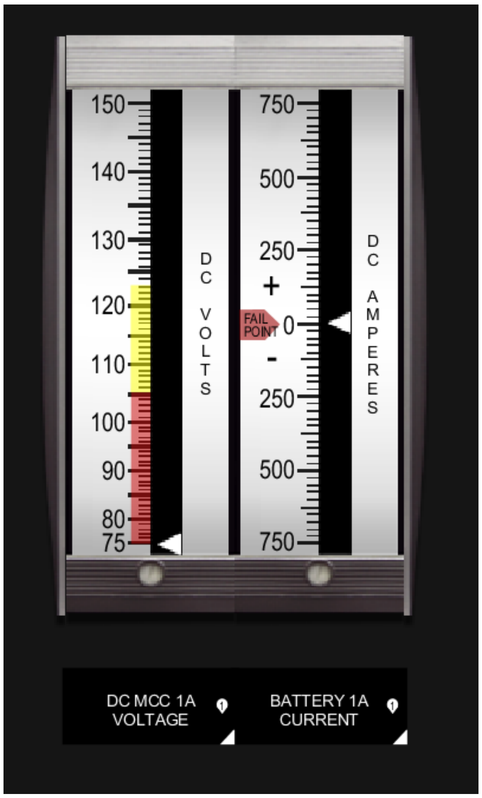
Question 1	ID: 2147008	Points: 1.00

The unit was operating in Mode 2 with NO LCOs in effect when multiple annunciators were received on 1H13-P877-5060. 1H13-P877 indications are as follows:



The following is an excerpt from ITS 3.8.4 DC Sources - Operating:

3.8.4 DC Sources - Operating
LCO 3.8.4 The Division 1, Division 2, Division 3, and Division 4 DC electrical power subsystems shall be OPERABLE.

Applicability:

Actions

Condition	Required Action	Completion Time
A. One battery charger on Division 1 or 2 inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. <u>AND</u> A.2 Verify battery float current ≤ 2 amps. <u>AND</u> A.3 Restore battery charger to OPERABLE status	2 hours Once per 12 hours 7 days
B. One battery on Division 1 or 2 inoperable.	B.1 Restore battery to OPERABLE status.	2 hours

For the conditions provided in the stem:

- ITS LCO Action(s) associated with Condition(s) _____(1)_____ must be entered.
- Entry into Mode 1 _____(2)_____ permitted by Technical Specifications.

A. (1) A ONLY
(2) is

B. (1) A AND B
(2) is

C. (1) A ONLY
(2) is NOT

D. (1) A AND B
(2) is NOT

Answer	**D**

Answer Explanation

D is correct:

Part 1

The meter indications (DC amps and volts) provided in the stem indicate that DC MCC 1A is de-energized (Battery Charger and Battery outputs are de-energized). If either source was energized (battery or battery charger), the DC voltage and amperage meters would be indicating values > 0 VDC.

With DC MCC 1A de-energized, required actions are to declare Division 1 DC electrical power subsystem inoperable per ITS 3.8.4 and enter Required Actions A (A.1, A.2, and A.3) and B.1, with actions to be completed within 2 hours. The definition of 125VDC electrical power system is that it consists of 4 independent subsystems, each containing a battery, associated battery charger, and all associated control equipment and interconnecting cabling. This information is described in ITS B3.8.4.

Part 2

Per ITS 3.0.4, when an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

- When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;
- After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or
- When an allowance is stated in the individual value, parameter, or other Specification.

This specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Since Conditions A and B both have 2 hour completion time limits and the LCO does not specify that 3.0.4 does NOT apply, then entering Mode 1 is NOT permitted by Technical Specifications.

Incorrect Responses:

A is incorrect but plausible. This answer is partially correct in that the Div 1 Battery Charger has tripped requiring entry into ITS 3.8.4 Condition A. Part B is plausible because ITS does permit mode changes for certain equipment inoperabilities.

B is incorrect but plausible because ITS does permit mode changes for certain equipment inoperabilities.

C is incorrect but plausible. This answer is partially correct in that the Div 1 Battery Charger has tripped requiring entry into ITS 3.8.4 Condition A.

Question Information

Topic	The unit was operating in Mode 2 with NO LCOs in effect when multiple annunciators were received on				
User ID	CL-ILT-N19076			**System ID**	2147008
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question meets the KA because the examinee must be able to determine the extent of the loss of DC using the indications provided in the stem.
SRO-Only Justification	Question is linked to SRO only Task 140109.23 (Apply the administrative requirements for execution of Technical Specifications and Off-Site Dose Calculation Manual Requirements). Also linked to 10CFR55.43(b)(2), Facility operating limitations in the Technical Specifications and their bases.
Additional Information	Question is a high cog question written at the analysis and comprehension level. The examinee has to analyze indications in a graphic and then determine required actions based on that analysis (3-SPK).

NRC Exams Only			
Question Type	Bank (CL-ILT-N12076)	**Difficulty**	NA
Technical Reference and Revision #	• ITS 3.8.4 (3.8-24) Amend. 187 • ITS 3.0.4 (3.0-1) Amend. 220 • ITS 3.0.4 (3.0-2) Amend. 213		
Training Objective	263000.12 Given BATTERY & DC DISTRIBUTION System operability status OR key parameter indications, plant conditions, and a copy of Tech Specs, DETERMINE if Tech Spec Limiting Condition for Operations have been met, and required actions if any. .1 AC Electrical Distribution		
Previous NRC Exam Use	ILT 12-1 NRC Exam		

K/A Reference(s)

295004.AA2.02	Safety Function 6	Tier 1	Group 1	RO Imp: 3.5	SRO Imp: 3.9
Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : (CFR: 41.10 / 43.5 / 45.13) Extent of partial or complete loss of D.C. power					

Learning Objective(s)

Q1/76 295004 AA2.02
User (Sys) ID N/A (1537896)

Cross Reference Links

None

Question 2	ID: 2153670	Points: 1.00

The plant is in Mode 4 with the Residual Heat Removal (RHR) System in Shutdown Cooling Mode.

THEN, shutdown cooling is lost.

- Reactor vessel pressure is 12 psig and slowly rising.

When is the earliest off-site notification required?

A. No off-site notification is required.

B. NRC Operations Center within 15 minutes.

C. State and local authorities within 15 minutes.

D. NRC Operations Center within 8 hours.

Answer	C

Answer Explanation

C is correct.

An unplanned RCS pressure rise > 10 psig as a result of temperature increase is an Alert (CA5). Per EP-MW-114-100 Midwest Region Off-Site Notifications, state and local notification must be completed within 15 minutes of the declaration of the emergency. Mode 4 requires the reactor vessel to be depressurized, so a pressure rise to 12 psig means pressure has increased by 12 psig from 0 psig.

Incorrect responses:

A is incorrect but plausible. This response is plausible because the stem conditions given do not meet the
threshold for CU5 (no temperature was specified). However, CA5 was exceeded, which requires EAL declaration and notification.

B is incorrect but plausible. NRC Operation Center notification is required, but per LS-AA-1020 Reportability Tables and Decision Trees (pg. 1), the NRC must be notified "immediately by ENS after notification of State and local agencies, but within 1 hour of declaration of Emergency Class.

D is incorrect but plausible. LS-AA-1020 (p. 6) requires NRC notification via ENS within 8 hours due to the RHR failure, but this is not the earliest required notification.

Question Information

Topic	The plant is in Mode 4 with the Residual Heat Removal (RHR) System in Shutdown Cooling Mode. T				
User ID	CL-ILT-N19077			**System ID**	2153670
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	OPEN
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	EP-AA-1003 Addendum 3 (pg CL-2-14-CL-2-25) Rev. 2
K/A Justification	Question meets the KA because the candidate must evaluate loss of shutdown cooling given in the stem and determine reporting requirements to external agencies.
SRO-Only Justification	Question is linked to SRO-only Task 996666.11 (Analyze conditions to determine if NRC Notifications are required per 10CFR50.72, 10CFR50.73, and 10CFR20). Also linked to 10CFR55.43(b)(5), Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Additional Information	Question is high cog written at the analysis and comprehension level. The candidate must interpret the indications provided and recognize that an Alert declaration is required, and then determine the off-site notification requirements (3-SPK).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4301.01 Rev. 16b • EP-AA-1003 Addendum 3 (pg CL-2-17) Rev. 2 • LS-AA-1020 Rev. 31		
Training Objective	LP85804.2.4.30Knowledge of events related to system operation / status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.		
Previous NRC Exam Use	None		

K/A Reference(s)

B2.4.30	Safety Function 6	Tier 3	Group	RO Imp: 2.7	SRO Imp: 4.1
Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator. (CFR: 41.10 / 43.5 / 45.11)					
GS.295021	Safety Function 4	Tier 1	Group 1	RO Imp:	SRO Imp:
Loss of Shutdown Cooling					

Learning Objective(s)

Q2/77 295021 2.4.30
User (Sys) ID N/A (1537897)

Cross Reference Links

Table: TRAINING - QUESTIONS - Track Questions Modified in this Project (CL-OPS-EXAM-ILT)
Tracking link in project CL-OPS-EXAM-ILT to source question 2149762

Question 3 ID: 2147011 Points: 1.00

The plant is in Mode 5 with core alterations in progress.

- Spent fuel is being temporarily stored in the upper containment pool racks.
- Continuous Containment Purge (CCP) is operating in Unfiltered mode and Fuel Building Ventilation (VF) is operating normally.

At 0100, the following annunciators were received:

- 5067-3L Hi-Hi Level Drywell Sump Equip/Flr Drn
- 5067-4L High Flow Drywell Equip Drn
- 5068-7A Refuel Bellows Leakage

At 0107, MCR AR/PR LAN alarms (YELLOW tiles) with values slowly trending up for:

- CCP Exhaust Radiation Monitors 1RIX-PR042A, B, C, D
- Fuel Building Exhaust Radiation Monitors 1RIX-PR006A, B, C, D

At 0110, the Refuel SRO reports Upper Containment Pool level is at the top of the Reactor Vessel/Steam Dryer Pools Weir Wall and lowering.

(1) Which action is required to be performed?

(2) Given the following excerpt from EP-AA-1003 Addendum 3 Emergency Action Levels for Clinton Station, what is the correct emergency classification for this event?

Table R1 **Fuel Handling Incident** **Radiation Monitors**
• Fuel Building Exhaust (1PR006A-D) • CCP Exhaust (1PR042A-D) • Containment Exhaust (1PR001A-D) • Containment Fuel xfer Plenum (1PR008A-D)

RA2 Significant lowering of water level above, or damage to, irradiated fuel.	RU2 Unplanned loss of water level above irradiated fuel
<u>**Emergency Action Level (EAL):**</u> 1. Uncovery of irradiated fuel in the REFUELING PATHWAY. **OR** 2. Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by **ANY** Table R1 Radiation Monitoring reading **>1000 mRem/hr**. **OR** 3. Lowering of spent fuel pool level to **11.00 ft.** as indicated on 1LI-FC221A(B).	<u>**Emergency Action Level (EAL):**</u> 1. a. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by **ANY** of the following: • Refueling Cavity water level **<22 ft. 8 in.** above the Reactor Vessel Flange **OR** • Spent Fuel Pool or Upper Containment Fuel Storage Pool water level **< 23 ft.** **OR** • Indication or report of a drop in water level in the REFUELING PATHWAY **AND** b. UNPLANNED Area Radiation Monitor reading rise on one or more radiation monitor in Table R1.

A. (1) Establish secondary containment.
(2) RU2

B. (1) Establish secondary containment.
(2) RA2

C. (1) Secure the operating Shutdown Cooling loop.
(2) RU2

D. (1) Secure the operating Shutdown Cooling loop.
(2) RA2

Answer	**A**

Answer Explanation

A is correct.

Part 1 Explanation:
Failure of the refueling bellows will result in draining the upper containment pools to the Drywell Equipment Drain system and reducing the level of water/shielding above the fuel stored in the upper containment pool racks and the RPV.

Receipt of annunciators 5067-3L and 5068-7A are symptoms of reactor cavity leakage during refueling requiring entry into CPS 4011.01 Reactor Cavity Leakage During Refueling.

If level approaches the top of any irradiated fuel, level cannot be restored, or high radiation levels exist, CPS 4011.01 Reactor Cavity Leakage During Refueling, subsequent action step 4.4 directs the following actions:

- Enter EOP-1 RPV Control (use ECCS to restore level above the fuel)
- Prohibit access to CNMT Refueling Floor
- **Establish Secondary CNMT integrity**

Part 2 Explanation:
Based on plant conditions presented in the stem:

- Normal Upper Containment Pool level is 827' 3" and was reported at the top of the Reactor Vessel/Steam Dryer Pools Weir Wall (~ 827' 1"), signifying an UNPLANNED drop in water level in the REFUELING PATHWAY
- CCP Exhaust Rad Monitors (1RIX-PR042A-D) and FB Exhaust Rad Monitors (1RIX-PR06A-D) alarming at the ALERT level (Yellow tiles imply that PR042A-D read ~ 5 mRem/hr and PR006A-D read ~ 2 mRem/hr)) and slowly trending up, signifying an UNPLANNED Area Radiation Monitor reading rise on one or more radiation monitor (in Table R1)

Per EP-AA-1003 Addendum 3 Radiological Emergency Plan Annex for Clinton Station Cold Shutdown/Refueling Matrix for Abnormal Rad Levels / Radiological Effluents, the conditions for UNUSUAL EVENT RU2 Unplanned loss of water level above irradiated fuel has been met.

Incorrect Responses:

B is incorrect but plausible. The first part of this response is correct. The second part of this answer would be correct if the irradiated fuel in the REFUELING PATHWAY had been UNCOVERED (NOT reported by Refuel SRO) or the alarming Rad Monitors (in Table R1) were reading >1000 mRem/hr (based on the Yellow tiles) indicating damage to irradiated fuel, leading the candidate to the conclusion that the conditions for ALERT RA2 Significant lowering of water level above, or damage to, irradiated fuel had been met. However, since neither of these conditions were met, UNUSUAL EVENT RU2 Unplanned loss of water level above irradiated fuel has been met, is the appropriate call.

C is incorrect but plausible. The first part of this answer would be correct if the leakage source had not been identified. Then the proper course of action would be CPS 4011.01 step 4.2 which directs securing the operating shutdown cooling RHR pump(s). However, since the source of the leakage is known (failure of the refueling bellows), actions per CPS 4011.01 Reactor Cavity Leakage During Refueling (establish secondary containment integrity) is appropriate. The secons part of this response is correct.

D is incorrect but plausible. This answer would be correct if:

- the leakage source had not been identified. Then the proper course of action would be CPS 4011.01 step 4.2 which directs securing the operating shutdown cooling RHR pump(s), and
- the irradiated fuel in the REFUELING PATHWAY had been UNCOVERED (NOT reported by Refuel SRO) or the alarming Rad Monitors (in Table R1) were reading >1000 mRem/hr (based on the Yellow tiles) indicating damage to irradiated fuel, leading the candidate to the conclusion that the conditions for ALERT RA2 Significant lowering of water level above, or damage to, irradiated fuel had been met.

Question Information

Topic	The plant is in Mode 5 with core alterations in progress. Spent fuel is being temporarily stor				
User ID	CL-ILT-N19078			**System ID**	2147011
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question meets the KA because given a refuel accident, the examinee must be able to evaluate/interpret the conditions presented in the stem and make operational judgements leading to an emergency classification.
SRO-Only Justification	Question linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during emergency situations and 10CFR55.43(b)(7) for SRO Fuel handling facilities and procedures. Also linked to SRO only task 999999.12 Direct refueling activities as refueling supervisor.
Additional Information	Question is high cog, written at the analysis/ comprehension level. The candidate must analyze the plant conditions provided in the stem, determine the appropriate subsequent actions to be taken as well as an emergency classification based on that analysis (3-

	SPK/SPR).

NRC Exams Only			
Question Type	Bank (CL-ILT-N15081)	**Difficulty**	N/A
Technical Reference and Revision #	• EP-AA-1003 Addendum 3 Rev. 2 • CPS 5067.03 (3L) Rev. 32c • CPS 5067.04 (4L) Rev. 31 • CPS 5068.07 (7A) Rev. 24 • CPS 5140.63 Rev. 1c • CPS 5140.65 Rev. 0d • CPS 4011.01 Rev. 5b • CPS 9000.02D001 Rev. 38a		
Training Objective	PB401101.01.01 Given specific plant conditions, determine if CPS No. 4011.01, REACTOR CAVITY LEAKAGE DURING REFUELING, should be used. LP87537.01.10Given section 3 of EP-AA-1003, Radiological Emergency Plan Annex For Clinton Station, and plant parameters indicative of one or more of the following events, properly classify the emergency. .01 Fission Product Boundary Failure .02 Fuel Damage/Degraded Core .03 Radiological Emergency .04 Abnormal Reactor Coolant Leaks, Temperatures and/or Pressures .05 Steam Line Breaks/Safety Relief Valve Failure .06 Loss of Shutdown Systems .07 Reactor Scram .08 Electrical Power Failure .09 Control Room Events .10 Fire .11 Security Events .12 Natural Phenomenon .13 Contaminated Injury .14 Other Hazardous Conditions .15 Loss of Annunciators .16 Failure to meet Tech Spec Action Statement		
Previous NRC Exam Use	ILT 15-1 NRC Exam		

K/A Reference(s)

295023.AA2.01	Safety Function 8	Tier 1	Group 1	RO Imp: 3.6	SRO Imp: 4.0
Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS : (CFR: 41.10 / 43.5 / 45.13) Area radiation levels					

Learning Objective(s)

Q3/78 295023 AA2.01

User (Sys) ID N/A (1537898)

Cross Reference Links

None

Question 4	ID: 2157241	Points: 1.00

Plant conditions:
- MODE Switch is in SHUTDOWN
- Multiple rods failed to insert
- All injection systems except for SLC, RCIC and CRD are terminated and prevented
- 7 ADS SRVs are opened

In accordance with ____(1)____, the CRS should direct the 'A' RO to commence injection into the RPV once reactor pressure first drops below the ____(2)____.

A. (1) EOP-1A
(2) Decay Heat Removal Pressure

B. (1) EOP-1A
(2) Minimum Steam Cooling Pressure

C. (1) EOP-3
(2) Decay Heat Removal Pressure

D. (1) EOP-3
(2) Minimum Steam Cooling Pressure

Answer	B

Answer Explanation

B is correct. Per CPS 4100.01 Reactor Scram, Shutdown Criteria is met when:
- All rods are inserted to position 00 (Full In) or position 02, OR
- No more than 1 rod out beyond position 02, with all other rods in at 00, OR
- A qualified Reactor Engineer has determined that the reactor will remain shutdown under all conditions without boron.

Based on the conditions presented in the stem (multiple rods beyond position 02), shutdown criteria is NOT met. Per EOP-1 RPV Control, the CRS would have transitioned from EOP-1 to EOP-1A ATWS RPV Control.

Again, based on conditions presented in the stem, the CRS transitioned from EOP-1A to EOP-3 Emergency RPV Depressurization (Blow Down) and has initiated a Blow Down (as evidenced by the 7 open SRVs)

Per EOP-3, once the 7 SRVs are open, the CRS should re-enter EOP-1A and wait until RPV pressure lowers below the value in Table J. Per the EOP Technical Bases, as pressure lowers Adequate Core Cooling (ACC) is maintained as long as reactor pressure remains above the Minimum Steam Cooling Pressure (MSCP). At pressures above this value, the steam flow provides sufficient cooling to maintain ACC. Once reactor pressure drops below this value, injection must be restored.

Incorrect Responses:

A is incorrect but plausible. Once the SRVs are open the CRS must transition back to EOP-1A, but does not depressurize to the Decay Heat Removal Pressure prior to commencing injection. Per the EOP Technical Bases (pg 7-16), when continuing in EOP-3 (non-ATWS condition) AND less than 5 SRVs open, "depressurized" is defined to be an RPV pressure less than 52 psig, the Decay Heat Removal Pressure.

C is incorrect but plausible. This response is plausible because the conditions given in the stem note that a blowdown is in progress per EOP-3. However, re-entry to EOP-1A is required once 7 SRVs are open. Additionally, injection is required when pressure drops below the Minimum Steam Cooling Pressure.

D is incorrect but plausible. This response is plausible because the conditions given in the stem note that a blowdown is in progress per EOP-3. However, re-entry to EOP-1A is required once 7 SRVs are open. The second part of the response is correct.

Question Information

Topic	Plant conditions: · MODE Switch is in SHUTDOWN Multiple rods failed to insert · All injection sy				
User ID	CL-ILT-N19079			**System ID**	2157241
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question meets the KA because the examinee must recognize that based on plant conditions given in the stem, an EOP-3 blowdown has occurred and understand how Adequate Core Cooling is affected by reactor pressure and level with these conditions. RPV water level is below -162 inches (TAF) and therefore Adequate Core Cooling can no longer be maintained by RPV water level. Therefore, the candidate must understand how Adequate Core Cooling is determined based on RPV pressure.
SRO-Only Justification	Question linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency conditions. Requires knowledge of specific procedure content to perform Emergency RPV Depressurization and Recovery during ATWS conditions. Also linked to SRO only task 440701.04 (Direct actions to Emergency Depressurize per EOP-3 during ATWS).
Additional Information	Question is low cog written at the memory level. The candidate must recall facts and information contained in a procedure (1-F).

NRC Exams Only			
Question Type	Bank (CL-ILT-15082)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4407.01 Rev 30 • CPS 4404.01 Rev 30 • EOP Tech Bases Rev 7		
Training Objective	LP87550.01.01 Recall the definition and bases for the following EOP Variables and Curves:.01 Adequate Core Cooling .02 Shutdown Criteria .25 Minimum Steam Cooling Pressure		
Previous NRC Exam Use	ILT 15-1 NRC		

K/A Reference(s)

295031.EA2.03	Safety Function 2	Tier 1	Group 1	RO Imp: 4.2*	SRO Imp: 4.2*
Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL : (CFR: 41.10 / 43.5 / 45.13) Reactor pressure					

Learning Objective(s)

Q4/79 295031 EA2.03

User (Sys) ID N/A (1537899)

Cross Reference Links

Table: TRAINING - QUESTIONS - Track Questions Modified in this Project (CL-OPS-EXAM-ILT)
Tracking link in project CL-OPS-EXAM-ILT to source question 2147210

Question 5	ID: 2147286	Points: 1.00

The plant is operating at rated thermal power (RTP) with NO testing in progress.

THEN, the following annunciators were received:

- 5067-8L SRV MONITORING SYSTEM TROUBLE
- 5066-5B ADS OR SAFETY RELIEF VALVE LEAKING
- 5004-3F SPDS CSF ALARM (Suppression Pool Temperature alarming 2°F above the setpoint)

Appropriate operator actions have been taken.

If Suppression Pool temperature rises an additional 3°F over the next 24 hours, entry into CPS ____(1)____ is required.

This action is taken to prevent exceeding the Design Basis maximum allowable value for ____(2)____ temperature.

A. (1) 3006.01 Unit Shutdown
(2) Drywell

B. (1) 4100.01 Reactor Scram
(2) Drywell

C. (1) 3006.01 Unit Shutdown
(2) Primary Containment

D. (1) 4100.01 Reactor Scram
(2) Primary Containment

Answer	C

Answer Explanation

C is correct.

Part 1:

- Per ITS 3.6.2.1 Suppression Pool Average Temperature Required Action B.1, if suppression pool average temperature cannot be restored to ≤ 95°F within 24 hours then THERMAL POWER must be reduced to ≤ 1% RTP within 12 hours requiring entry into CPS 3006.01 Unit Shutdown.

Part 2:

- Per ITS B3.6.2.1 Suppression Pool Average Temperature, maintaining suppression pool temperature below the LCO limit (95°F) is required to assure that the primary containment conditions assumed for the safety analyses are met. This limitation subsequently ensures that peak primary containment pressures and temperatures do not exceed maximum allowed values during a postulated DBA or any transient resulting in heatup of the suppression pool.

Incorrect Responses:

A is incorrect but plausible. This answer is partially correct in that the plant must be shutdown, however this action is taken to prevent exceeding the Design Basis maximum allowable value for Primary Containment temperature. Per ITS 3.6.5.5 Drywell Air Temperature, maintaining drywell air temperature below the LCO limit (150°F) is required to assure that the drywell conditions assumed for the safety analyses are met. This limitation ensures that the peak LOCA drywell temperature does not exceed the maximum allowable temperature of 330°F.

B is incorrect but plausible:

- Part 1 - ITS requires the plant to be scrammed if suppression pool average temperature is > 110°F but ≤ 120°F (ITS 3.6.2.1 D.1). This answer is incorrect because SP temperature has not yet reached this value (currently at 100°F).
- Part 2 - ITS bases requires maintaining drywell air temperature below the LCO limit (150°F) to assure that the drywell conditions assumed for the safety analyses are met. This answer is incorrect because drywell temperature has not exceeded the LCO limit.

D is incorrect but plausible. ITS requires the plant to be scrammed if suppression pool average temperature is > 110°F but ≤ 120°F (ITS 3.6.2.1 D.1). This answer is incorrect because SP temperature has not yet reached this value (currently at 100°F).

Question Information

Topic	The plant is operating at rated thermal power (RTP) with NO testing in progress. THEN, the follo				
User ID	CL-ILT-N19080			**System ID**	2147286
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.

References Provided	None
K/A Justification	Question meets the KA because the examinee must demonstrate the knowledge of ITS LCO bases with regard to Suppression Pool high water temperature to determine the correct response.
SRO-Only Justification	This question is linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency conditions.
Additional Information	Question is high cog written at the analysis and comprehension level. The examinee has to analyze the conditions presented in the stem and then determine the appropriate LCO/basis based on ITS (3-SPK).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• ITS 3.6.2.1 (3.6-28/29) Amend. 95 • ITS B3.6.2.1 (3.6-49) Rev. 20-2		
Training Objective	223001.14 Given PRIMARY CONTAINMENT System operability status and a copy of Tech Specs, DISCUSS the bases for the PRIMARY CONTAINMENT System Tech Spec LCO, related safety limits and Limiting Safety System Settings.		
Previous NRC Exam Use	None		

K/A Reference(s)

B2.2.25	Safety Function 2	Tier 3	Group	RO Imp: 3.2	SRO Imp: 4.2
Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits. (CFR: 41.5 / 41.7 / 43.2)					
GS.295026	Safety Function 5	Tier 1	Group 1	RO Imp:	SRO Imp:
Suppression Pool High Water Temperature					

Learning Objective(s)

Q5/80 295026 2.2.25
User (Sys) ID N/A (1537900)

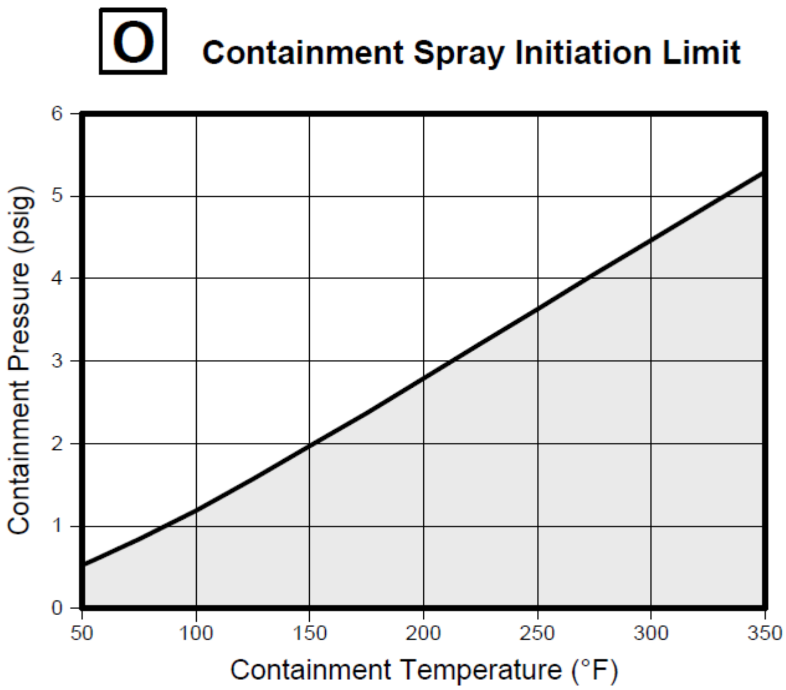
Cross Reference Links

None

Question 6	ID: 2147326	Points: 1.00

A transient has occurred requiring entry into EOP-6 Primary Containment Control.

Given the detail below:



In which of the following scenarios is Containment Spray permitted?

	RPV Level	CNMT Temperature	CNMT Pressure
Scenario 1	-92"	140°F	1.5 psig
Scenario 2	-92"	150°F	3.0 psig
Scenario 3	-102"	140°F	1.5 psig
Scenario 4	-102"	150°F	3.0 psig

A. Scenario 1 ONLY

B. Scenario 2 ONLY

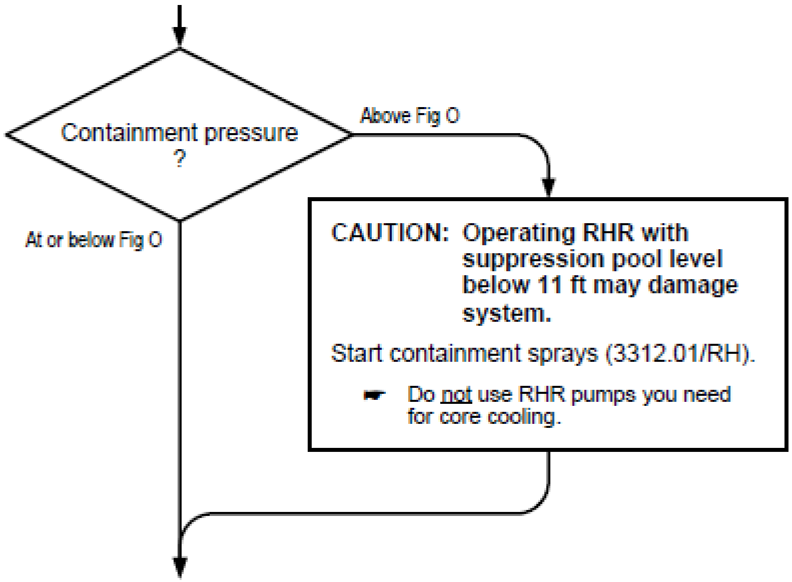
C. Scenario 1 AND 3

D. Scenario 2 AND 4

Answer	**B**

Answer Explanation

B is correct. Per EOP-6 PRIMARY CONTAINMENT CONTROL and the EOP Tech Bases, containment sprays are initiated when containment pressure and temperature is within the "OK TO SPRAY" (unshaded) region of Figure O Containment Spray Initiation Limit. The note states "Do not use RHR pumps you need for core cooling".



Per OP-CL-101-111-1001 Strategies for Successful Transient Mitigation, Alignment of Systems Needed For Adequate Core Cooling (ACC): A trigger point of "-100 inches and lowering" is recommended for evaluating the need to re-align injection systems and/or initiate/maintain containment sprays.

With containment pressure and temperature in the "OK TO SPRAY" region of Figure O and RPV level above the trigger point of -100 inches, the RHR pumps are not needed for core cooling and containment spray IS permitted.

Incorrect Responses.

A is incorrect but plausible. This answer would be correct if containment sprays were allowed within the shaded region of Figure O Containment Spray Initiation Limit. However, containment sprays are initiated when containment pressure and temperature is within the "OK TO SPRAY" (unshaded) region of Figure O.

C is incorrect but plausible. This answer would be correct if:

- RPV level in Scenario 1 was above the trigger point of -100 inches, AND
- containment sprays were allowed within the shaded region of Figure O Containment Spray Initiation Limit (Scenario 1 and 3).

D is incorrect but plausible. Containment spray is permitted in Scenario 2. This answer would be correct if RPV level in Scenario 4 was above the trigger point of -100 inches. However, with RPV level below the trigger point of -100 inches, RHR pumps ARE needed for core cooling in Scenario 4.

Question Information

Topic	A transient has occurred requiring entry into EOP-6 Primary Containment Control. Given the detai				
User ID	CL-ILT-N19081			**System ID**	2147326
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question meets the KA because the examinee must interpret containment pressure with regard to high containment temperature parameters presented in the stem and determine correct procedural actions to answer the question.
SRO-Only Justification	Question is linked to SRO Only task 440201.03 Determine when Containment Sprays are required, when executing EOPs, and to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Additional Information	Question is high cog written at the analysis and comprehension level. The candidate must analyze the data provided in the stem and then determine required actions based on knowledge of EOP-6 Primary Containment Control (3-SPK).

NRC Exams Only			
Question Type	Bank (CL-ILT-N15075)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4402.01 Rev. 30 • EOP-TB Rev. 7 • OP-CL-101-111-1001 Rev. 15d		
Training Objective	LP87558.01.08 Given a diagram of EOP-6, explain the use and/or function of the following inserts: .07 Figure O, Containment Spray Initiation Limit		
Previous NRC Exam Use	ILT 15-1 NRC Exam		

K/A Reference(s)

295027.EA2.02	Safety Function 5	Tier 1	Group 1	RO Imp: 3.7	SRO Imp: 3.7
Ability to determine and/or interpret the following as they apply to HIGH CONTAINMENT TEMPERATURE (MARK III CONTAINMENT ONLY) : (CFR: 41.10 / 43.5 / 45.13) Containment pressure: Mark-III					

Learning Objective(s)

Q6/81 295027 EA2.02
User (Sys) ID N/A (1537901)

Cross Reference Links

None

Question 7	ID: 2147327	Points: 1.00

The plant is operating at rated thermal power. Spent fuel inspections are in progress in the Fuel Building.

THEN, a spent fuel bundle is severely damaged.

- The Fuel Building Ventilation (VF) system failed to isolate automatically and manually. The VF supply and exhaust fans are OFF and the Standby Gas Treatment System (SGTS) is in Standby.

- The radiation release rate from the Fuel Building has exceeded the Emergency Plan UNUSUAL EVENT level.

The following additional conditions are present:

- All Fuel Building Exhaust Vent Plenum Monitors indicate UPSCALE.
- Fuel Building Fuel Pool Cooling Pump Room Survey indicates 500 Rem/hr.
- Fuel Building Fuel Pool Cooling Heat Exchanger Room Survey indicates 700 Rem/hr.
- Fuel Building General Area Elevation 737' Survey indicates 20 Rem/hr.

Below is Table U from EOP-8, Secondary Containment Control.

U	Area Radiation Limits		
Area	**Method**	**Max Normal**	**Max Safe**
Fuel Pool Clg Heat Exch Rm	Survey	100 mR/hr	400 R/hr
Fuel Bldg Gen Area EL 712'	Survey	2.5 mR/hr	25 R/hr
Fuel Bldg Pipe Valve Room	Survey	10 mR/hr	400 R/hr
Fuel Bldg Fuel Pool Clg Pmp Rm	Survey	20 mR/hr	400 R/hr
Fuel Bldg Gen Area EL 737'	Survey	2.5 mR/hr	25 R/hr

Which of the following actions must be performed NEXT?

A. Perform a normal reactor plant shutdown.

B. Scram and perform an Emergency RPV Depressurization.

C. Scram and depressurize the RPV rapidly using Main Turbine Bypass Valves.

D. Verify Turbine Building Ventilation (VT) is in operation OR restart VT if necessary.

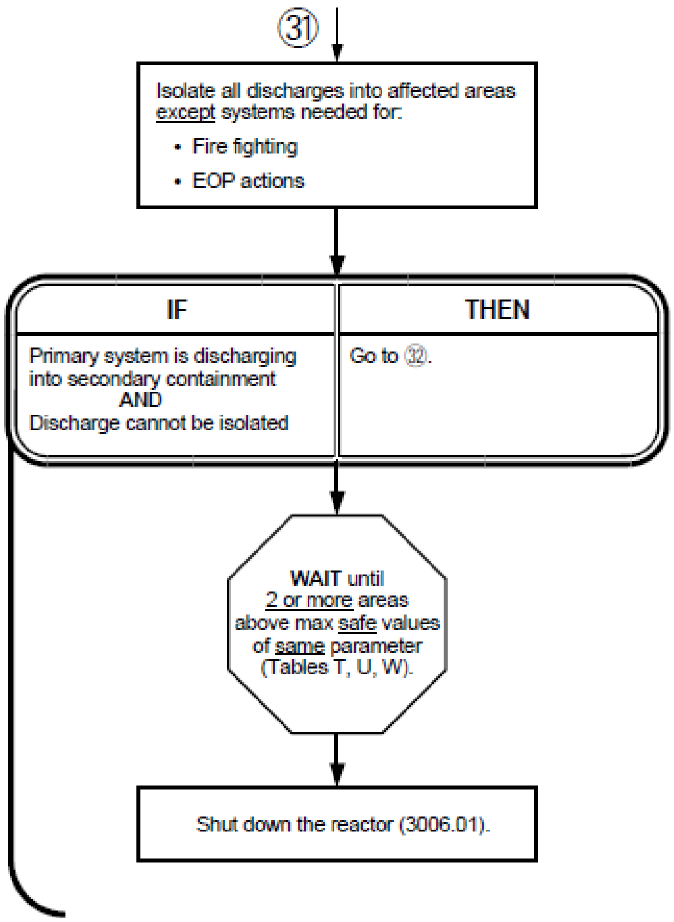
Answer	A

Answer Explanation

A is correct:

Per CPS 4406.01 EOP-8 Secondary Containment Control, when two or more areas (same parameter) are above max safe values, EOP-8 requires the MCR to shutdown the reactor per 3006.01 Unit Shutdown.

A blowdown is only required if a primary system is discharging into the secondary containment in EOP-8, or if a primary system is discharging outside the primary and secondary containments and off-site release rates are above EP-AA-1003 Emergency Plan Radiological Effluent "Alert" level in EOP-9.



Incorrect Responses:

B is incorrect but plausible. This answer would be correct if:

- a primary system was discharging into the secondary containment that could not be isolated, with
- two (2) or more areas of the same parameter above max safe.

However, there is NO primary system discharging to the secondary containment, so with two areas of the same parameter above max safe EOP-8 requires the MCR to shutdown the reactor per CPS 3006.01 Unit Shutdown.

C is incorrect but plausible. This answer would be correct if:

- a primary system was discharging into the secondary containment that could not be isolated, with
- one (1) area above max safe and anticipating a second area (same parameter) to rise above max safe.

However, there is NO primary system discharging to the secondary containment with two areas of the same parameter above max safe. EOP-8 requires the MCR to shutdown the reactor per 3006.01 Unit

Shutdown.

D is incorrect but plausible. This answer would be correct if the off-site release rate from the Fuel Building (FB) was above the EP-AA-1003 Emergency Plan Radiological Effluent "Alert" Level.

The first action of EOP-9 is:

- IF Turbine Building Ventilation (VT) is shutdown
- THEN Restart Turbine Building Ventilation.

Question Information

Topic	The plant is operating at rated thermal power. Spent fuel inspections are in progress in the Fuel B				
User ID	CL-ILT-N19082			**System ID**	2147327
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question meets the KA because the examinee must analyze/verify instrument setpoints are greater than Area Radiation Limits (concurrent with an off-site release) and take action to mitigate those conditions presented in the stem.
SRO-Only Justification	Question is linked to SRO Only task 440601.02 Respond to a Secondary Containment Control Emergency per EOP-8, and to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Additional Information	Question is high cog written at the analysis and comprehension level. The candidate must analyze the data provided in the stem and then determine required actions based on knowledge of EOP-8 Secondary Containment Control (3-SPK).

NRC Exams Only			
Question Type	Bank (CL-ILT-A11079)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4406.01 Rev. 30		
Training Objective	N-CL-OPS-DB-LP87559.01.07Given EOP-8 and the following increasing Secondary Containment parameters, state when a Reactor Scram is required: .01 Temperature (Table T). .02 Radiation Level (Table U) .03 Water Level (Table W)		

Previous NRC Exam Use	None

K/A Reference(s)

GS.295038	Safety Function 9	Tier 1	Group 1	RO Imp:	SRO Imp:
High Off-Site Release Rate					
B2.4.50	Safety Function 9	Tier 3	Group	RO Imp: 4.2	SRO Imp: 4.0
Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. (CFR: 41.10 / 43.5 / 45.3)					

Learning Objective(s)

Q7/82 295038 2.4.50
User (Sys) ID N/A (1537902)

Cross Reference Links

None

Question 8	ID: 2148786	Points: 1.00

A reactor scram has occurred.

- EOP-1 RPV Control has been entered.
- NO other EOPs have been entered.
- RPV pressure and level stabilization efforts are in progress using ONLY RCIC and SRVs.
- Opening SRVs has resulted in multiple trips of the RCIC Turbine.

Under these conditions, which of the following describes the MAXIMUM RPV level and pressure bands that are permitted to be established?

(1) level band

(2) pressure band

A. (1) +8.9 to +52 inches
(2) 600 - 1065 psig

B. (1) +8.9 to +52 inches
(2) 800 - 1065 psig

C. (1) -30 to +40 inches
(2) 800 - 1065 psig

D. (1) -30 to +40 inches
(2) 600 - 1065 psig

Answer	D

Answer Explanation

D is correct.

Per OP-CL-101-111-1001 Strategies For Successful Transient Mitigation EOP 1 RPV Control, direct initial RPV:

- level band of Level 3 (8.9 in.) to Level 8 (52 in.) IAW CPS 4411.03
- pressure band of 800-1065 psig IAW CPS 4411.09

Per CPS 4100.01 Reactor Scram section 4.3 Level Control Actions / 4.4 Pressure Control Actions:

- stabilize RPV level Level 3 (8.9 in.) to Level 8 (52 in.)
- stabilize RPV pressure < 1065 psig
- if RPV level can not be stabilized, then expand level band to -30 to +40 in. Wide Range with a target of 0 in. to +10 in. Wide Range. Expanding the pressure band to 600 - 1065 psig will assist with pressure/level coordination efforts.

Although, OP-CL-101-111-1001 Strategies For Successful Transient Mitigation EOP 1 RPV Control points out that use of the expanded pressure band is not required to be used concurrent with using an expanded level band; however:

- expanding the pressure band may assist with level control actions, and
- the maximum permitted pressure band would be the expanded pressure band

Based on plant conditions presented in the stem (RPV can not be stabilized), the expanded level and pressure bands should be utilized.

Incorrect Responses:

A is incorrect but plausible. The first part of this answer would be correct if RPV level could be stabilized per CPS 4100.01 Level Control Actions and OP-CL-101-111-1001 Strategies For Successful Transient Mitigation. However, based on plant conditions presented in the stem (RPV can not be stabilized), the expanded level band should be utilized. The second part of the question is correct.

B is incorrect but plausible. This answer would be correct if RPV level could be stabilized per CPS 4100.01 Level Control Actions and OP-CL-101-111-1001 Strategies For Successful Transient Mitigation. However, based on plant conditions presented in the stem (RPV can not be stabilized), the expanded level and pressure bands should be utilized.

C is incorrect but plausible. The first part of the answer is correct. The second part of this answer would be correct if RPV level could be stabilized per CPS 4100.01 Level Control Actions and OP-CL-101-111-1001 Strategies For Successful Transient Mitigation. However, based on plant conditions presented in the stem (RPV can not be stabilized), the expanded pressure band should be utilized in conjunction with the expanded level band.

Question Information

Topic	A reactor scram has occurred. EOP-1 RPV Control has been entered. NO other EOPs have been enter				
User ID	CL-ILT-N19083			**System ID**	2148786
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	10 CFR 55.43 SRO WRITTEN EXAMINATION

References Provided	None
K/A Justification	Question meets the KA because the examinee has to analyze the conditions in the stem, and then determine that the RPV level and pressure band must be expanded to assist with RPV pressure and level coordination efforts.
SRO-Only Justification	Question is linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Additional Information	Question is low cog written at the memory level. The candidate must recall the pressure and level bands prescribed by CPS procedures (1-F).

NRC Exams Only			
Question Type	Bank (CL-ILT-A14085)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4401.01 Rev. 30 • CPS 4100.01 Rev. 23f • OP-CL-101-111-1001 Rev. 15d		
Training Objective	410001.01) respond to the following Reactor Scram conditions: .2 Turbine/Generator trip without bypass valves.		
Previous NRC Exam Use	None		

K/A Reference(s)

295008.AA2.01	Safety Function 2	Tier 1	Group 2	RO Imp: 3.9	SRO Imp: 3.9
Ability to determine and/or interpret the following as they apply to HIGH REACTOR WATER LEVEL : (CFR: 41.10 / 43.5 / 45.13) Reactor water level					

Learning Objective(s)

Q8/83 295008 AA2.01

User (Sys) ID N/A (1537903)

Cross Reference Links

None

Question 9	ID: 2148787	Points: 1.00

The plant is operating at 90% power, THEN a transient occurs.

The 'A' Reactor Operator (RO) observes and reports the following:

- A step change in Reactor Power to 93%.
- Reactor recirculation flow and feedwater temperature are unchanged.

The CRS shall direct the 'A' RO to lower reactor power to the original level using ____(1)____ FIRST.

(2) Who is required to be notified?

A. (1) RR flow
(2) Reactor Engineer (RE) only.

B. (1) RR flow
(2) Reactor Engineer (RE) and Nuclear Station Engineering Department (NSED).

C. (1) rod insertion
(2) Reactor Engineer (RE) only.

D. (1) rod insertion
(2) Reactor Engineer (RE) and Nuclear Station Engineering Department (NSED).

Answer	A

Answer Explanation

A is correct.

Per CPS 4007.03 Rod Drop Section 1.0 Symptoms, the information provided in the stem is indicative of a rod drop.

Per CPS 4007.03 Section 4.0 Subsequent Actions:

- Lower reactor power to the original level using first core flow and then rod insertion.
- Notify the Reactor Engineer (RE) of the event.

Incorrect Responses:

B is incorrect but plausible. The first part of this response is correct. The second part would be correct if the stem conditions were indicative of core shroud cracking above the top guide, which will also cause an abrupt change in reactor power. However, based on the plant conditions presented in the stem, it is appropriate to enter CPS 4007.03 Rod Drop which requires the Reactor Engineer (RE) only to be notified.

C is incorrect but plausible. The first part of this response is plausible because CPS 3005.01 Unit Power Changes requires rod insertion for an inadvertent MELLLA Limit violation or forced entry into the

Controlled Entry Region. However, CPS 4007.03 Rod Drop requires reactor power to be lowered first by core flow. The second part is correct.

D is incorrect but plausible.

- The first part of this response is plausible because CPS 3005.01 Unit Power Changes requires rod insertion for an inadvertent MELLLA Limit violation or forced entry into the Controlled Entry Region. However, CPS 4007.03 Rod Drop requires reactor power to be lowered first by core flow.
- The second part would be correct if the stem conditions were indicative of core shroud cracking above the top guide, which will also cause an abrupt change in reactor power. However, based on the plant conditions presented in the stem, it is appropriate to enter CPS 4007.03 Rod Drop which requires the Reactor Engineer (RE) only to be notified.

Question Information

Topic	The plant is operating at 90% power, THEN a transient occurs. The 'A' Reactor Operator (RO) obse				
User ID	CL-ILT-N19084			**System ID**	2148787
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	10 CFR 55.43 SRO WRITTEN EXAMINATION

References Provided	None
K/A Justification	Question meets the KA because the examinee must interpret the conditions in the stem (to include reactor power) following an Inadvertent Reactivity Addition, and then determine the appropriate actions that the CRS must direct and who he/she must notify.
SRO-Only Justification	Question is linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Additional Information	Question is high cog written at the analysis level. The candidate must diagnose the condition given in the stem and then determine appropriate actions (3-SPK).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4007.03 Rev. 8d • CPS 4007.02 Rev. 13c • CPS 3005.01 Rev. 46		
Training Objective	PB400703.01 Given specific plant conditions, determine if CPS No. 4007.03, ROD DROP, should be used.		
Previous NRC Exam Use	None		

K/A Reference(s)

295014.AA2.01	Safety Function 1	Tier 1	Group 2	RO Imp: 4.1*	SRO Imp: 4.2*
Ability to determine and/or interpret the following as they apply to INADVERTENT REACTIVITY ADDITION : (CFR: 41.10 / 43.5 / 45.13) Reactor power					

Learning Objective(s)

Q9/84 295014 AA2.01
User (Sys) ID N/A (1537904)

Cross Reference Links

None

Question 10	ID: 2149626	Points: 1.00

The plant was operating at rated thermal power when annunciator 5013-5D HIGH-HIGH LEVEL FLR/EQUIP DRN SUMP - AUX BLDG was received.

The 'A' RO reports:

- computer point CM-BC813 RCIC Floor Drn Sump Lvl indicates HI HI, and
- Suppression Pool level is lowering at 1 inch per minute.

CPS 4304.01 Flooding Table 2 - Suppression Pool Level / ECCS Room Equalization Levels				
ECCS Room	Final Pool Level		ECCS Room	Final Pool Level
HPCS	~ 15' 3"		RHR A	~ 15' 5"
LPCS	~ 14' 4"		RHR B	~ 15' 5"
RCIC	~ 16' 2"		RHR C	~ 14' 10"

If Suppression Pool level lowers to the equalization level, what EOP action is required and what is the reason for that action?

A. Scram to reduce the break flow into the secondary containment.

B. Enter EOP-3 and blowdown to prevent exceeding the heat capacity of the suppression pool.

C. Shutdown the reactor due to the widespread and immediate threat to equipment in the secondary containment.

D. Isolate the discharge into the RCIC Pump Room to protect equipment necessary for safe operation of the plant.

Answer	D

Answer Explanation

D is correct:

Per CPS 4406.01 Secondary Containment Control, an EOP-8 entry condition has been exceeded due to floor drain sump level above max normal (Table V). If floor drain sump level cannot be held below max normal, then the required action is to isolate all discharges into affected areas except systems needed for damage control or EOP actions. Per the EOP-TB page 9-1, EOP-8 Secondary Containment Control is used to protect equipment in the secondary containment.

Additional actions in 4406.01 Secondary Containment Control are not required because:

- The leak from the Suppression Pool does not constitute a primary leak, precluding the need to perform actions at 32, and
- multiple areas of the secondary containment are not impacted by the leakage (only the RCIC room) requiring the reactor to be shutdown.

EOP-6 Primary Containment Control will also be entered due to Suppression Pool Level below 18.9 feet. Actions are required to initiate normal Suppression Pool makeup methods to hold level above 15.1 ft and to scram and enter EOP-3 blowdown if SP level cannot be maintained above 15.1 ft. Since the equalization level for the RCIC Room is 16' 2", a scram and blowdown will not be required.

Incorrect Responses:

A is incorrect but plausible. Per EOP-TB page 9-11 and 9-12, break flow into the secondary containment is reduced when a primary system is discharging into the secondary containment by inserting a scram. Since the leak in the stem is not a primary system, inserting a scram to reduce the break flow is not the action or the reason for performing required EOP actions.

B is incorrect but plausible. EOP-6 requires a blowdown to be performed if Suppression Pool level cannot be held above 15'1" to prevent exceeding the heat capacity of the Suppression Pool. Since the equalization level is above 15'1", performing a blowdown to prevent exceeding the heat capacity limit of the suppression pool is not the action or the reason for performing required EOP actions.

C is incorrect but plausible. This answer would be correct if the SP leakage was impacting another area in the secondary containment (cross flooding). EOP-8 requires a reactor shutdown to be performed if 2 or more areas in the secondary containment are above max safe values for level due to non-primary system leakage. EOP-TB page 9-10 states the bases for this action is due to the indications of a wide-spread problem posing a direct and immediate threat to the secondary containment. Since only 1 area is impacted (the RCIC Pump Room), a reactor shutdown is not required by EOP-8.

Question Information

Topic	The plant was operating at rated thermal power when annunciator 5013-5D HIGH-HIGH LEVEL FLR/EQUIP D				
User ID	CL-ILT-N19085			**System ID**	2149626
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question meets the KA because the examinee must demonstrate the ability to explain and apply system limits and precautions with regard to Secondary Containment High Sump/Area Water Level to answer the question correctly.
SRO-Only Justification	Question is linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal,

	abnormal, and emergency conditions.
Additional Information	Question is high cog written at the analysis and comprehension level. The candidate must analyze the conditions provided in the stem and then determine the effect/consequences/mitigation strategies based on that analysis (3-SPK).

NRC Exams Only			
Question Type	Bank (CL-ILT-N17085)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4304.01 Rev. 6c • CPS 4402.01 Rev. 30 • CPS 4406.01 Rev. 30 • EOP-TB Rev. 7		
Training Objective	N-CL-OPS-DB-LP87559.01.10 Describe the normal means of control for a slow increase in Secondary Containment Water Levels.		
Previous NRC Exam Use	ILT 17-1 NRC Exam		

K/A Reference(s)

GS.295036	Safety Function 5	Tier 1	Group 2	RO Imp:	SRO Imp:
Secondary Containment High Sump/Area Water Level					
B2.4.18	Safety Function 5	Tier 3	Group	RO Imp: 3.3	SRO Imp: 4.0
Knowledge of the specific bases for EOPs. (CFR: 41.10 / 43.1 / 45.13)					

Learning Objective(s)

Q10/85 295036 2.4.18 (17-1N)
User (Sys) ID N/A (1537905)

Cross Reference Links

None

Question 11	ID: 2167015	Points: 1.00

The plant is in Mode 2 performing a startup.

- Heatup and pressurization is complete.
- CPS 9433.20A ECCS LPCS Pump Discharge Pressure ADS E21-N052 Channel Calibration is in progress.

During the performance of CPS 9433.20A Section 8.1, Functional Test, Analog Trip Module (ATM) ADS LCPS Pump Discharge Pressure E21-N652 failed to trip.

- ATM E21-N652 receives an input from transmitter E21-N052.

Which of the following ITS required actions and associated completion times are required?

A. Restore instrument channel to operable status in 8 days.

B. Restore instrument channel to operable status in 96 hours AND 8 days.

C. Declare ADS valves inoperable in one hour AND restore instrument channel to operable status in 8 days.

D. Declare ADS valves inoperable in one hour AND restore instrument channel to operable status in 96 hours AND 8 days.

Answer	A

Answer Explanation

A is correct.

Per ITS 3.3.5.1 Emergency Core Cooling System (ECCS) Instrumentation, with function 4.e, LPCS Pump Discharge Pressure - High INOPERABLE, condition A.1 and Condition G must be entered.

- Required action G.1 is not required to be taken since initiation capability has not been lost in either ADS trip system (Div 1 or 2).
- Required Action G.2 requires the inoperable channel to be restored within 8 days.

Incorrect Responses:

B is incorrect but plausible. This response would be correct if Reactor Core Isolation Cooling (RCIC) were inoperable. Plausible because RCIC is not required to be operable until reactor steam dome pressure is > 150 psig. However, RCIC operability is required as part of the Mode 2 Checklist. Since the plant is in Mode 2 and Mode 2 checklist must be complete to transition to Mode 2, RCIC must be operable.

C is incorrect but plausible. This response would be correct if ADS valves were rendered inoperable by a single instrument failure. Plausible because the LPCS Discharge Press instrument is an input to ADS logic. However, a trip of either of the two discharge pressure transmitter ATMs (LPCS or LPCI 'A' for Div

1; LPCI 'B' or 'C' for Div 2) will satisfy the ADS logic. Therefore, ADS valves are NOT rendered inoperable by a single instrument failure per ITS B3.3.5.1.

D is incorrect but plausible. This response would be correct if:

- RCIC were inoperable, and
- ADS valves were rendered inoperable by a single instrument failure.

Question Information

Topic	he plant is in Mode 2 performing a startup. □ Heatup and pressurization is complete. □ CPS 9433.2				
User ID	CL-ILT-N19086			**System ID**	2167015
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.

References Provided	• ITS 3.3.5.1
K/A Justification	Question meets the K/A because it requires the candidate to demonstrate knowledge of surveillance procedures with regards to a failed instrument and given plant conditions apply Technical Specifications to determine required actions and completion times.
SRO-Only Justification	Linked to SRO-only task 140109.23 Apply The Administrative Requirements For Execution Of Technical Specifications Or Off-Site Dose Calculation Manual Requirements.
Additional Information	Question is high cog written at the application level. The candidate must apply the conditions presented in the stem (instrumentation channel failure) to the reference (technical specifications) to determine the required actions and completion times (3-SPR).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• ITS 3.3.5.1 (3.3-31) Amendment No 95 • ITS 3.3.5.1 (3.3-37) Amendment No 95 • ITS 3.3.5.1 (3.3-42) Amendment No 216 • ITS B3.3.5.1 (3.3-93/94) Rev. 4-8 • CPS 9433.20A Rev. 0a		
Training Objective	209001.12 Given LPCS System operability status OR key parameter indications, plant conditions, and a copy of Tech Specs, DETERMINE if Tech Spec Limiting Condition for Operations have been met, and required		

	actions if any.
Previous NRC Exam Use	None

K/A Reference(s)

B2.2.12	Safety Function 5	Tier 3	Group	RO Imp: 3.7	SRO Imp: 4.1
Knowledge of surveillance procedures. (CFR: 41.10 / 45.13)					
GS.209001	Safety Function 2	Tier 2	Group 1	RO Imp:	SRO Imp:
Low Pressure Core Spray System					

Learning Objective(s)

Q11/86 209001 2.2.12
User (Sys) ID N/A (1537907)

Cross Reference Links

None

Question 12 **ID: 2147168** **Points: 1.00**

The plant is operating at rated thermal power (RTP).

At 0100, the 'D' Area Equipment Operator reports that the circuit breaker on AB MCC 1H for the Standby Liquid Control (SLC) Storage Tank Operating Heater (C41-D002) was discovered in the OFF position.

At 0600, Electrical Maintenance completes repairs and restores power to the SLC Storage Tank Operating Heater (C41-D002).

The following temperatures are recorded:

Time	SLC Storage Tank Solution Temperature	SLC Pump Suction Piping Temperature
0100	75°F	75°F
0200	74°F	73°F
0300	73°F	73°F
0400	71°F	70°F
0500	70°F	70°F
0600	69°F	70°F
0700	71°F	70°F
0800	73°F	72°F
0900	75°F	75°F

Both SLC subsystems are <u>first</u> INOPERABLE at ____(1)____.

Surveillance(s) ____(2)____ must be completed in order to restore both SLC subsystems to an OPERABLE status.

A. (1) 0200
(2) CPS 9915.01 Standby Liquid Control Chemical Sampling ONLY

B. (1) 0200
(2) CPS 9915.01 Standby Liquid Control Chemical Sampling AND CPS 9015.02 Standby Liquid Control Injection Operability

C. (1) 0600
(2) CPS 9915.01 Standby Liquid Control Chemical Sampling ONLY

D. (1) 0600
(2) CPS 9915.01 Standby Liquid Control Chemical Sampling AND CPS 9015.02 Standby Liquid Control Injection Operability

Answer	C

Answer Explanation

C is correct.

Per ITS 3.1.7 Standby Liquid Control (SLC) System Surveillance Requirements:

- SR 3.1.7.2 Verify temperature of sodium pentaborate solution is ≥ 70°F
- SR 3.1.7.3 Verify temperature of pump suction piping is ≥ 70°F
- SR 3.1.7.5 Verify the concentration of boron in solution is within the limits of Figure 3.1.7-1 - once within 24 hours after solution temperature is restored to ≥ 70°F

Per CPS 9915.01 Standby Liquid Control Chemical Sampling satisfies ITS surveillance requirement (SR) 3.1.7.5

Per CPS 9015.02 Standby Liquid Control Injection Operability once within 24 hours after pump suction piping temperature is restored to ≥ 70°F, perform section 8.2 Flow Path from Storage Tank to Test Tank Verification Test.

Incorrect Responses:

A is incorrect but plausible. The first part of this response would be correct if the minimum temperature specified in ITS 3.1.7 corresponded to the low end of the SLC Storage Tank temperature controller 1C41-TIC-R002 which controls between 75°F and 85°F. However, ITS 3.1.7 specifies a minimum temperature of 70°F. The second part of the response is correct.

B is incorrect but plausible. This response would be correct if:

- the minimum temperature specified in ITS 3.1.7 corresponded to the low end of the SLC Storage Tank temperature controller 1C41-TIC-R002 which controls between 75°F and 85°F, and
- SLC pump suction piping temperature had lowered to < 70°F in addition to SLC Storage Tank temperature.

D is incorrect but plausible, The first part of this response is correct. The second part would be correct if SLC pump suction piping temperature had lowered to < 70°F in addition to SLC Storage Tank temperature. However, since SLC pump suction piping temperature did not go below 70°F, the CPS 9015.02 Standby Liquid Control Injection Operability surveillance is not required to be performed.

Question Information

Topic	The plant is operating at rated thermal power (RTP). At 0100, the 'D' Area Equipment Operator re				
User ID	CL-ILT-N19087			**System ID**	2147168
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question meets the KA because the candidate must predict/determine at what point the SLC subsystems become inoperable and then what action(s) must be taken to correct/restore the SLC subsystems to an operable status.
SRO-Only Justification	Question is linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Additional Information	Question is high cog because the examinee must analyze the data provided in the stem and then determine when a subsystem became inoperable and the actions necessary to restore operability (3-SPK).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• ITS 3.1.7 (3.1-20/21) Amend. 192 • CPS 3314.01 Rev. 12b • CPS 9015.01 Rev. 43a • CPS 9015.02 Rev. 39c		
Training Objective	211000.12 Given STANDBY LIQUID CONTROL System operability status OR key parameter indications, plant conditions, and a copy of Tech Specs, DETERMINE if Tech Spec Limiting Condition for Operations have been met, and required actions if any.		
Previous NRC Exam Use	None		

K/A Reference(s)

211000.A2.05	Safety Function 1	Tier 2	Group 1	RO Imp: 3.1	SRO Imp: 3.4
Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6) Loss of SBLC tank heaters					

Learning Objective(s)

Q12/87 211000 A2.05
User (Sys) ID N/A (1537906)

Cross Reference Links

None

Question 13	ID: 2148909	Points: 1.00

The plant is operating at rated thermal power (RTP), THEN a LOCA occurs.

The 'A' Reactor Operator (RO) observes and reports the following:

- The reactor scrammed due to lowering RPV level.
- Drywell pressure is 1.50 psig and rising 0.01 psig/minute.
- HPCS and RCIC started automatically.

The 'B' Reactor Operator (RO) observes and reports the following:

- 5063-1A RCIC DIV 1 STEAM LINE PRESSURE LOW annunciator in alarm.
- 5063-2A RCIC DIV 2 STEAM LINE PRESSURE LOW annunciator in alarm.
- RCIC turbine is tripped.

(1) Which of the following valves should have isolated?

(2) If those valves do NOT automatically isolate, which procedure directs isolation actions?

A. (1) 1E51-F031 and 1E51-F076, RCIC Suppr Pool Suction Valve & Stm Supply Warm Up Isol Valve
(2) CPS 3310.01 Reactor Core Isolation Cooling

B. (1) 1E51-F077 and 1E51-F078, Outboard and Inboard RCIC Exh Vac Bkr Valves.
(2) CPS 3310.01 Reactor Core Isolation Cooling

C. (1) 1E51-F031 and 1E51-F076, RCIC Suppr Pool Suction Valve & Stm Supply Warm Up Isol Valve
(2) EOP-1 RPV Pressure Control

D. (1) 1E51-F077 and 1E51-F078, Outboard and Inboard RCIC Exh Vac Bkr Valves.
(2) EOP-1 RPV Pressure Control

Answer	C

Answer Explanation

C is correct.

Per CPS 4001.02C001 Automatic Isolation Checklist, RCIC Suppr Pool Suction Valve (1E51-F031) and RHR & RCIC Stm Supp Warm Up Isol Valve (1E51-F076) isolate on a low RCIC steam supply pressure, indicated by the 5063-1A and 5063-2A annunciators.

Per CPS 4401.01 EOP-1 RPV Control, the CRS will direct "Verify needed auto actions."

Per CPS EOP Technical Basis (EOP-TB) for EOP-1, “Verify” means to confirm that necessary responses occur and that appropriate system states exist. Actions that should have occurred but did not should be manually performed.

Incorrect Responses:

A is incorrect but plausible. The first part of the distractor is correct. The second part is plausible since the RCIC procedure is normally used to manipulate these valves; however, direction to isolate comes from EOP-1.

B is incorrect but plausible. 1E51-F077 and F078 isolate on the low RCIC steam supply pressure given in the stem, but only with a concurrent high drywell pressure signal. Since drywell pressure remained below the setpoint, these valves would remain open. The second part is also incorrect; the RCIC procedure is normally used to manipulate these valves; however, direction to isolate comes from EOP-1.

D is incorrect but plausible. 1E51-F077 and F078 isolate on the low RCIC steam supply pressure given in the stem, but only with a concurrent high drywell pressure signal. Since drywell pressure remained below the setpoint, these valves would remain open. The second part of the distractor is correct.

Question Information

Topic	The plant is operating at rated thermal power (RTP), THEN a LOCA occurs. The 'A' Reactor Operato				
User ID	CL-ILT-N19088			**System ID**	2148909
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None.
K/A Justification	Question meets the K/A because the candidate has to demonstrate the ability to verify that the alarms are consistent with the plant conditions (incomplete RCIC isolation) to answer the question.
SRO-Only Justification	Question is linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency conditions.
Additional Information	Question is high cog written at the analysis and comprehension level. The candidate must analyze the conditions in the stem and then determine required actions based on that analysis (3-SPK/SPR).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A

Technical Reference and Revision #	• CPS 4001.02C001 Rev 16c • CPS 5063.01 (1A) Rev 29c • CPS 5063.02 (2A) Rev 31e
Training Objective	LP85804.2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm.
Previous NRC Exam Use	None

K/A Reference(s)

B2.4.46	Safety Function 1	Tier 3	Group	RO Imp: 4.2	SRO Imp: 4.2
Ability to verify that the alarms are consistent with the plant conditions. (CFR: 41.10 / 43.5 / 45.3 / 45.12)					

Learning Objective(s)

Q13/88 223002 2.4.46
User (Sys) ID N/A (1537908)

Cross Reference Links

None

Question 14	ID: 2147146	Points: 1.00

The plant is operating at rated thermal power, THEN a transient occurs.

The 'B' Reactor Operator (RO) observes and reports the following:

- 5066-5B ADS OR SAFETY RELIEF VALVE LEAKING annunciator in alarm.
- 5067-8L SRV MONITORING SYSTEM TROUBLE annunciator in alarm.
- Recorder 1B21-R614 indicates a tailpipe temperature of 380°F and rising for 1B21-F051G Main Steam Line C ADS Valve/SRV.

Immediate actions of CPS 4009.01 INADVERTENT OPENING/SAFETY RELIEF VALVE have been completed.

Subsequent actions of CPS 4009.01 up to and including all methods of closing 1B21-F051G have been completed. All attempts to close 1B21-F051G have failed.

A ____(1)____ confirms that the SRV is OPEN and not leaking by.

NEXT, the CRS will direct a ____(2)____ per CPS 3005.01 Unit Power Changes.

A. 1) SRV tailpipe temperature of 260°F
   2) Power reduction to $\leq$ 98%

B. 1) Decrease in generator MWe
   2) Power reduction to $\leq$ 98%

C. 1) SRV tailpipe temperature of 260°F
   2) Rapid plant shutdown

D. 1) Decrease in generator MWe
   2) Rapid plant shutdown

Answer	D

Answer Explanation

D is correct:

Per CPS 4009.01 Inadvertent Opening Safety/Relief Valve 1.0 Symptoms, a decrease in Generator MWe output is indicative of an open Safety/Relief Valve (SRV).

Per CPS 4009.01 4.0 Subsequent actions, a leaking SRV tailpipe temperature is typically 230-270°F and is confirmed 'not open' by no acoustic monitor noise and no MWe decrease.

The stem of the question states that immediate actions of CPS 4009.01 have been completed and attempts to close the SRV have failed. CPS 4009.01 4.0 Subsequent actions, step 4.9, requires a Rapid Plant Shutdown per 3005.01, UNIT POWER CHANGES if the SRV remains open.

Incorrect Responses:

A is incorrect but plausible. The SRV tailpipe temperature of 260°F is significantly higher than normal, but within the range stated in CPS 4009.01 for a leaking SRV. The second part of the distractor is also incorrect; lowering power to $\leq$ 98% is required but would have already been completed as the first subsequent action of 4009.01.

B is incorrect but plausible. The first part of the distractor is correct. The second is not; lowering power to $\leq$ 98% is required but would have already been completed as the first subsequent action of 4009.01.

C is incorrect but plausible. The SRV tailpipe temperature of 260°F is significantly higher than normal, but within the range stated in CPS 4009.01 for a leaking SRV. The second part of the distractor is correct.

Question Information

Topic	The plant is operating at rated thermal power, THEN a transient occurs. The 'B' Reactor Operator				
User ID	CL-ILT-N19089			**System ID**	2147146
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question meets the (b) portion of the K/A because the candidate must be able to understand the indications of a stuck open SRV and know which procedure to enter and actions to take to mitigate the problem. As permitted by ES-401 D.2.a, the (a) portion of the K/A (the low cog portion) is not tested.
SRO-Only Justification	Question is linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency conditions.
Additional Information	Question is high cog written at the analysis level. The candidate must determine from the conditions in the stem that an SRV is open and then select the appropriate response (3-SPK).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4009.01 Rev. 13b		

	• CPS 5066.05 (5B) Rev. 28a • CPS 5067.08 (8L) Rev. 31a
Training Objective	239001.11 EVALUATE given key MAIN STEAM System parameters, if needed DETERMINE a course of action to correct or mitigate the following abnormal condition(s): .1 Trip Signal .2 Isolation Signal .3 Auto Start Signal .4 Condition/Lineup
Previous NRC Exam Use	None

K/A Reference(s)

239002.A2.03	Safety Function 3	Tier 2	Group 1	RO Imp: 4.1	SRO Imp: 4.2*
Ability to (a) predict the impacts of the following on the RELIEF/SAFETY VALVES ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6) Stuck open SRV					

Learning Objective(s)

Q14/89 239002 A2.03
User (Sys) ID N/A (1537909)

Cross Reference Links

None

Question 15	ID: 2166779	Points: 1.00

A transient has occurred requiring entry into EOP-2 RPV Flooding.

Shutdown criteria are met.

ADS was initiated, but only 6 Safety Relief Valves (SRVs) were able to be opened.

Which of the following represents a condition where injection flow can be slowed or stopped?

A. Inject with Condensate / Condensate Booster (CD/CB) Pumps until SRV tailpipe temperatures start to rise.

B. Inject with Reactor Core Isolation Cooling (RCIC) until RPV water level is indicated on a Wide Range instrument.

C. Inject with High Pressure Core Spray (HPCS) until 1E22-F004 HPCS To CNMT Outbd Isln Valve closes at Level 8.

D. Defeat Motor Driven Reactor Feed Pump (MDRFP) Level 8 interlocks and inject with the MDRFP until SRV acoustic monitor alarms and Main Steam Line Flow indications are received.

Answer	D

Answer Explanation

D is correct:

Per the EOP Technical Bases (pg 6-1), EOP-2, RPV flooding, is used to cool the core when RPV water level cannot be determined. The specified actions first depressurize the RPV, then control injection to establish and maintain one of the following conditions:

- **The RPV flooded to the elevation of the main steam lines.** The core will then be cooled by full submergence. This condition may ultimately be achieved under either shutdown or failure-to-scram conditions.
- RPV pressure above the Minimum Steam Cooling Pressure. The core will then be cooled by submergence or steam cooling. Since reactor power must be at least 6%–10% to generate the amount of steam required to sustain the Minimum Steam Cooling Pressure, this condition is applicable only under ATWS conditions.

CPS 1005.09M002 STA/IA Guide Sheet provides methodology for determining when level is at the Main Steam Lines and includes the following:

Assess using multiple and diverse items:

- Acoustic Monitors (may clear when < MSL)
- SRV/ADS Tail Pipe Temp (will lower when > MSL; will slowly raise up if < MSL)
- RPV pressure - ~ 10 psig rise indicates at MSL's; sudden large increase indicates solid.

- MSL - Flow / Hi Flow dP
- SP Level increase after initial drop?
- Drastic step changes on level?
- Fill Rate vs. Leak/Usage Rate?
- Not expected to reach MSL when > 7% RTP (SRV cap).

Incorrect Responses:

A is incorrect but plausible. EOP-2 directs RPV flooding via numerous systems, including Condensate/Condensate Boost; however, per CPS 1005.09M002 EOP/Off-Normal Performance Aid Matrix, rising SRV tailpipe temperatures is indicative that RPV level is below the MSLs. This answer is plausible because lowering tailpipe temperatures would indicate water level at the MSLs.

B is incorrect but plausible. RCIC is available even following the blowdown per the EOP Technical Bases (page 6-32), which states that ADS blowdown should terminated above the minimum value at which required RCIC flow can be maintained. However, EOP-2 requires isolating RCIC if more than 2 and fewer than SRVs are open. This answer is also plausible because per CPS 1005.09M002 EOP/Off-Normal Performance Aid Matrix, one indication of water level at the main steam lines is a step change in level indication, and because returning to EOP-1 is allowed at the top of EOP-2 if RPV water level indication is available.

C is incorrect but plausible. HPCS is a preferred system for RPV flooding per EOP-2; however, conditions in the stem indicate that RPV level is unknown. The Clinton EOP Technical Bases (p. 6-38) states that if RPV water level is "unknown," the inputs to the Level 8 trip logic must be considered invalid.

Question Information

Topic	A transient has occurred requiring entry into EOP-2 RPV Flooding. Shutdown criteria are met.				
User ID	CL-ILT-N19090			**System ID**	2166779
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None.
K/A Justification	Question meets the KA because it requires the candidate to interpret and execute steps of EOP-2 to determine conditions under which injection flow must be throttled to control reactor water level.
SRO-Only Justification	Question requires knowledge of specific procedure content to perform RPV Flooding. It is linked to SRO only task 100509.16d (Demonstrate knowledge of symptom based EOP mitigation strategies). Also linked

	to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency conditions.
Additional Information	Question is low cog written at the memory level. The candidate must recall facts and information contained in a procedure (1-F).

NRC Exams Only			
Question Type	Bank (CL-ILT-N12088)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 1005.09M002 Rev 9 • CPS 4403.01 Rev 30 • CPS EOP-TB Rev 7		
Training Objective	N-CL-OPS-DB-LP87554.01.03 Given plant conditions determine if “RPV Flooding” is met, as defined in EOP-2.		
Previous NRC Exam Use	ILT 12-1 NRC		

K/A Reference(s)

B2.1.20	Safety Function 3	Tier 3	Group	RO Imp: 4.6	SRO Imp: 4.6
Ability to interpret and execute procedure steps. (CFR: 41.10 / 43.5 / 45.12)					
GS.259002	Safety Function 2	Tier 2	Group 1	RO Imp:	SRO Imp:
Reactor Water Level Control System					

Learning Objective(s)

Q15/90 259002 2.1.20
User (Sys) ID N/A (1537910)

Cross Reference Links

Table: TRAINING - QUESTIONS - Track Questions Modified in this Project (CL-OPS-EXAM-ILT)
Tracking link in project CL-OPS-EXAM-ILT to source question 2149651

Question 16	ID: 2148874	Points: 1.00

The plant was operating at rated thermal power (RTP).

At 1500 a transient occurred that resulted in a SCRAM and loss of the Reserve Auxiliary Transformer (RAT).

At 1502 the immediate actions for the scram were completed and CPS 4200.01 Loss of AC Power was entered.

Which of the following subsequent actions will be given the highest priority?

A. Bypass the condensate polishers.

B. Restore RAT supply to the 4.16 KV Buses 1A1, 1B1, and 1C1.

C. Initiate Reactor Recirc Pump Auxiliary Seal Injection Pump operation.

D. Verify all rods inserted at the Rod Action Control System (RACS) panels.

Answer	C

Answer Explanation

C is correct:

Per CPS 4200.01 Loss of AC Power, SBO: Technical Bases Summary, states that system leakage for a SBO, including RR pump seals (~ 38 gpm) and inventory loss from SRVs, it is assumed to be ~ 100 gpm.

The commonality between a SBO and loss of the non-ECCS buses is that both events will result in undervoltage trips of the CRD Pumps, a loss of the RR Pumps, and a loss of the CCW pumps.

Per EP-AA-1003 Addendum 3 Emergency Action Levels For Clinton Station basis for MU6 (CL 2-92), a stuck open SRV or SRV leakage is not considered either identified or unidentified leakage by Technical Specification and, therefore, is not applicable to the MU6 EAL.

Therefore, leakage past the RR Pump seals will result in unidentified leakage in the drywell of > 10 gpm for ≥ 15 minutes.

Incorrect Responses:

A is incorrect but plausible. The conditions in the stem (scram and loss of non-vital power) will result in a loss of vacuum with no ability for mitigation with no power available to the Condenser Vacuum Pumps. CPS 4004.02 Loss of Vacuum directs bypassing the Condensate Polishers to prevent overheating the resin during degrading vacuum conditions. This action would not be prioritized however, because of the loss of non-vital power to 1CD016 Condensate Polisher Bypass Valve and to the Condensate/Condensate Booster System Pumps.

B is incorrect but plausible. Emergency Action Level (EAL) MA1 is exceeded if AC power capability to the emergency busses is reduced to a single power source for 15 minutes or longer such that an additional single failure would result in a station blackout. Under the conditions provided in the stem, however, the ERAT and DGs are available to the safety busses, so MA1 is not imminently threatened from a loss of the RAT transformers and restoring the RAT supply to the safety busses would be prioritized lower than initiating RR Aux Seal Injection pump operation.

D is incorrect but plausible. Failure of RPS to shutdown the reactor can result in exceeding the threshold for EAL MS3, MA3 or MU3 depending on the severity of the ATWS. The threshold values for these EALs, however, are based on reactor power and not on the ability to determine if shutdown criteria is met. Furthermore, since the immediate actions for the scram are complete (rods have been verified inserted) and the loss of non-vital AC will not preclude the operator from determining rod positions at P680 - verifying rod positions at the RACS panels is not required.

Question Information

Topic	The plant was operating at rated thermal power (RTP). At 1500 a transient occurred that resulted				
User ID	CL-ILT-N19091			**System ID**	2148874
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

<table>
<tr><td>References Provided:</td><td colspan="3">None</td></tr>
<tr><td>K/A Justification Statement:</td><td colspan="3">Question meets the (b) portion of the KA because the candidate has to determine the impact of the loss of BOP power and resultant loss of CRD cooling water flow to the RR Pump seals and then determine that the MU6 threshold values will be exceeded requiring actions to be taken per the Emergency Plan.
As permitted by ES-401 D.2.a, the (a) portion of the K/A (the low cog portion) is not tested.</td></tr>
<tr><td>SRO Only Justification Statement:</td><td colspan="3">Question is linked to SRO only task 997777.03 Emergency Plan Activities performed by an SRO and 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.</td></tr>
<tr><td>Additional Information:</td><td colspan="3">Question is high cog written at the analysis and comprehension level. The candidate must analyze the conditions in the stem and then determine required actions based on that analysis (3-SPK/SPR).</td></tr>
<tr><td colspan="4">NRC Exams Only (as applicable)</td></tr>
<tr><td>Question Type:</td><td>Bank (CL-ILT-N17093)</td><td>Difficulty:</td><td>N/A</td></tr>
<tr><td>Technical Reference and Revision #:</td><td colspan="3">• CPS 4200.01 Rev. 26c
• EP-AA-1003 Addendum 3 (CL 2-4, 2-5, 2-6, 2-91 and 2-92) Rev. 2</td></tr>
<tr><td>Training Objective:</td><td colspan="3">201001.09 DISCUSS the effect:
a. A total loss or malfunction of the Control Rod Drive Hydraulic System has on the plant.
b. A total loss or malfunction of various plant systems has on the Control Rod Drive Hydraulic System.</td></tr>
<tr><td>Previous NRC Exam Use:</td><td colspan="3">ILT 17-1 NRC</td></tr>
</table>

K/A Reference(s)

<table>
<tr><td>201001.A2.04</td><td>Safety Function 1</td><td>Tier 2</td><td>Group 2</td><td>RO Imp: 3.8</td><td>SRO Imp: 3.9*</td></tr>
<tr><td colspan="6">Ability to (a) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)
†Scram conditions</td></tr>
</table>

Learning Objective(s)

Q16/91 201001 A2.04 (17-1N)

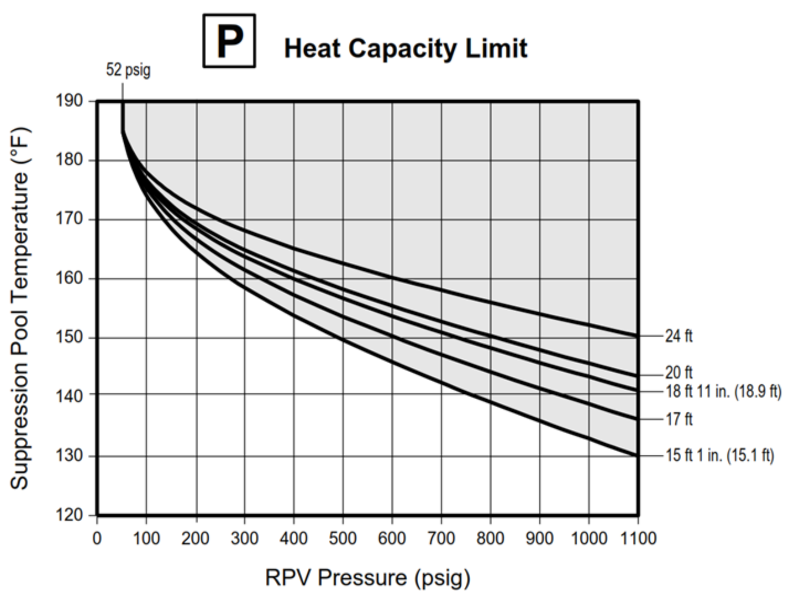
User (Sys) ID N/A (1537911)

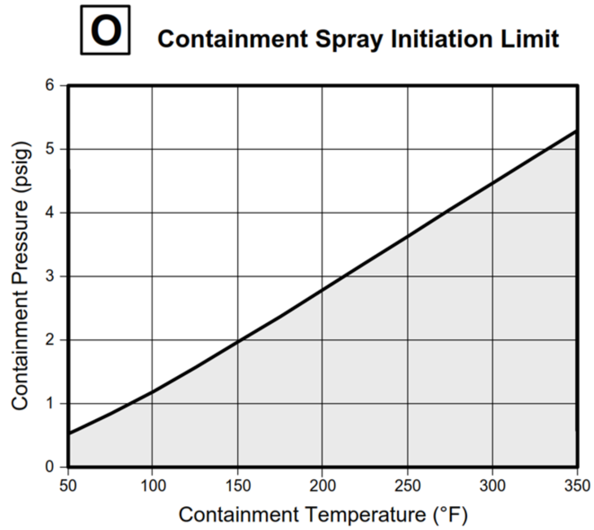
Question 17	ID: 2148829	Points: 1.00

A transient has occurred, the reactor has scrammed and plant conditions are as follows:

- All control rods are fully inserted.
- Suppression Pool Temperature 140°F and rising at 0.1°F per minute.
- Suppression Pool Level is at 15 feet 4 inches and lowering at 0.5 inches per minute.
- The suppression pool level decrease CANNOT be stopped.
- Drywell Pressure is at 1.5 psig and steady.
- Containment Temperature is at 110°F and steady.
- Containment pressure is at 1.4 psig and steady.
- RPV pressure is at 600 psig and steady.
- Suppression pool dump valves, 1SM001A, 1B, 2A and 2B, are shut.
- Hydrogen Mixing Compressors 1HG02CA(B) are in operation.

See EOP-6 Primary Containment Control, Figures O and P below:





Which of the following describes the NEXT required operator action?

A. Dump upper pools.

B. Start containment sprays.

C. Stop Hydrogen Mixing Compressors.

D. Lower RPV pressure to below Heat Capacity Limit Curve.

Answer	**A**

Answer Explanation

A is correct.

Per CPS 4402.01 Primary Containment Control (EOP-6) , SUPPRESSION POOL LEVEL leg, Low Level - Below 18 ft 11 in.:

- IF "Cannot hold pool level above 15 ft 1 in."
- THEN "Before suppression pool level drops to 15 ft 1 in., dump upper pools

Incorrect responses:

B is incorrect but plausible. This response would be correct if Drywell pressure exceeded its EOP-6 entry condition since Containment pressure is above the Figure O Containment Spray Initiation Limit. However, since Drywell and Containment pressures are < 1.68 psig, containment sprays are not yet directed.

C is incorrect. This response is plausible because Hydrogen Mixing Compressors must be secured below a Suppression Pool level of 13 ft 1 in.

D is incorrect. This response would be correct if Suppression Pool temperature was rising at a rate that threatened Figure P Heat Capacity Limit before suppression pool level lowered to the point that dumping the upper pools was required. However, at an RPV pressure of 600 psig, Suppression Pool temperature would reach the Figure P limit at ~ 146°F (or ~ 60 minutes later). A Suppression Pool level of 15 feet 1 inch will be reached in about 6 minutes.

Question Information

Topic	A transient has occurred, the reactor has scrammed and plant conditions are as follows: · All co				
User ID	CL-ILT-N19092			**System ID**	2148829
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question meets the K/A because the examinee must demonstrate the ability to perform an integrated plant procedure following failure of the primary containment system.
SRO-Only Justification	Question is linked to SRO-only task 100509.07 Execute EOP Decision Symbols. Also linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Additional Information	Question is high cog written at the application and analysis level. The candidate must evaluate a number of parameters provided in the stem, determine the correct path in EOP-6 and select the correct response (3-SPK).

NRC Exams Only			
Question Type	Bank (CL-ILT-N11079)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4402.01 (EOP-6) Rev. 30		
Training Objective	LP87558.01.07 Given a decreasing Suppression Pool water level, determine when it is appropriate to dump the Upper Pools in terms of approaching a level of 15 ft 1 in.		
Previous NRC Exam Use	ILT 10-1 NRC		

K/A Reference(s)

GS.223001	Safety Function 5	Tier 2	Group 2	RO Imp:	SRO Imp:
Primary Containment System and Auxiliaries					
B2.1.23	Safety Function 5	Tier 3	Group	RO Imp: 4.3	SRO Imp: 4.4
Ability to perform specific system and integrated plant procedures during all modes of plant operation. (CFR: 41.10 / 43.5 / 45.2 / 45.6)					

Learning Objective(s)

Q17/92 223001 2.1.23
User (Sys) ID N/A (1537912)

Cross Reference Links

None

Question 18	ID: 2149283	Points: 1.00

The plant is operating at rated thermal power with VC Train A in operation.

THEN, the following annunciators are received:

- 5050-3L TROUBLE CONTROL ROOM HEATING COIL A
- 5050-8J HIGH HUMIDITY CONTROL ROOM TRAIN A

(1) Which annunciator requires a Technical Specification LCO entry?

(2) Which LCO is required to be entered?

A. (1) 5050-3L
(2) 3.7.3 Control Room Ventilation System

B. (1) 5050-3L
(2) 3.7.4 Control Room Air Conditioning System

C. (1) 5050-8J
(2) 3.7.3 Control Room Ventilation System

D. (1) 5050-8J
(2) 3.7.4 Control Room Air Conditioning System

Answer	A

Answer Explanation

A is correct.

CPS 5050.03 Alarm Panel 5050 Annunciators - Row 3, annunciator procedure for 5050-3L TROUBLE CONTROL ROOM HEATING COIL A directs the following:

- Shift to Control Room HVAC Train B per CPS 3402.01 (VC).
- If VC A Train is INOP, refer to ITS LCO 3.7.3

Per B3.7.3 Control Room Ventilation System, Each Control Room Ventilation subsystem is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. A subsystem is considered OPERABLE when its associated:

- Fan is OPERABLE;
- HEPA filter and charcoal adsorber are not excessively restricting flow and are capable of performing their filtration functions; and
- **Heater**, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

Since the Air Handling Unit Heating Coil (0VC01AA) is not OPERABLE, then LCO 3.7.3 Control Room Ventilation System must be entered.

Incorrect Responses:

B is incorrect but plausible. The first part of the answer is correct. The second part of the answer is plausible because there are also heating coils associated with the Control Room Air Conditioning (AC) System subsystems. However, per B3.7.4 Control Room AC System, The heating coils and humidification equipment are not required for Control Room AC System OPERABILITY.

C is incorrect but plausible. This answer would be correct if the humidification equipment was associated with the Control Room Ventilation System and the 0VC01AA Heating Coil was associated with the Control Room AC System. In this case, annunciator 5050-8J would be responsible for an entry into LCO 3.7.3 Control Room Ventilation. However, since the 0VC01AA Heating Coil is associated with the Control Room Ventilation System, annunciator 5050-3L is responsible for entry into LCO 3.7.3 Control Room Ventilation. The second part of the answer is correct.

D is incorrect but plausible. This answer would be correct if the humidification equipment was associated with the Control Room Ventilation System and the 0VC01AA Heating Coil was associated with the Control Room AC System. In this case, annunciator 5050-8J would be responsible for an entry into LCO 3.7.3 Control Room Ventilation. The second part of the answer is plausible because there are also heating coils associated with the Control Room Air Conditioning (AC) System subsystems. However, per B3.7.4 Control Room AC System, The heating coils and humidification equipment are not required for Control Room AC System OPERABILITY.

Question Information

Topic	The plant is operating at rated thermal power with VC Train A in operation. THEN, the followin				
User ID	CL-ILT-N19093			**System ID**	2149283
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.

References Provided	None
K/A Justification	Question meets the K/A because the candidate must interpret Control Room Ventilation annunciators and based on their significance, choose the appropriate LCO to enter in order to determine the correct response.
SRO-Only Justification	Question is linked to SRO-only task 140109.23 (Apply the administrative requirements for execution of Technical Specifications and Off-Site Dose Calculation Manual Requirements). Also linked to 10CFR55.43(b)(2), Facility operating limitations in the Technical Specifications and their bases.
Additional Information	Question is low cog written at the memory level. The examinee must recall facts pertaining to and contained in

	a procedures and ITS (1-F).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 5050.03 (5050-3L) Rev. 30c • CPS 5050.08 (5050-8J) Rev. 31d • ITS B3.7.3 (B3.7-13) Rev. 14-2 • ITS B3.7.4 (B3.7-23) Rev. 20-2		
Training Objective	290003.06 Given a CONTROL ROOM HVAC System Annunciator, DESCRIBE: a. The condition causing the annunciator b. Any automatic actions c. Any operational implications .1 AUTO START CONT ROOM HVAC M-U AIR FAN A (B) .2 SMOKE VC SYSTEM .3 LOW TEMP CONT ROOM HVAC MIXED AIR DIV 1 (2) .4 HI RADIATION CONT RM HVAC SYS DIVISION 1 (2)		
Previous NRC Exam Use	None		

K/A Reference(s)

B2.4.45	Safety Function 5	Tier 3	Group	RO Imp: 4.1	SRO Imp: 4.3
Ability to prioritize and interpret the significance of each annunciator or alarm. (CFR: 41.10 / 43.5 / 45.3 / 45.12)					
GS.290003	Safety Function 9	Tier 2	Group 2	RO Imp:	SRO Imp:
Control Room HVAC					

Learning Objective(s)

Q18/93 290003 2.4.45

User (Sys) ID N/A (1537913)

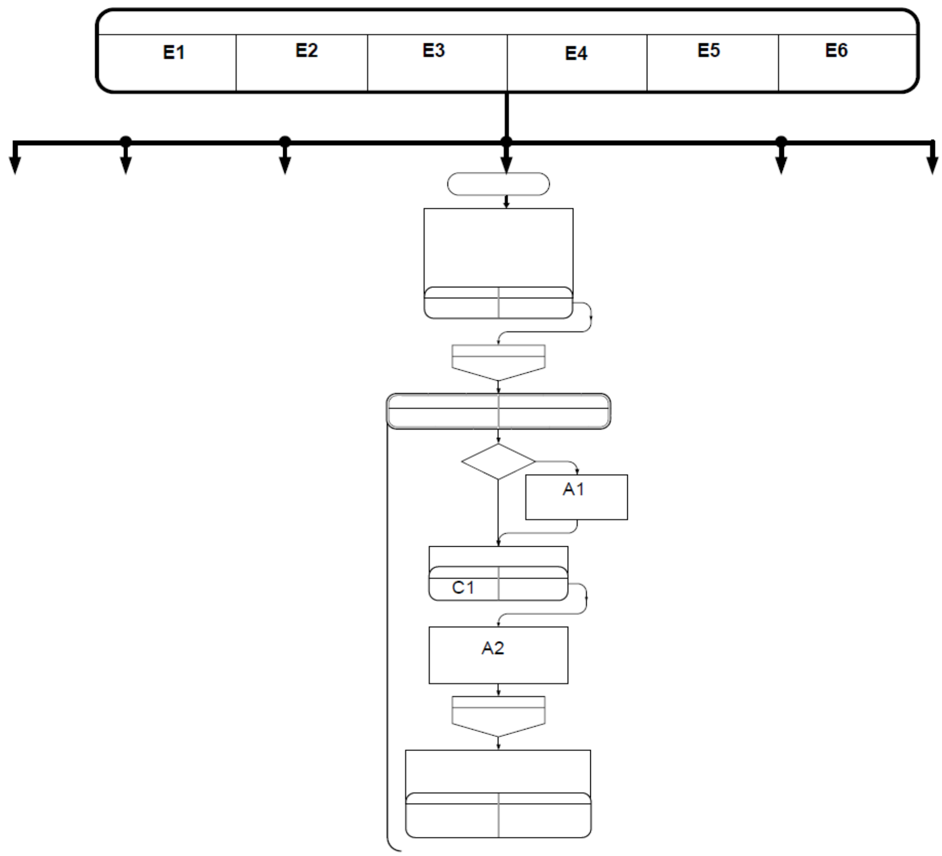
Cross Reference Links

Table: TRAINING - QUESTIONS - Track Questions Modified in this Project (CL-OPS-EXAM-ILT)
Tracking link in project CL-OPS-EXAM-ILT to source question 2147108

Question 19	ID: 2148946	Points: 1.00

A transient has occurred resulting in exceeding entry condition E1 on the generic EOP flowchart shown below.

Conditions have been met for A1, but A1 actions have NOT yet been taken.



If the conditions in C1 are exceeded, the CRS will direct the Reactor Operators to perform action _____(1)_____ NEXT.

Given these conditions, if entry condition E3 is exceeded, re-entry into the EOP _____(2)_____ required.

A. (1) A1
(2) is

B. (1) A2
(2) is

C. (1) A1
(2) is NOT

D. (1) A2
(2) is NOT

Answer	A

Answer Explanation

A is correct:

Per OP-CL-101-111-1001 Strategies For Successful Transient Mitigation, 4.1.3 EOP Execution, step 4: **All steps must be executed in their specified order** when executing control legs of the EOPs. This is to ensure all available mitigating systems are utilized and their effectiveness assessed, even if a blowdown parameter is currently exceeded. As an example, the Containment Pressure leg must be executed, including establishing Containment Sprays, if available, prior to determining if a blowdown is required due to exceeding the Pressure Suppression Pressure (PSP) limit. After Containment Sprays are initiated (valves fully open), then check PSP. If Containment Pressure is below the PSP limit, then blow down is not required.

Per CPS 1005.09 Emergency Operating Procedure (EOP) and Severe Accident Guideline (SAG) Program, section 8.12.3.3, an EOP shall be reentered upon each receipt of an entry condition.

Incorrect Responses:

B is incorrect but plausible. Although a condition parameter is exceeded, making the distractor plausible, preceding EOP actions must be performed in their specified order. The second part of the distractor is correct.

C is incorrect but plausible. The first part of the distractor is correct. The second part is plausible because most off-normal and emergency procedures are designed to be followed sequentially without re-entry; however, re-entry to the EOPs are required if any additional entry conditions are received.

D is incorrect but plausible. Although a condition parameter is exceeded, making the distractor plausible, preceding EOP actions must be performed in their specified order. The second part of the distractor is also incorrect. It is plausible because most off-normal and emergency procedures are designed to be followed sequentially without re-entry; however, re-entry to the EOPs are required if any additional entry conditions are received.

Question Information

Topic	A transient has occurred resulting in exceeding entry condition E1 on the generic EOP flowchart sho				
User ID	CL-ILT-N19094			System ID	2148946
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question meets the K/A because the candidate has to demonstrate the ability to manage the control room crew by selecting the actions they are required to perform during plant transients to answer the question.
SRO-Only Justification	Question is linked to SRO-only task 100509.07 Execute EOP Decision Symbols.
Additional Information	Question is low cog written at the memory level. The candidate must recall the procedural actions required to execute the EOPs (1-P).

NRC Exams Only			
Question Type	Bank (CL-ILT-N14098)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 1005.09 Rev. 11 • OP-CL-101-111-1001 Rev. 15d		
Training Objective	LP85801 2.1.6 Ability to manage the control room crew during plant transients.		
Previous NRC Exam Use	ILT 14-1 NRC		

K/A Reference(s)

B2.1.06	Safety Function 9	Tier 3	Group	RO Imp: 3.8*	SRO Imp: 4.8
Ability to manage the control room crew during plant transients. (CFR: 41.10 / 43.5 / 45.12 / 45.13)					

Learning Objective(s)

Q19/94 2.1.6
User (Sys) ID N/A (1537914)

Cross Reference Links

None

Question 20	ID: 2161620	Points: 1.00

Which of the following personnel can manipulate reactivity controls at Clinton Power Station (CPS) when supervised by a licensed reactor operator?

• Mary, who is licensed as a Reactor Operator at Quad Cities Generating Station (QDC).

• Sally, who is a Senior Reactor Operator trainee in the current licensed operator training class at CPS.

• Ted, who has an inactive Reactor Operator license at CPS and is reactivating his license.

A. Sally and Ted ONLY

B. Mary and Ted ONLY

C. Sally and Mary ONLY

D. Sally, Ted, and Mary

Answer	A

Answer Explanation

A is correct:

Per OP-AA-300 Reactivity Management section 4.8.6, the Control Room Supervisor (CRS) / Senior Reactor Operator (SRO) ENSURES trainees manipulating reactivity controls are enrolled in an approved training program and directly supervised by a licensed individual.

- Sally is enrolled in a training program at CPS.

Per OP-AA-105-102 NRC Active License Maintenance section 4.2.1, Reactivate an RO or SRO license to an “active status” by performing 40 hours of shift functions in the presence and under the sole direct supervision of an active RO or SRO, as appropriate and in the position to which the individual will be assigned.

- Ted previously had an active CPS RO license.

Incorrect Responses:

B is incorrect but plausible. The first part of the response is plausible because Mary currently holds an active operating license at QDC. Per OP-AA-101-111-1001 Operations Standards And Expectations Attachment 10 List Of Actions That Travelers Can Perform, travelers are typically authorized to manipulate equipment and perform procedures. However, OP-AA-101-111-1001 Attachment 10 does not include supervised reactivity manipulations. The second part of this response is correct.

C is incorrect but plausible. The first part of the response is correct. The second part of the response is plausible because Mary currently holds an active operating license at QDC. Per OP-AA-101-111-1001 Operations Standards And Expectations Attachment 10 List Of Actions That Travelers Can Perform, travelers are typically authorized to manipulate equipment and perform procedures. However, OP-AA-101-111-1001 Attachment 10 does not include supervised reactivity manipulations.

D is incorrect but plausible. Sally and Ted may perform reactivity manipulations under direct supervision because they are in approved training programs at CPS; however, Mary's license at QDC does not allow for these reactivity manipulations. Per OP-AA-101-111-1001 Operations Standards And Expectations Attachment 10 List Of Actions That Travelers Can Perform, travelers are typically authorized to manipulate equipment and perform procedures. However, OP-AA-101-111-1001 Attachment 10 does not include supervised reactivity manipulations.

Question Information

Topic	Which of the following personnel can manipulate reactivity controls at Clinton Power Station (CPS)				
User ID	CL-ILT-N19095			**System ID**	2161620
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.6 Procedures and limitations involved in initial core loading, alterations in core configuration, control rod programming, and determination of various internal and external effects on core reactivity.

References Provided	None
K/A Justification	Question meets the K/A because it requires the candidate to demonstrate knowledge of who is permitted to conduct reactivity manipulations, which is a CRS/SRO task designated in the reactivity management procedure.
SRO-Only Justification	Question is linked to SRO-only task 999999.60, Administer the Reactivity Management Program and to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Additional Information	Question is a low cog question written at the memory level. The candidate must recall facts in CPS procedures (1-F).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• OP-AA-300 Rev. 14 • OP-AA-105-102 Rev. 15 • OP-AA-101-111-1001 Rev. 25		
Training Objective	LP85801.2.1.37 Knowledge of procedures, guidelines, or limitations associated with reactivity management.		
Previous NRC Exam Use	None		

K/A Reference(s)

B2.1.37	Safety Function 9	Tier 3	Group	RO Imp: 4.3	SRO Imp: 4.6
Knowledge of procedures, guidelines, or limitations associated with reactivity management. (CFR: 41.1 / 43.6 / 45.6)					

Learning Objective(s)

Q20/95 2.1.37
User (Sys) ID N/A (1537915)

Cross Reference Links

Table: TRAINING - QUESTIONS - Track Questions Modified in this Project (CL-OPS-EXAM-ILT)
Tracking link in project CL-OPS-EXAM-ILT to source question 2146458

Question 21	ID: 2147086	Points: 1.00

The plant is operating at rated thermal power.

At 1200 on May 1st, a common equipment failure is identified to the Control Room Supervisor (CRS) which makes multiple pieces of Improved Technical Specification (ITS) required equipment INOPERABLE.

- Corrective measures will take 4 to 6 days to restore compliance with ITS.
- The affected LCOs are applicable in Modes 1, 2, and 3.
- The CRS immediately enters Technical Specification LCO 3.0.3.

Which one of the following identifies the LATEST time on May 3rd by which the plant must be in Mode 4?

A. 0100

B. 0200

C. 2100

D. 2200

Answer	A

Answer Explanation

A is correct.

Per Improved Technical Specification (ITS) Limiting Condition of Operation (LCO) 3.0.3:

Action shall be initiated within 1 hour to place the unit, as applicable, in:

- Mode 2 within 7 hours;
- Mode 3 within 13 hours; and
- Mode 4 within 37 hours.

Therefore, the plant must be in Mode 4 37 hours after 1200 on May 1st, which is 0100 on May 3rd.

Incorrect responses:

B is incorrect but plausible. This answer would be correct if the 1 hour allowed to initiate plant action was in addition to the 37 hours allowed to place the plant in Mode 4. However, the 1 hour allowed to prepare for an orderly shutdown before initiating a change in unit operation is part of the 37 hours, not in addition to the 37 hours.

C is incorrect but plausible. This answer would be correct if the time allowed to Mode 4 was a sum of the times to reach Mode 2 (7 hours), Mode 3 (13 hours) and Mode 4 (37 hours) since during an orderly shutdown you would transition from Mode 1 → Mode 2 → Mode 3 → Mode 4. However, since the unit shall be placed in a Mode in which the LCO is not applicable (Mode 4), 37 hours is the allowable time to reach Mode 4.

D is incorrect but plausible. This answer would be correct if:

- the time allowed to Mode 4 was a sum of the times to reach Mode 2 (7 hours), Mode 3 (13 hours) and Mode 4 (37 hours) since during an orderly shutdown you would transition from Mode 1 → Mode 2 → Mode 3 → Mode 4, and
- the 1 hour allowed to initiate plant action was in addition to the time allowed to place the plant in Mode 4.

Question Information

Topic	The plant is operating at rated thermal power. At 1200 on May 1st, a common equipment failure is				
User ID	CL-ILT-N19096			**System ID**	2147086
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.1 Conditions and limitations in the facility license.

References Provided	None
K/A Justification	Question meets the K/A because the candidate must demonstrate knowledge of Limiting Conditions for Operation (LCO) applicability and their associated time limits for plant conditions presented in the stem.
SRO-Only Justification	Question is linked to SRO-only task 999999.07, Apply Technical Specifications requirements, and 10CFR55.43(b)(2) Facility operating limitations in the technical specifications and their bases.
Additional Information	Question is low cog question written at the memory level. The candidate must recall facts in CPS Improved Technical Specifications (ITS) (1-F).

NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• ITS 3.0.3 Amend. 220		
Training Objective	LP85802.2.2.22Knowledge of limiting conditions for operations and safety limits.		
Previous NRC Exam Use	None		

K/A Reference(s)

B2.2.22	Safety Function 9	Tier 3	Group	RO Imp: 4.0	SRO Imp: 4.7
Knowledge of limiting conditions for operations and safety limits. (CFR: 41.5 / 43.2 / 45.2)					

Learning Objective(s)

Q21/96 2.2.22
User (Sys) ID N/A (1537916)

Cross Reference Links

None

Question 22	ID: 2149126	Points: 1.00

Per CC-AA-103-100 Configuration Change Control for Permanent Physical Plant Changes, Operations is responsible for …

A. performing an independent detailed design verification of Safety Related Configuration Changes.

B. approving a Configuration Change impacting Operations at the Plant Operations Review Committee (PORC).

C. identifying the need for and ensuring the revision of specific operating procedures that are affected by a Configuration Change.

D. determining the need for an Operational Briefing BEFORE the Work Orders that implement the Configuration Change are submitted to Operations.

Answer	C

Answer Explanation

C is correct.

Per CC-AA-103-100 Configuration Change Control for Permanent Physical Plant Changes, Section 3.9 states that Operations is responsible for identifying and ensuring revision of specific operating procedures and Operator training are updated for the Configuration Change.

Incorrect Responses:

A is incorrect but plausible. A plausible misconception is that Operations personnel are responsible for performing independent detailed design verification of configuration changes. However, the Design Verifier is responsible for this per CC-AA-103-100 section 3.7.

B is incorrect but plausible. This is plausible because the Plant Operations Review Committee (PORC) requires an Operations Representative for configuration changes having to do with Operations. However, the responsibility for approving those changes rests with the Plant Manager at PORC per CC-AA-103-100 section 3.11.

D is incorrect but plausible. This response is plausible because Operations personnel must review any changes and determine if formal training is required; however, the Operational Briefing is separate from training. The Design Engineering Manager (DEM) is responsible for determining if an Operational Briefing is necessary in conjunction with a configuration change per CC-AA-103-100 section 3.6.2.

Question Information

Topic	Per CC-AA-103-100 Configuration Change Control for Permanent Physical Plant Changes, Operations is				
User ID	CL-ILT-N19097			**System ID**	2149126
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.3 Facility licensee procedures required to obtain authority for design and operating changes in the facility.

References Provided:	None		
K/A Justification Statement:	Question meets the KA because the candidate must demonstrate knowledge of the process for making design changes to the facility by determining Operations Department responsibilities for a proposed design change.		
SRO Only Justification Statement:	Question is linked to 10CFR55.43(b)(3) Facility licensee procedures required to obtain authority for design and operating changes in the facility.		
Additional Information:	Question is low cog written at the memory level. The candidate must recall facts and apply them to the specific situation. (1-F)		
NRC Exams Only (as applicable)			
Question Type:	New	**Difficulty:**	N/A
Technical Reference and Revision #:	• CC-AA-103-100 Rev 1		
Training Objective:	LP85802.2.2.5 Knowledge of the process for making design or operating changes to the facility.		
Previous NRC Exam Use:	None		

K/A Reference(s)

B2.2.05	Safety Function 9	Tier 3	Group	RO Imp: 2.2	SRO Imp: 3.2
Knowledge of the process for making design or operating changes to the facility. (CFR: 41.10 / 43.3 / 45.13)					

Learning Objective(s)

Q22/97 2.2.5
User (Sys) ID N/A (1537917)

Cross Reference Links

None

Question 23	ID: 2148794	Points: 1.00

An event has occurred and the Technical Support Center (TSC) has NOT yet been activated or briefed.

Containment Venting that will exceed radioactive release rate limits of CPS 4412.00C002 Sampling Containment Atmosphere Prior To Venting is required.

The CRS shall...

A. proceed with Containment venting with NO additional authorization.

B. proceed with Containment venting ONLY after authorization from the Shift Manager.

C. proceed with Containment venting ONLY after authorization from the Plant Manager.

D. delay Containment venting until the TSC has Command and Control and the venting is authorized by the Station Emergency Director.

Answer	B

Answer Explanation

B is correct.

Per EOP-6 Primary Containment Control, venting the containment to stay below the Primary Containment Pressure Limit which requires exceeding the radioactive release rate limits of CPS 4412.00C002 Sampling Containment Atmosphere Prior To Venting may only be performed when authorized by the Emergency Director.

Per EP-AA-112 Emergency Response Organization (ERO) / Emergency Response Facility (ERF) Activation And Operation:

- the Shift Manager shall assume the responsibilities of the Shift Emergency Director following event classification. The Shift Manager retains this responsibility until command and control is transferred to the Station Emergency Director (SED).
- The SED may assume command and control when the TSC is activated or if in the SED's judgement the following criteria are met:
    - adequate staff levels are present in support of non-delegable responsibilities;
    - staff has been fully briefed; and
    - a turnover has been completed.

Incorrect Responses:

A is incorrect but plausible. This response would be correct if containment venting was not expected to exceed the radioactive release rate limits of CPS 4412.00C002. However, since the question stem specifically states that containment venting will exceed the radioactive release rates of CPS 4412.00C002, authorization of the Emergency Director is required.

C is incorrect but plausible. This response would be correct if venting the containment was controlled like other major plant evolutions such as conducting a reactor plant startup, which requires Plant Manager authorization per CPS 3001.01 Preparation For Startup & Approach To Critical. However, EOP-6 specifically requires Emergency Director authorization to perform the evolution presented in the question stem.

D is incorrect but plausible. This response would be correct if the Shift Manager was not designated by EP-AA-112 to assume responsibilities of the Shift Emergency Director prior to the Station Emergency Director being stationed. However, since the Shift Manager initially assumes the responsibilities of the Shift Emergency Director, the Shift Manager can authorize the radioactive release per EOP-6. There is no need to delay.

Question Information

Topic	An event has occurred and the Technical Support Center (TSC) has NOT yet been activated or briefed.				
User ID	CL-ILT-N19098			**System ID**	2148794
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question requires assessing plant conditions and then selecting an appropriate strategy to control the release of radiation.
SRO-Only Justification	Question is linked to SRO only task 997777.03 Emergency Plan Activities performed by an SRO. The Station Emergency Director position is filled by the Shift Manager prior to transferring command and control to the Station Emergency Director.
Additional Information	Question is low cog written at the memory level. The candidate must recall procedure steps (1-B).

NRC Exams Only			
Question Type	Bank (CL-ILT-N11096)	**Difficulty**	N/A
Technical Reference and Revision #	• CPS 4402.01 Rev 30 • EP-AA-112 Rev. 22		
Training Objective	LP85803. 2.3.11Ability to control radiation releases.		
Previous NRC Exam Use	ILT 10-1 NRC		

K/A Reference(s)

B2.3.11	Safety Function 9	Tier 3	Group	RO Imp: 3.8	SRO Imp: 4.3
Ability to control radiation releases. (CFR: 41.11 / 43.4 / 45.10)					

Learning Objective(s)

Q23/98 2.3.11
User (Sys) ID N/A (1537918)

Cross Reference Links

None

Question 24	ID: 2148793	Points: 1.00

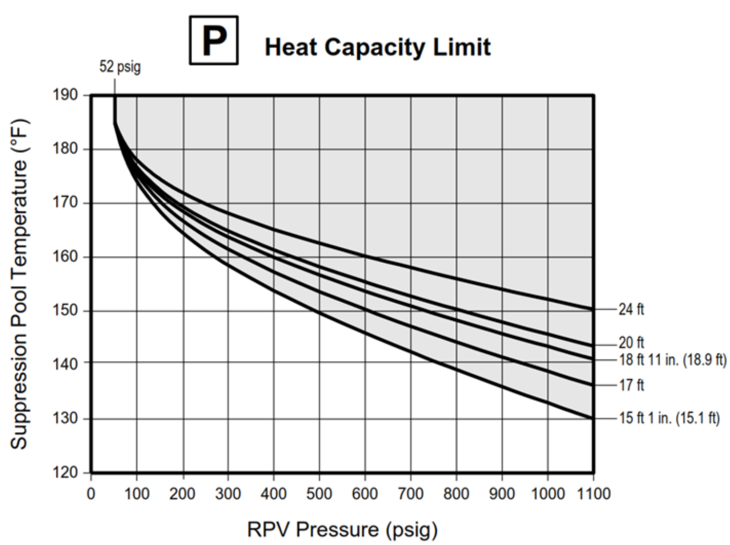
The reactor is operating at 98% power.

At 0830, the 'A' RO reports:

- Drywell pressure is 2.2 psig and rising rapidly
- Mode switch in SHUTDOWN; Power is 98%
- Manual SCRAM and ARI have been initiated
- Some inward control rod motion was observed

At 0837, conditions are as follows:

- Reactor power is stable at 55%
- Safety Relief Valves controlling pressure in Low-Low Set mode
- Reactor water level is -5 inches Wide Range, lowering slowly
- Suppression pool temperature is 150°F, rising slowly
- Suppression Pool level is 19.8 feet, rising slowly
- Drywell radiation monitor reading 60 R/hr, rising slowly
- No additional control rod motion has been obtained.
- See EOP-6, Figure P below:



Which of the following is the correct Emergency Action Level (EAL) classification at 0837?

A. FA1

B. MA3

C. FG1

D. MS3

Answer	D

Answer Explanation

D is correct.

Per EP-AA-1003 Addendum 3 Exelon Nuclear Emergency Action Levels for Clinton Station, a Site Area Emergency threshold has been exceeded based on a MS3 classification - Inability to shutdown the reactor causing a challenge to RPV water level or RCS heat removal.

Emergency Action Level (EAL):

- Auto scram did not shutdown the reactor as indicated by Reactor power > 5%; **AND**
- All manual / ARI actions to shutdown the reactor have been unsuccessful indicated by Reactor power > 5%; **AND**
- EOP-6 Fig P Heat Capacity limit exceeded (SRVs operating in LLS - equated to RPV pressure above 900 psig with 150°F suppression pool temperature).

Incorrect Responses:

A is incorrect but plausible. The FA1 threshold has been exceeded due to loss of the RCS barrier (RCS-4.2). However, the FS1 threshold has also been exceeded (both RCS 4.2 and CT-3.5). This answer would be correct if only the FA1 threshold had been exceeded, but since FS1 and MS3 have also been exceeded, classification at the higher EAL level is required.

B is incorrect but plausible. The MA3 threshold has been exceeded due to the ATWS condition. This answer would be correct if only the MA3 threshold had been exceeded, but since MS3 has also been exceeded, classification at the higher EAL level is required.

C is incorrect but plausible. The FG1 classification would be correct if conditions presented in the stem exceeded the thresholds causing a loss of two barriers and a potential loss of a third barrier. Since Drywell radiation levels did not exceed the threshold for loss of the Fuel Clad barrier, classification at the MS3 level is correct.

Question Information

Topic	The reactor is operating at 98% power. At 0830, the 'A' RO reports: Drywell pressure is 2.2 psi				
User ID	CL-ILT-N19099			**System ID**	2148793
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	OPEN
Operator Type_Cognitive Level	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	EP-AA-1003 Addendum 3, Rev 2 (pages CL 2.3 and CL 2.5)
K/A Justification	Question meets the KA because it requires the examinee to interpret the indications provided in the stem and then determine the emergency action level threshold and classification.
SRO-Only Justification	Question is linked to 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. In addition, classification of emergencies is an SRO only function at CPS.
Additional Information	Question is high cog written at the analysis level. The candidate must analyze the conditions provided in the stem and use references to determine which emergency classification is appropriate based on that analysis (3-SPK/SPR).

NRC Exams Only			
Question Type	Bank (CL-ILT-A11084)	**Difficulty**	N/A
Technical Reference and Revision #	• EP-AA-1003 Addendum 3 Rev 2 • CPS 4402.01 Rev. 30		
Training Objective	LP85804. 2.4.41 Knowledge of the emergency action level thresholds and classifications.		
Previous NRC Exam Use	None		

K/A Reference(s)

B2.4.41	Safety Function 9	Tier 3	Group	RO Imp: 2.9	SRO Imp: 4.6
Knowledge of the emergency action level thresholds and classifications. (CFR: 41.10 / 43.5 / 45.11)					

Learning Objective(s)

Q24/99 2.4.41
User (Sys) ID N/A (1537919)

Cross Reference Links

None

Question 25	ID: 2146438	Points: 1.00

Which of the following on-shift staffing positions may concurrently be assigned as a Fire Brigade Member?

A. Incident Assessor (IA)

B. Safe Shutdown Qualified Operator (SSQ)

C. Emergency Response Organization (ERO) Communicator (EROC)

D. Emergency Response Organization (ERO) Non-Licensed Operator (ENLO)

Answer	D

Answer Explanation

D is correct:

Per OP-CL-101-102-1001, CPS Minimum On-Shift Staffing Functions (Table 1), in Modes 1/2/3, CPS is required to have:

- One (1) Incident Assessor (IA) that may not have other concurrent ERO or **Fire Brigade duties**.
- One (1) Safe Shutdown Qualified Operator (SSQ) that cannot be the 'A' or 'B' RO, **Fire Brigade Member** or EROC. The SSQ must be C area qualified.
- One (1) Fire Brigade Leader
- Four (4) Fire Brigade Members, which may also be ENLO or ERO Access.
- One (1) designated EROC, which cannot be the SM, STA, IA, A RO, B RO, ENLO, **A Fire Brigade position,** or SSQ.

Incorrect Responses:

A is incorrect but plausible. The Incident Assessor (IA) position is required to meet the minimum on-shift staffing functions, but may not fill any other concurrent Fire Brigade duties.

B is incorrect but plausible. The Safe Shutdown Qualified Operator (SSQ) position is required to meet the minimum on-shift staffing functions but may not be a member of the Fire Brigade.

C is incorrect but plausible. The Emergency Response Organization (ERO) Communicator (EROC) is required to meet the minimum on-shift staffing functions, but may not be a member of the Fire Brigade.

Question Information

Topic	Which of the following on-shift staffing positions may concurrently be assigned as a Fire Brigade M				
User ID	CL-ILT-N19100			**System ID**	2146438
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Level	SRO-MEMORY
Operator Discipline	LO-I
10CFR55 Content	10 CFR 55.43 SRO WRITTEN EXAMINATION

References Provided	None		
K/A Justification	Question meets the KA because the examinee must be knowledgeable of the facility protection requirements, including fire brigade manning.		
SRO-Only Justification	Question pertains to verification of minimum shift staffing which is an SRO-only function at CPS and is also linked to 10CFR55.43(b)(1) Conditions and limitations in the facility license.		
Additional Information	Question is low cog written at the memory level. The candidate must recall facts pertaining to and contained in a procedure (1-F).		
NRC Exams Only			
Question Type	New	**Difficulty**	N/A
Technical Reference and Revision #	• OP-CL-101-102-1001 Rev 7d		
Training Objective	LP85804 2.4.26 Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage.		
Previous NRC Exam Use	None		

K/A Reference(s)

B2.4.26	Safety Function 9	Tier 3	Group	RO Imp: 3.1	SRO Imp: 3.6
Knowledge of facility protection requirements, including fire brigade and portable fire fighting equipment usage. (CFR: 41.10 / 43.5 / 45.12)					

Learning Objective(s)

Q25/100 2.4.26
User (Sys) ID N/A (1537920)

Cross Reference Links

Table: TRAINING - QUESTIONS - Track Questions Modified in this Project (CL-OPS-EXAM-ILT)
Tracking link in project CL-OPS-EXAM-ILT to source question 2103888