04-FW-0002, the Unit Supervisor will next direct...

- A. a Turbine Load Reduction AND also raise SGFPT 11 speed to match feedwater flow to steam flow.
- B. a Turbine Load Reduction AND ensure Feed/Steam Header differential pressure adjusted per Addendum 3, Required Feed/Steam DP For SGFP Operation.
- C. controlling SGFPTs 11 and 12 individually in MANUAL AND also raise SGFPT 11 speed to match feedwater flow to steam flow.
- D. controlling SGFPTs 12 and 13 individually in MANUAL AND ensure Feed/Steam Header differential pressure adjusted per Addendum 3, Required Feed/Steam DP For SGFP Operation.

Answer: D controlling SGFPTs 12 and 13 individually in MANUAL AND ensure Feed/Steam Header differential pressure adjusted per Addendum 3, Required Feed/Steam DP For SGFP Operation.

Exam Bank No.: 2782**Source:** New**Modified From****K/A Catalog Number:** APE 054 G2.4.11 Loss of Main Feedwater: Knowledge of abnormal condition procedures.**SRO Importance:** 4.2 **Tier:** 1 **Group/Category:** 1**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

This question requires knowledge of when to implement attachments or appendices, including how to coordinate these items with procedure steps.

STP Lesson: LOT 505.01 **Objective Number:** 92108

Given a plant condition, state the actions required to be performed per the applicable Off-Normal procedure.

Reference: 0POP04-FW-0002, Steam Generator Feed Pump Trip**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible because the need for a load reduction is still checked after the immediate actions are completed if there is not adequate feedwater flow to match steam flow. However, in the given conditions there is adequate feedwater. Plausible because raising speed on an idle SGFPT would be an option to raise feedwater flow, however, for this condition this action would not have been performed and procedural steps are not given after the immediate actions.
- B: INCORRECT: Plausible because the need for a load reduction is still checked after the immediate actions are completed if there is not adequate feedwater flow to match steam flow. However, in the given conditions there is adequate feedwater.
- C: INCORRECT: Plausible because raising speed on an idle SGFPT would be an option to raise feedwater flow, however, for this condition this action would not have been performed and procedural steps are not given after the immediate actions.
- D: CORRECT: Following the immediate actions, the Unit Supervisor will direct the operators to control SGFPTs 11 and 12 individually in MANUAL to establish the correct feed/steam header D/P per the requirements of Addendum 3. (Step 7 RNO)

Question Level: H **Question Difficulty** 3**Justification:**

The student must assess conditions and implement the abnormal condition procedure correctly including selection of the appropriate procedural path and addendum.

Exam Bank No.: 2786

Last used on an NRC exam: Never

SRO Sequence Number: 100

The unit is at 100% power.

- To install a required modification to system piping, the Relay Room Halon System must be manually shutdown for 24 hours.
- ALL Main and Reserve banks of Halon cylinders must be manually isolated.

Prior to the work beginning, the Unit Supervisor will direct the establishment of a(an) _____(1)_____ fire watch with backup suppression equipment available. The equipment in the Relay Room will _____(2)_____.

- A. (1) hourly
(2) remain operable
- B. (1) hourly
(2) be declared inoperable
- C. (1) continuous
(2) remain operable
- D. (1) continuous
(2) be declared inoperable

Answer: C (1) continuous (2) remain operable

Exam Bank No.: 2786**Source:** New**Modified From****K/A Catalog Number:** 086 A2.01

Ability to (a) predict the impacts of the following malfunctions or operations on the Fire Protection System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Manual shutdown of the FPS

SRO Importance: 3.1 **Tier:** 2 **Group/Category:** 2**10CFR Reference or SRO Objective:** 55.43(b)(5)**SRO Justification:**

Unique to the SRO position. Also requires taking actions related to the Fire Hazards Analysis Report (FHAR).

STP Lesson: LOT 507.01**Objective Number:** 92186

Given the title of an administrative procedure, discuss the requirements associated with the referenced procedure.

Reference: OPGP03-ZF-0018, Step 4.5.1**Attached Reference** **Attachment:****NRC Reference Req'd** **Attachment:****Distractor Justification**

- A: INCORRECT: Plausible as hourly fire watches are required within OPGP03-ZF-0018 for non-functional equipment but not in this case and if the student believes that since the Fire Protection System is not functional, the equipment in the room is inoperable.
- B: INCORRECT: Plausible as hourly fire watches are required within OPGP03-ZF-0018 for non-functional equipment but not in this case. The equipment does remain operable.
- C: CORRECT: When both banks are impaired/non-functional, a continuous fire watch with backup suppression equipment must be established within one hour. Operability of the equipment in the room is not affected.
- D: INCORRECT: Plausible as a continuous watch is required and if the student erroneously believes that since the Fire Protection System is not functional, the equipment in the room is inoperable.

Question Level: F **Question Difficulty** 3**Justification:**

The student must recall requirements for removing the Relay Room Halon System from service.

Task Group 05

Map Code **2-MAB+010-TG05** CHAN

Survey **1** of **1**

Survey# **99407**

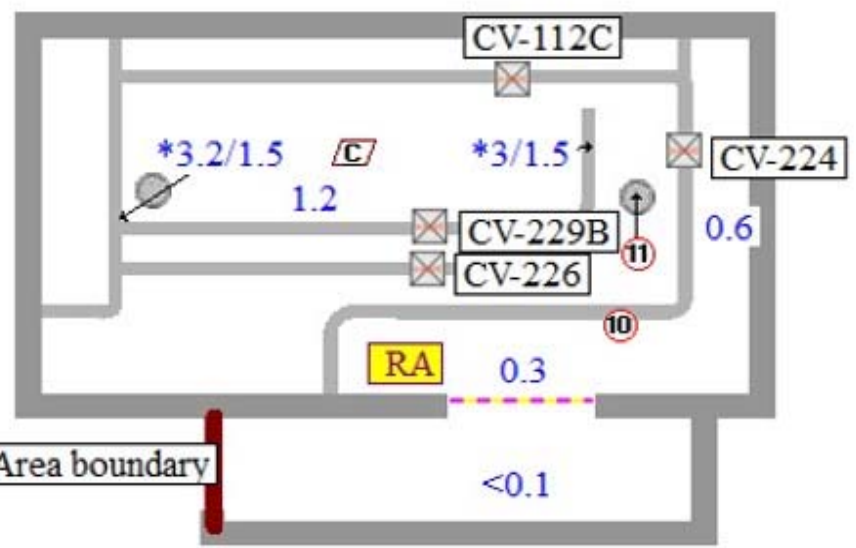
Date **07/18/2018 22:45**

Unit **2** % Power **100**

Reason **Routine**

Page **2** of **4**

044



Smears
Other Info
LAWS

#	dpm/100cm ² Bg	Alpha	Comment
1	<1K	N/A	On Sump Cover
2	<1K	N/A	On SOP
3	<1K	N/A	On Floor
4	<1K	N/A	On Floor
5	<1K	N/A	On Pump Skid
6	<1K	N/A	On Floor
7	<1K	N/A	On Piping
8	<1K	N/A	On Piping
9	<1K	N/A	On Piping
10	<1K	N/A	On Pipe
11	<1K	N/A	On Floor Drain
12	<1K	N/A	Inside CA
13	<1K	N/A	On Floor Drain
14	<1K	N/A	Inside CA
15	<1K	N/A	On Pipes
16	<1K	N/A	Inside Funnel
17	<1K	N/A	On Pipe
18	<1K	N/A	On Filter Housing

2018-0-0003 **ROUTINE REACTOR OPERATIONS FUNCTIONS**
Revision 0 **WHITE RCA Entry Card Required**

ACTIVE: 01/01/2018 00:00
TERMINATION: 12/31/2018 23:59

JOB DESCRIPTION		
ROUTINE ROUNDS, TOURS, VALVE LINEUPS AND MISCELLANEOUS FUNCTIONS		

RADIOLOGICAL DATA		
CONTAMINATION	DOSE RATES	ALARM SETPOINTS
GA: <1,000-<200,000 dpm/100cm2 WORK: <1,000-<200,000 dpm/100cm2 AIRBORNE: <1 DAC	GA: <80 mrem/hr WORK: <80 mrem/hr	ALARM SETPOINT: BY WAN ALARM RATE: BY WAN

RESTRICTIONS
<ul style="list-style-type: none"> * NO ENTRY INTO POSTED LOCKED HIGH RADIATION AREAS * NO ENTRY INTO POSTED HIGH RADIATION AREAS * NO ENTRY INTO POSTED AIRBORNE RADIOACTIVITY AREAS (EXCLUDING NOBLE GAS) * NO ENTRY INTO REACTOR CONTAINMENT BUILDING IN MODES 1 OR 2

REQUIREMENTS		
DOSIMETRY	RESPIRATORY PROTECTION	RAD. PROT. COVERAGE
SRD DLR	None	Intermittent

RWP IS CURRENTLY ACTIVE

For Information Only

2018-0-0003 ROUTINE REACTOR OPERATIONS FUNCTIONS
Revision 0 WHITE RCA Entry Card Required

Entry Requirements

PRIOR TO ENTRY INTO THE RCA, OBTAIN A COMPLETE UNDERSTANDING OF RADIOLOGICAL CONDITIONS UTILIZING SELF BRIEFINGS, CREW BRIEFINGS, DOCUMENTED SURVEYS AND/OR INFORMATION PRESENTED BY RADIATION PROTECTION

If NOT self briefed, notify Radiation Protection prior to initial entry into the RCA each shift

Dress Requirements

FOR ENTRY INTO A POSTED CONTAMINATED AREA:

*One full set lab coat protective clothing for work NOT involving climbing, kneeling, or crawling with permission from Radiation Protection or,

*Single set of protective clothing with skull cap

*Hood is required for climbing ladders/scaffolds, working above your head, situations where contaminated surfaces may come in contact with the neck or as prescribed by Radiation Protection

FOR ENTRY INTO A POSTED HIGH CONTAMINATION AREA:

*Two full sets protective clothing OR a single set of protective clothing and double layer of protective clothing on area of body which may come into contact with highly contaminated surfaces (e.g., apron, knee pads, sleeved apron, etc.) with permission from Radiation Protection

*A skull cap and hood

*Surgeon gloves may be worn as second set of gloves with permission from Radiation Protection

*Water resistant protective clothing should be worn as second set on area of body where protective clothing could become wet

FOR REACHING INTO POSTED CONTAMINATED AREAS:

*Lab coat and surgeon gloves may be used with permission from Radiation Protection

FOR REACHING INTO A POSTED HIGH CONTAMINATION AREA:

*Lab coat and two pair of surgeon gloves may be used with permission from Radiation Protection

FOR DISCONNECTING CAPS, FITTINGS, TRANSMITTERS OR GAUGES ON CONTAMINATED SYSTEMS IN A NON-CONTAMINATED AREA:

*Lab coat and gloves (surgeon gloves allowed with permission from Radiation Protection)

FOR TRANSPORTING HOSES DESIGNATED FOR CONTAMINATED SYSTEMS:

*Lab coat and gloves (surgeon gloves allowed with permission from Radiation Protection)

Additional Requirements

For work in contaminated areas involving laying, kneeling, sitting etc., ensure a protective barrier is placed between the worker and the contaminated surfaces

For removal of hoses from drains in clean areas, ensure contamination is controlled as directed by Radiation Protection

Notify Radiation Protection prior to accessing the overhead

Notify Radiation Protection prior to disconnecting caps, fittings, transmitters and gauges on contaminated systems

Make provisions to contain any residual liquids expected from opening a contaminated system

This Radiation Work Permit does NOT allow the following work evolutions:

*Sluicing resin

*Transfer of resin

*Change out of process filters

*Top sweeping, back flushing or sluicing of ALPS

Cautions / ALARA Notes

Notify Radiation Protection prior to moving any radioactive material known or suspected to be >5 mrem/hr contact

Accumulation of trash and debris can contribute to the spread of contamination. Workers should ensure that all debris is bagged, surveyed by Radiation Protection and removed from the work area at the end of each shift.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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___ 5 MONITOR Containment Spray Requirements (Suction From RWST):

___ a. Containment spray pump suction - ALIGNED TO RWST

a. IF containment spray pump suction aligned to sump, THEN GO TO Step 6.

___ b. DETERMINE number of containment spray pumps required from table:

RWST Level	Containment Pressure	NUMBER OF RCFCS RUNNING	NUMBER OF CONTAINMENT SPRAY PUMPS REQUIRED
GREATER THAN 75,000 gallons	GREATER THAN 56.5 psig	All Available	2
	BETWEEN 6.5 psig and 56.5 psig	0 OR 1	2
		2 OR 3	1
		4, 5 OR 6	0
	LESS THAN 6.5 psig	As Needed	0
BETWEEN 33,000 and 75,000 gallons	GREATER THAN 6.5 psig	1, 2 OR 3	2
		4, 5 OR 6	0
		LESS THAN 6.5 psig	As Needed
LESS THAN 33,000 gallons	N/A	N/A	0

___ c. Containment spray pumps running - EQUAL TO NUMBER REQUIRED

c. Manually OPERATE containment spray pumps.
