

QUESTION ID: 001

1. A reactor startup and heatup is in progress on Unit 2 in accordance with GP-2, Normal Plant Startup. The RO performs a single-notch withdrawal of a selected control rod when the following indications are observed:

- "Rod Select Block Timer Malfunction" annunciator (211 E-3) is received.
- The Timer Test Switch "Red Light" is lit on C05A Panel.

Based on the above conditions, which one of the following is the correct status of the Reactor Manual Control System (RMCS)?

- A. NO Rod Withdraw signal existed with an odd reed switch picked up for more than two seconds.
- B. A continuous Rod Withdraw signal existed for more than ten seconds and NO reed switches picked up.
- C. A Rod Withdraw signal to the directional control valves existed for more than two seconds during control rod motion.
- D. A Rod Withdraw signal to the directional control valves existed for more than ten seconds but the control rod failed to move.

## NRC Question Data Sheet

### Answer Key

Question ID# 001 Both RO/SRO

Choice		Basis or Justification
Correct:	C	Withdraw signal (drive out contacts closed) longer than 2 seconds causes malfunction alarm. Auxiliary Timer picks up to interrupt power to the Select Matrix to stop control rod withdraw.
Distractors:	A	No rod withdrawal with an odd reed switch picked up brings in the rod drift alarm and red light.
	B	Continuous rod withdrawal (Notch Override) bypasses the Timer Malfunction.
	D	Even a stuck rod will not result in Timer malfunction indications since timer sequence contacts operate normally.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.25	3	N/A

### Source Documentation

Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Modified Bank Item#3622 <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC 211 E-3, M-1-S-20, RMCS	
Learning Objective:	PLOT5062.04a	
Knowledge/Ability K/A	201002 K4.01 Reactor Manual Control System	Importance: RO / SRO 2.7 / 2.7
(Description of K&A, from catalog) Knowledge of REACTOR MANUAL CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following: <ul style="list-style-type: none"> <li>• Detection of sequence timer malfunction</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments:

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QUESTION ID: 002

2. During power ascension, a loss of Uninterruptible Power Supply, 20Y050 has resulted in a Recirc Runback and inadvertent entry into Region 2 of the Power to Flow Map. The CRS briefs the crew on the plant conditions.

Based on the above conditions, the RO \_\_\_\_ (1) \_\_\_\_ insert control rods using RMCS and \_\_\_\_ (2) \_\_\_\_ raise recirc flow using Recirc Moore Controllers.

- |    |            |               |
|----|------------|---------------|
| A. | (1)<br>CAN | (2)<br>CANNOT |
| B. | CANNOT     | CAN           |
| C. | CAN        | CAN           |
| D. | CANNOT     | CANNOT        |

### NRC Question Data Sheet

Answer Key		
Question ID# 002 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Loss of Y50 results in recirc runback (cannot be reset without power) and loss of rod select matrix
Distractors:	A	Loss of Y50 results in a loss of rod select matrix and RPIS.
	B	Runback signal cannot be reset
	C	Loss of power causes loss of both recirc runback logic and RMCS

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.75	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #5885		
Reference(s):	ON-112, Loss of Uninterruptible Power		
Learning Objective:	PBIG PLOT1550.17a		
Knowledge/Ability K/A	201002 K6.01 Reactor Manual Control System	Importance: RO / SRO 2.5 / 2.6	
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the following will have on the RMCS system: <ul style="list-style-type: none"> <li>• Select matrix power</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 003

3. Unit 2 is operating at 90% power and you are directed to swap AC Lube Oil pumps on the 2A Recirc MG Set.

SO 2C.6.A-2, Recirculation MG Set Lube Oil System Standby Pump Start procedure cautions the operator to "...minimize the time two lube oil pumps are in operation..." during the AC Lube Oil pump swap.

Which one of the following is the operational basis for this SO procedure caution?

- A. Starting the second pump results in a reactor power spike due to more MG Set fluid coupling due to higher than normal oil header pressure.
- B. Starting the second pump results in reactor power drop from less MG Set fluid coupling due to the oil header pressure control valve opening.
- C. Running two pumps results in a rapid lube oil temperature rise due to pump heat addition and the potential for Recirc MG Drive Motor Trip.
- D. Running two pumps results in a drop in lube oil pressure due to relief valve opening and the potential for a spurious Recirc MG Scoop Tube Lock.

## NRC Question Data Sheet

### Answer Key

Question ID# 003 RO/SRO

Choice		Basis or Justification
Correct:	A	A power spike is expected due to increased fluid coupling. Per SO procedure, pump swap must be performed <97% power with a confirmed scram margin of at least 15%.
Distractors:	B	The pressure control valve does open but is only a concern when stopping the second pump after the swap.
	C	Running positive displacement pumps does result in heat addition to the system but is within system design and is not a concern or a basis for this caution.
	D	Only a concern if the pressure control valve stays open when stopping the second pump after the swap.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.25	3	N/A

### Source Documentation

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	SO 2C.6.A-2	
Learning Objective:	PLOT5002.05i	
Knowledge/Ability K/A	202002 K5.01 Recirculation Flow Control System	Importance: RO / SRO 2.8 / 2.8
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to Recirculation Flow Control System: <ul style="list-style-type: none"> <li>• Fluid Coupling BWR-3,4</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:

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QUESTION ID: 004

4. A Unit 2 shutdown and cooldown is in progress. An electrical transient has resulted in the following plant conditions:
- Loss of 125 VDC power to System 'A' RHR ECCS Logic.
  - Reactor pressure is 420 psig lowering slowly.
  - Drywell pressure is 4.0 psig rising slowly.

Based on the above conditions, which one of the following is correct regarding the current status of RHR pumps AND Low Pressure Coolant Injection (LPCI) into the RPV?

- A. ALL RHR pumps are running AND they are injecting into the RPV.
- B. ALL RHR pumps are running AND they are NOT injecting into the RPV.
- C. ONLY B&D pumps are running AND they are injecting into the RPV.
- D. ONLY B&D pumps are running AND they are NOT injecting into the RPV.

### NRC Question Data Sheet

Answer Key		
Question ID# 004 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Correct, RHR logics are cross-divisionalized such that a loss of one 125 VDC does not impact LPCI pump starts (unlike Core Spray). Per TRIP procedures, RHR pump shutoff head is 305 psig so they are NOT injecting.
Distractors:	A	Reactor pressure too high for LPCI injection.
	C	All LPCI pumps are running.
	D	All LPCI pumps are running.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.75	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #5603		
Reference(s):	M-1-S-65		
Learning Objective:	PLOT5010.06b		
Knowledge/Ability K/A	203000 K2.03 RHR/LPCI Injection Mode	Importance: RO / SRO 2.7 / 2.9	
(Description of K&A, from catalog) Knowledge of electrical power supplies to the following: <ul style="list-style-type: none"> <li>• Initiation Logic</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 005

5. During rated power operation, the Standby Liquid Control “pipe-in-a-pipe” penetration at the reactor vessel becomes completely severed due to a seismic event.

Based on the above conditions, which Control Room instrumentation below will be AVAILABLE and unaffected by the piping failure?

- A. Control Rod Drive differential pressure instruments.
- B. Core Plate DP derived Total Core flow instruments.
- C. Calibrated Jet Pump differential pressure instruments.
- D. Recirculation Loop Total Jet Pump Flow instruments.

## NRC Question Data Sheet

Answer Key		
Question ID# 005 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Correct, the SLC pipe-in-a-pipe connection to the vessel also provides above and below core plate process pressure for attached instruments. Calibrated Jet pump instruments do not use this penetration.
Distractors:	A	Will be affected since it uses above core plate pressure from the SLC pipe.
	B	Will be affected since it used both above and below core plate pressure from the SLC pipe.
	D	Will be affected since it uses both above and below core plate pressure from the SLC pipe.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.25	3	N/A

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #4058	
Reference(s):	M-352 Boiler Instrumentation	
Learning Objective:	PLOT5011.01f, 03c,d,e	
Knowledge/Ability K/A	211000 K1.06 Standby Liquid Control System	Importance: RO / SRO 3.7 / 3.7
(Description of K&A, from catalog) Knowledge of the physical connections and/or cause-effect relationships between Standby Liquid Control System and the following: <ul style="list-style-type: none"> <li>• Reactor Vessel</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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## QUESTION ID: 006

6. During an ATWS condition, the URO has started the System 'A' Standby Liquid Control (SLC). The following plant conditions exist:

- RPV pressure is 1020 psig steady.
- SLC discharge pressure is 1100 psig steady.
- 'A' SLC Squib Valve failed to fire.

Based on the above conditions, which statement is correct regarding the expected capability of SLC to inject boron for reactor shutdown?

- A. SLC is injecting normally at full flow and reactor shutdown will occur as designed.
- B. SLC is injecting at reduced flow and reactor shutdown will occur later than designed.
- C. SLC CANNOT inject into the vessel and System 'B' must be manually initiated to shutdown the reactor the designed.
- D. SLC CANNOT inject into the vessel at any RPV pressure and SLC will NOT be able to shutdown the reactor as designed.

### NRC Question Data Sheet

Answer Key		
Question ID# 006 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Correct, one squib valve failure will not prevent injection. RPV and system pressure parameters are normal for injection.
Distractors:	B	Though piped in parallel, system is sized such that full flow is provided from each SLC squib valve.
	C	Though SLC has two trains, pumps and squib valves are cross-connected and only one is required for injection.
	D	SLC will inject since valves are in parallel not series.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.75	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #5941		
Reference(s):	SO 11.1.A-2 COL		
Learning Objective:	PLOT-5011.03a		
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">211000 K3.01 Standby Liquid Control System</td> <td style="width: 40%; border: none;">Importance: RO / SRO 4.3 / 4.4</td> </tr> </table>	211000 K3.01 Standby Liquid Control System	Importance: RO / SRO 4.3 / 4.4
211000 K3.01 Standby Liquid Control System	Importance: RO / SRO 4.3 / 4.4		
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the Standby Liquid Control System will have on the following: <ul style="list-style-type: none"> <li>• Ability to shutdown the reactor in certain conditions.</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 007

7. A Unit 3 startup is in progress with the following plant conditions:
- Reactor Mode Switch is in the STARTUP position.
  - The Scram Disch Volume (SDV) High Bypass control switch (5A-S8) is in the BYPASS position.
  - The Inboard Scram Discharge Volume (SDV) Drain Valve (AO-3-03-33) is failed in the CLOSED position.
  - “Scram Disch Volume Not Drained” alarm is received.

Based on the above conditions, which of the following statements is correct when actual SDV Instrument Volume level exceeds 50 gallons?

- A. NO Scram since the SDV High Level signal is bypassed with the 5A-S8 switch in the 'BYPASS' position.
- B. NO Scram since the SDV High Level signal is bypassed with the Mode Switch in the 'STARTUP' position.
- C. A Scram will occur since the SDV High Level Bypass is inactive with the Mode Switch in the 'STARTUP' position.
- D. A Scram will occur since the SDV High Level Bypass is inactive with sensed Turbine First Stage pressure <30%.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 007 Both RO/SRO		
Choice		Basis or Justification
Correct:	C	Correct, SDV High Level Keylock Bypass is only activated when the Mode Switch is in Shutdown or Refuel Position.
Distractors:	A	SDV High Level Bypass Keylock switch not active in this condition.
	B	Distractor if candidate confuses Mode Switch position bypasses.
	D	Distractor if candidate confuses this reactor scram bypass which is in effect in this reactor condition.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

<b>Source Documentation</b>			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	GP-11E		
Learning Objective:	PLOT5060F.04k		
Knowledge/Ability K/A	212000 A4.09 Reactor Protection System	Importance:	RO / SRO 3.9 / 3.8
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room: <ul style="list-style-type: none"> <li>• Scram Instrument volume level</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 008

8. Unit 3 is operating at full power with APRM Channel "1" tripped INOP and previously BYPASSED.

Later in the shift, an unrelated problem causes the Reactor Recirculation Drive flow input signal to APRM Channel "2" to fail to zero (0% flow).

Based on the above conditions, which one of the following describes the expected APRM AND Reactor Protection (RPS) system responses?

	<u>APRM</u>	<u>RPS</u>
A.	NO Scram Votes	NO Scram Channels tripped
B.	ONE Scram Vote	NO Scram Channels tripped
C.	ONE Scram Vote	HALF-Scram
D.	TWO Scram Votes	FULL-Scram

### NRC Question Data Sheet

Answer Key		
Question ID# 008 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Correct. APRM "1" is bypassed and has no vote. A zero recirc flow signal results in an APRM "2" flow biased scram trip signal. RPS receives only one vote and no scram channels are tripped.
Distractors:	A	Common misconception that a failed low recirc flow input has no effect. The APRM believes the low flow input is valid and trips accordingly. Distractor that there is no vote and no scram.
	C	APRM "2" is tripped and will process one Vote. New GE NUMAC system causes no scrams. Old GE system resulted in a half-scram on one APRM tripped.
	D	ANY 2 out of 4 APRM votes results in Full-scram in new GE NUMAC system. Only one vote in this condition.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.25	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	ARC 211 A-3		
Learning Objective:	PLOT-5060.03a		
Knowledge/Ability K/A	215005 K3.01 Average Power Range Monitor/Local Power Range	Importance:	RO / SRO 4.0 / 4.0
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the APRM/LPRM will have on the following: <ul style="list-style-type: none"> <li>• RPS</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 009

9. Unit 2 is operating at 70% power at the end of cycle with the following conditions:

- All APRM channels are in-service and Operable.
- APRM "1" has seven (7) out of possible ten (10) 'B' Level LPRM detectors already bypassed.
- APRM "1" has thirteen (13) LPRM detectors TOTAL bypassed.

Based on the above conditions, which APRM "1" response is correct if an additional 'B' Level LPRM to APRM "1" is manually bypassed?

- A. NO alarms and NO Rod Block since the remaining LPRMs are adequate for core power indication.
- B. An APRM Trouble alarm and Rod Block since the remaining LPRMs cannot provide accurate core coverage.
- C. An APRM Downscale alarm and Rod Block since the remaining LPRMs will be averaged and indicate significantly below actual core power.
- D. An APRM INOP alarm, Rod Block and a Scram Vote to RPS since insufficient LPRMs remain for the APRM to average core power.

## NRC Question Data Sheet

Answer Key		
Question ID# 009 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Correct, APRM Trouble alarm and rod block due to "too few inputs" <3 LPRMs per level. APRM will continue to average remaining LPRMs.
Distractors:	A	Total LPRMs are still greater than <20 LPRMs total but < 3 LPRMs per level is alarm and rod block.
	C	Trouble alarm only and 30 LPRMs remaining at 70% power will not result in APRM to go downscale.
	D	Trouble alarm only, NOT an INOP trip with GE NUMAC APRM system. Common misconception since old APRM system resulted in INOP trip on too few inputs.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	4.0	3	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC 211 A-3, APRM Hi-Hi/INOP ARC 211 C-2, APRM Downscale ARC 211 E-5, APRM Trouble Tech Specs 3.3.1.1 bases	
Learning Objective:	PLOT5060.04g	
Knowledge/Ability K/A	215005 K4.08 Average Power Range Monitor/Local Power Range	Importance: RO / SRO 2.7 / 3.1
(Description of K&A, from catalog) Knowledge of APRM/LPRM design feature(s) and/or interlocks which provide for the following: <ul style="list-style-type: none"> <li>• Sampling of overall core power in each APRM (accomplished through LPRM assignments and symmetrical rod patterns).</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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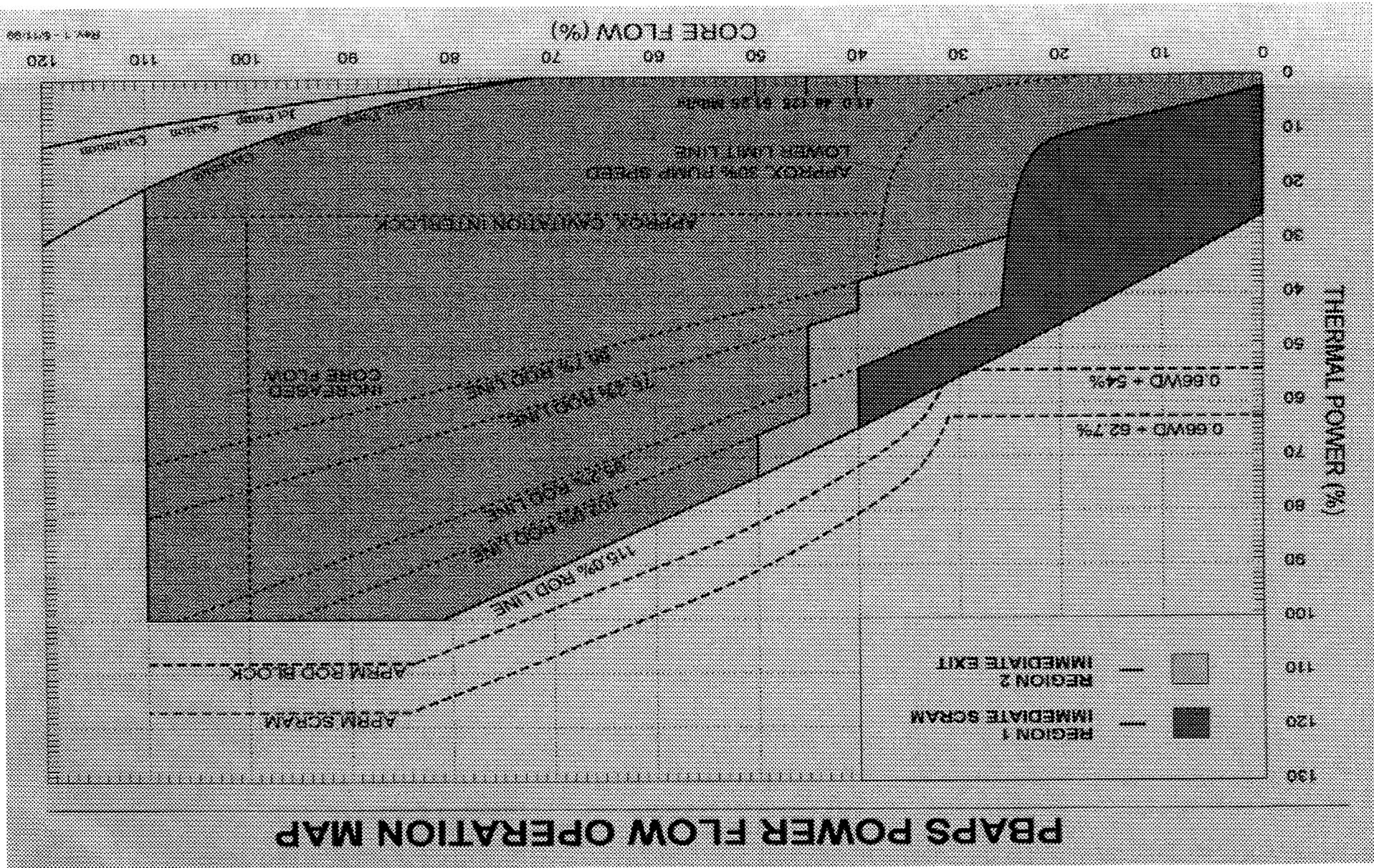
## QUESTION ID: 010

10. During power ascension, the 'B' Reactor Recirculation Pump (RRP) has tripped and resulted in the following Unit 2 conditions:

- Total Core Flow (FR-2-2-3-095 black pen) is reading 72 Mlbm/hr.
- 'A' Recirc Loop Flow (FI-2-2-3-092B) is reading 55 Mlbm/hr.
- 'B' Recirc Loop Flow (FI-2-2-3-092A) is reading 17 Mlbm/hr.
- 'A' RRP operating at 1425 rpm.
- APRMs read 57% power.

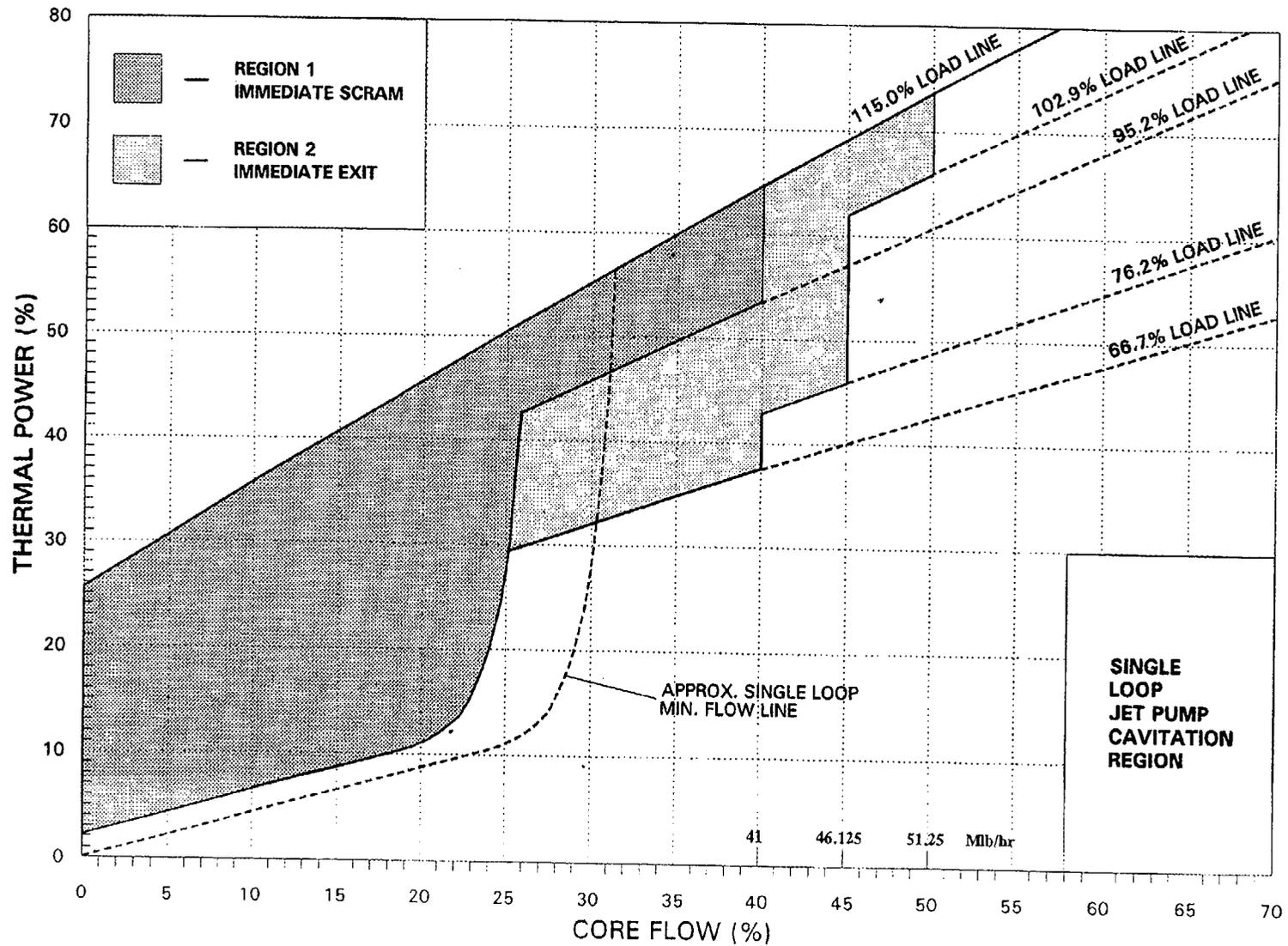
Using the attached copy of the GP-5-1, Power to Flow map, evaluate the above conditions and correctly select the required action statement below?

- A. The plant is operating in Region 1, immediately scram the reactor.
- B. The plant is operating in Region 2, immediately exit the region.
- C. The plant is operating in an unanalyzed region, reduce power to below 25%.
- D. The plant is NOT operating in any restricted region, continue actions for single loop.



REV 1 - 5/11/89

# PBAPS POWER FLOW OPERATION MAP



SINGLE LOOP CORE FLOW CALCULATION

IF Recirc Pump speed > 650 RPM AND Indicated Core Flow > 35 Mlbm/hr,  
THEN Core Flow = Indicated Core Flow - 2(Inactive Loop Flow).

$$\frac{\text{Indicated Core Flow}}{\text{FR-2(3)-2-3-095}} - 2\left(\frac{\text{Inactive Loop Flow}}{\text{FI-2(3)-2-3-092A(B)}}\right) = \frac{\text{Core Flow}}{\text{OR B015(B315)}}$$

OTHERWISE, Core Flow = Indicated Core Flow

REFERENCES

1. CM-1, Letter from G. A. Hunger, Jr. Dated Sept. 29, 1994 transmitting TSCR 93016 (T03680).

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 010 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Candidate must recognize that total core flow indication is inaccurate and correctly calculate core flow using GP-5-1 exhibit. The plot on the N/F map will identify Region 1 and require an immediate reactor scram.
Distractors:	B	Plant is operating in Region 1 and Scram is required.
	C	same as A. At PBAPS, possible during a RRP trip to end up above 115% load line, this exceeds FLLLP and is considered unanalyzed.
	D	Distractor if student does not correctly calculate core flow. Without calculating per GP-5-1, point is plotted outside Region 1 and 2.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	N/A

<b>Source Documentation</b>		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #5470 reformatted	
Reference(s):	OT-112, GP-5-1	
Learning Objective:	PLOT1540.03	
Knowledge/Ability K/A	216000 A2.14 Nuclear Boiler Instrumentation	Importance: RO / SRO 2.9 / 2.9
(Description of K&A, from catalog) Ability to (a) predict the impacts of the following on the Nuclear Boiler Instrumentation; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: <ul style="list-style-type: none"> <li>• Recirculation flow: design specific</li> </ul>		

**REQUIRED MATERIALS:**

Exhibit GP-5-1, PBAPS Power to Flow Map pages 1-3

Notes and Comments

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QUESTION ID: 011

11. During power operation, an Equipment Operator reports a large air leak exists on the AO-2-13-022 RCIC Feedwater Testable Check Valve actuator. The actuator indicates closed and cannot be manually opened.

Based on the above condition, which statement below is correct regarding the availability of RCIC for injection during a plant transient?

RCIC Injection:

- A. WILL NOT be available since air is required for the actuator to open the check valve.
- B. WILL NOT be available since the failed actuator will prevent the check valve from opening.
- C. WILL be available since the check valve actuation is not inhibited by the failed actuator.
- D. WILL be available since the pump discharge pressure will force the actuator to the open position.

## NRC Question Data Sheet

Answer Key		
Question ID# 011 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Correct, actuator does not affect check valve operation for injection. RCIC is inoperable but available for injection.
Distractors:	A	Air is required to Test the check valve open, but it will not impact check valve operation during RCIC injection.
	B	Failed actuator does not prevent check valve operation.
	D	Check valve operation does not move or operate actuator. The mechanism operates independently.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	SO 13.1.B-2 RRC-13.1-2		
Learning Objective:	PLOT5013.05b		
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">217000 K5.04 Reactor Core Isolation Cooling System (RCIC)</td> <td style="width: 40%; text-align: right;">Importance: RO / SRO 2.6 / 2.7</td> </tr> </table>	217000 K5.04 Reactor Core Isolation Cooling System (RCIC)	Importance: RO / SRO 2.6 / 2.7
217000 K5.04 Reactor Core Isolation Cooling System (RCIC)	Importance: RO / SRO 2.6 / 2.7		
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply Reactor Core Isolation Cooling System (RCIC): <ul style="list-style-type: none"> <li>• Testable check valve operation</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:

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PBAPS NRC Exam Author

QUESTION ID: 012

12. During Summer weather operations, a Unit 2 power ascension was in progress when an electrical transient resulted in the loss of the #2 13 kV Auxiliary Bus.
- Reactor power is 45% in single loop.
  - Turbine Generator is online.
  - Drywell temperature is 135 F rising.

Which statement below correctly describes why the loss of the #2 13 kV Auxiliary Bus has resulted in the rising drywell temperature?

- A. Half of the Drywell Fans lost electrical power.
- B. RBCCW is providing all cooling to the Drywell Cooler Units.
- C. One running DW Chiller Unit cannot keep up with the heat load.
- D. Loss of power caused the DWCW isolation valves to fail closed.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 012 Both RO/SRO		
Choice		Basis or Justification
Correct:	B	Loss of #2 Aux Bus results in automatic swapover of ALL DW Cooling to RBCCW and less cooling during summer ops (80°F versus 50°F)
Distractors:	A	Drywell fans are emergency AC powered
	C	RBCCW swapover occurred. Loss of #2 Aux Bus results in loss of 2 Chiller Units. Note that one DW Chiller would still have power but would probably trip on low chill water flow since no flowpath following the swapover.
	D	DWCW isolation valves fail as-is on a loss of power.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	N/A

<b>Source Documentation</b>			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	SO 53.7.F, 13KV Load Shedding on Bus Undervoltage		
Learning Objective:	PLOT5007.06a		
Knowledge/Ability K/A	223001 A1.01 Primary Containment System and Auxiliaries	Importance:	RO / SRO 3.5 / 3.6
(Description of K&A, from catalog) Ability to predict and/or monitor changes in parameters associated with operating the Primary Containment and Aux. Controls including: <ul style="list-style-type: none"> <li>• Drywell Temperature</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

## QUESTION ID: 013

13. A Unit 2 plant startup is in progress with the following conditions:

- Drywell inerting in progress
- 'A' CAC H<sub>2</sub>/O<sub>2</sub> Analyzers is aligned to sample the drywell
- 'B' CAC H<sub>2</sub>/O<sub>2</sub> Analyzer is aligned to sample the torus
- A sustained loss of the E22 4KV bus has occurred.

Based on the above conditions, which statement describes the correct CAC Analyzer monitor response?

- A. Analyzers are powered from Division I AC, unaffected by the loss of the bus. Containment atmosphere monitoring will be maintained.
- B. Analyzers will swap to the CAD mode, and sample pumps continue to run. Containment atmosphere monitoring will be maintained.
- C. INBOARD isolation valves will isolate and remain closed. Containment atmosphere monitoring is unavailable until the isolation is reset.
- D. OUTBOARD isolation valves will isolate and remain closed. Containment atmosphere monitoring is unavailable until the isolation is reset.

### NRC Question Data Sheet

Answer Key		
Question ID# 013 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Correct, loss of E22 (20Y034) results in a loss of solenoid power as well as an Outboard Group III isolation due to loss of RPS power, closing the CAC isolation valves and sample pumps trip after a time delay.
Distractors:	A	CAC Analyzers are powered from Div I 480 VAC power for both Units but both loss of 20Y034 Vital AC and 'B' RPS power loss causes Outboard Group III valves to close.
	B	Analyzers default to CAD mode on loss of Vital instrument bus power only.
	C	E12 4KV bus is Div I 20Y033 and RPS 'A' which results in an Inboard valve isolations, RPS 'B' results in the Outboard Group III isolation.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.25	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 200px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 150px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	GP-8C and GP-8C COL SO 7J.7.A (and B)		
Learning Objective:	PLOT5007B.06d		
Knowledge/Ability K/A	223001 A4.05 Primary Containment System and Auxiliaries	Importance:	RO / SRO 3.6 / 3.6
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room: Containment/drywell oxygen concentration			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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## QUESTION ID: 014

14. Unit 2 is operating at 100% power and a calibration check of reactor water level instruments is in progress.
- I&C reports that both 'A' and 'C' PCIS Lo-Lo-Lo Rosemount trip units (level switches LIS-2-2-3-99A and 99C) that input into the Group I PCIS isolation logic are failed high and untripped (neither will trip at its setpoint).
  - The CRS is reviewing Tech Specs and GP-25, Installation of Trips/Isolations to Satisfy Tech Spec/TRM Requirements" but GP-25 actions have NOT yet been performed.

Based on the above conditions, select the correct PCIS valve response if an ACTUAL Lo-Lo-Lo level condition occurs, and the required operator action per GP-8A, "PCIS Isolation - Group I"?

- A. Only MSIVs will auto close and the RO must manually isolate the remaining Group I valves.
- B. The Group I valves will auto close EXCEPT MSIVs and the RO must manually isolate the MSIVs.
- C. The Group I valves, including MSIVs will auto close and the RO must only verify the automatic valve closures.
- D. The MSIVs will NOT auto close and the RO must manually isolate the Group I valves.

## NRC Question Data Sheet

### Answer Key

Question ID# 014 Both RO/SRO

Choice		Basis or Justification
Correct:	D	Correct, channels 'A' and 'C' failed inop and untripped prevents an actuation on actual low level condition. Operator action is required to close the valves.
Distractors:	A	Although all Group I valves operate from the same 4 sublogics, there are certain combinations where single failure is guaranteed only to the penetration of the containment, e.g., MSL drain valves.
	B	Although all Group I valves operate from the same 4 sublogics, there are certain combinations where single failure is guaranteed only to the penetration of the containment, e.g., MSL drain valves.
	C	No valves close for this combination of failed logics.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.25	3	N/A

### Source Documentation

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-8A	
Learning Objective:	PLOT5007G.05d, 04e	
Knowledge/Ability K/A	223002 A2.06 Primary Containment Isolation System	Importance: RO / SRO 3.0 / 3.2
(Description of K&A, from catalog) Ability to (a) predict the impacts of the following on the PCIS/NSSSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Containment instrumentation failures		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:

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## QUESTION ID: 015

15. A loss of the Division I 125V DC power supply 20D21 (2PPA) has occurred to the Safety Relief Valve (SRV) Solenoids on Unit 2. The following conditions exist:
- BLOWDOWN VALVES POWER MONITOR alarm received.
  - Division II 125V DC solenoid power is energized and available.
  - Both Divisions 125V DC ADS Logic power are energized and available.

Based on the above conditions, which one of the following is correct regarding the capability to manually open SRVs with solenoids from the Control Room (ADS or non-ADS SRVs)?

- A. Only ADS SRVs have electrical power to be manually opened, All Non-ADS SRVs are without solenoid power.
- B. Only the Division II SRVs, two (2) ADS and five (5) non-ADS SRVs have electrical power to be manually opened.
- C. All ADS SRVs have electrical power to open, but only three (3) of the Non-ADS SRVs can be manually opened.
- D. All ADS and Non-ADS SRVs have electrical power to open, All SRVs have electrical power to be manually opened.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 015 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Each SRV (ADS or Not) has both normal 20D21 (Div I) and alternate 20D24 (Div II) 125V DC power to solenoids. A loss of one supply will not prevent SRV (ADS or Not) operation manually.
Distractors:	A	same as D, note also a common misconception that only ADS SRVs have alternate power.
	B	Candidate may confuse the effects of the ADS logic power loss with valve power loss.
	C	Conceptual error for ADS versus non-ADS valve solenoid power. Note: during App 'R' fire, 3 SRVs are protected due to cable runs.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	N/A

<b>Source Documentation</b>		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC 227 C-5 Blowdown Valves Power Monitor	
Learning Objective:	PLOT5001G.06e	
Knowledge/Ability K/A	239002 K2.01 Relief/Safety Valves	Importance: RO / SRO 2.8 / 3.2
(Description of K&A, from catalog) Knowledge of electrical power supplies to the following: <ul style="list-style-type: none"> <li>• SRV Solenoids</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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16. Unit 2 is operating at rated power when the 'A' Feedwater Flow instrument fails low (dPT-6-50A output is zero '0' Mlbm/hr). Complete the following statement that correctly describes the Digital Feedwater Control System's (DFCS) response to the above failure.

Upon reaching steady-state conditions, RPV level will be controlled:

- A. a few inches above the level setpoint since DFCS compensates for the feed flow/steam flow error.
- B. a few inches below the level setpoint since DFCS compensates for the lower sensed total feed flow signal.
- C. at the level setpoint since DFCS transfers control to the "best" feed flow instrument.
- D. at the level setpoint since DFCS transfers control to "single-element" mode without flow instruments.



## QUESTION ID: 017

17. Unit 2 is operating normally at an initial steady-state power level of 100%.

Complete the statement below to correctly describe how the Digital Feedwater Level Control (DFCS) system will respond as power is reduced to 90% power due to insertion of control rods.

As power is FIRST reduced, DFCS will INITIALLY \_\_\_\_ (1) \_\_\_\_ Reactor Feedpump Turbine speed due to the sensed \_\_\_\_ (2) \_\_\_\_ error signal.

- |    |       |                    |
|----|-------|--------------------|
|    | (1)   | (2)                |
| A. | LOWER | reactor level      |
| B. | LOWER | feedflow/steamflow |
| C. | RAISE | reactor level      |
| D. | RAISE | feedflow/steamflow |

### NRC Question Data Sheet

Answer Key		
Question ID# 017 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Correct. Steamflow is the initial input as reactor power lowers due to control rod insertion while in three element control.
Distractors:	A	Steamflow lowers first ( $W_f > W_s$ ) and results in positive (+) flow error. Three element control will slow down feedpumps for anticipatory control (prior to any actual level change).
	C	Feedpumps slowdown due to flow error not level error. Misconception with smaller void fraction at reduced power resulting in annulus level dropping and feedpump responding to control level.
	D	Misconception with smaller void fraction at reduced power resulting in annulus level dropping and feedpump responding to control level.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	SO 6C.1.D-2 ARC 201 H-1		
Learning Objective:	PLOT5006.04p		
Knowledge/Ability K/A	259002 A3.03 Reactor Water Level Control System	Importance:	RO / SRO 3.2 / 3.2
(Description of K&A, from catalog) Ability to monitor automatic operation of the Reactor Water Level Control System including: <ul style="list-style-type: none"> <li>• Changes in main steam flow</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

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18. Unit 3 is operating at 100% power when the '3A' Reactor Protection System (RPS) bus was manually transferred to its alternate power source.

Based on the above power loss, complete the following statement that correctly describes the expected automatic Standby Gas Treatment (SGTS) alignment.

SGTS \_\_\_(1)\_\_\_ will start and the \_\_\_(2)\_\_\_ Filter inlet/outlet dampers will OPEN.

- |    |         |           |
|----|---------|-----------|
|    | (1)     | (2)       |
| A. | 'B' Fan | 'A' Train |
| B. | 'C' Fan | 'B' Train |
| C. | 'B' Fan | 'B' Train |
| D. | 'C' Fan | 'A' Train |

### NRC Question Data Sheet

Answer Key		
Question ID# 018 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Loss of 3A RPS Bus starts the 'C' fan on the 'A' filter train dampers only align.
Distractors:	A	Incorrect fan.
	B	Incorrect train and area.
	C	Correct for loss of 'B' RPS Bus.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

Source Documentation	
Source:	<input type="checkbox"/> New Exam Item <span style="margin-left: 200px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 200px;"><input type="checkbox"/> Other Exam Bank</span> <input checked="" type="checkbox"/> ILT Exam Bank #5130 reformatted
Reference(s):	GP-8C
Learning Objective:	PLOT5009A.06d
Knowledge/Ability K/A	261000 A3.03 Standby Gas Treatment System <span style="float: right; margin-right: 50px;">Importance: RO / SRO 3.0 / 2.9</span>
(Description of K&A, from catalog) Ability to monitor automatic operations of the Standby Gas Treatment System including: <ul style="list-style-type: none"> <li>• Valve operation</li> </ul>	

**REQUIRED MATERIALS:**

**Notes and Comments**

SBGT is common to both Units. Three fans A,B,C and two trains (A&B) aligned to RB, RF and Equipment Cell. Each RPS failure has a unique effect on system valve alignment in order to be fail-safe.

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<sup>2</sup>BAPS NRC Exam Author

## QUESTION ID: 019

19. A loss of offsite power (LOOP) occurred several hours ago. All Emergency Diesel Generators started and energized all emergency 4 kV Buses. The following are received:

- “E-3 Diesel Generator Trouble” alarm (004 G-5).
- “Fuel Oil Low Pressure” local alarm (0CC097 G-4).
- E-3 EDG shaft driven fuel oil pump has mechanically failed.

Based on the above conditions, which statement below is the correct response of the E-3 Diesel Generator?

- A. Aux Fuel Oil pump will start immediately and diesel continues running.
- B. Aux Fuel Oil pump starts after 34 second time delay and diesel continues running.
- C. Diesel trips after 5 second time delay, Aux Fuel Oil pump starts and diesel may be reset and restarted.
- D. Diesel trip is bypassed, NO Aux Fuel Oil pump start and diesel stops within a few minutes when out of fuel.

### NRC Question Data Sheet

Answer Key		
Question ID# 019 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Aux Fuel Oil pump starts and ensures continued diesel operation.
Distractors:	B	34 sec time delay only on initial diesel start to allow shaft driven pump to develop pressure (relay is now timed out).
	C	If Aux pump does not develop pressure within 5 seconds, Diesel will trip in this LOOP condition.
	D	Only MCA (LOCA signal) bypasses the trip, Aux Fuel Oil pump will start.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.25	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	ARC 0CC097 G-4 Fuel Oil Low Pressure		
Learning Objective:	PLOT5052.06b		
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">264000 K6.02 Emergency Generators</td> <td style="width: 40%; text-align: right;">Importance: RO / SRO 3.6 / 3.6</td> </tr> </table>	264000 K6.02 Emergency Generators	Importance: RO / SRO 3.6 / 3.6
264000 K6.02 Emergency Generators	Importance: RO / SRO 3.6 / 3.6		
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the following will have on the Emergency Generators: <ul style="list-style-type: none"> <li>• Fuel oil pumps</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

QUESTION ID: 020

20. The E-1 Emergency Diesel Generator (DG) Full Load surveillance test is in progress with the following conditions:

- E-1 is in test and loaded to offsite via the "E-12" 4 kV Bus.
- The ST is completed and the PRO is unloading the diesel.
- The diesel is at 150 kilowatts when a governor problem causes the diesel to reverse power.

Based on the above conditions, complete the statement that correctly predicts the response of the E-1 Diesel Generator (DG) and E-12 4KV DG Output breaker.

The reverse power condition will cause a:

- A. diesel shutdown resulting in the trip of the E-12 breaker.
- B. trip of the E-12 breaker and the DG continues to run unloaded.
- C. generator lockout resulting in a diesel shutdown and trip of the E-12 breaker.
- D. local alarm indicating E-12 breaker closed and DG continues to run motoring.

## NRC Question Data Sheet

Answer Key		
Question ID# 020 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	E-12 output breaker trips, DG continues to run unloaded.
Distractors:	A	E-12 output breaker trips, DG continues to run unloaded.
	C	Reverse power is not a generator lockout.
	D	Generator trouble alarm only caused by overcurrent relays. Reverse power results in E-12 breaker trip alarm.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank		
Reference(s):	ARC 001 C-2		
Learning Objective:	PLOT5052.05c		
Knowledge/Ability K/A	264000 A1.09	Importance: RO / SRO 3.0 / 3.1	
(Description of K&A, from catalog) Ability to predict and/or monitor changes in parameters associated with operating the Emergency Generators controls including: <ul style="list-style-type: none"> <li>• Maintaining minimum load on emergency generator (to prevent reverse power)</li> </ul>			

REQUIRED MATERIALS:

**Notes and Comments**

Diesel motoring operating events have occurred at both Peach Bottom and Limerick Stations.

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## QUESTION ID: 021

21. A Unit 2 plant shutdown is in progress in accordance with GP-3. The following conditions exist:

- Reactor power is 32%.
- Rod Worth Minimizer was started and “Initialized” in accordance with ST-O-62-210-2, RWM Operability Check.

A few minutes later, the Digital Feedwater Level Control System “Total Steamflow” (Ws) output signal unexpectedly fails low (zero “0” Mlbm/hr). I&C reports the total “Feedflow” output signal is normal, still reading ~32%.

Based on the above conditions, which one of the following is the correct system response of the Rod Worth Minimizer (RWM) to the failed signal?

The RWM will respond as if power is:

- A. below the LPAP but above the LPSP.
- B. below both the LPAP and the LPSP.
- C. 32% since it does not use steamflow signal to sense power.
- D. 32% since it swapped to the feedflow signal on the failure.

### NRC Question Data Sheet

Answer Key		
Question ID# 021 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Correct, RWM uses either total feedwater or steamflow to determine below LPSP. RWM uses steamflow only to determine below LPAP.
Distractors:	A	RWM uses either total feedwater or steamflow to determine below LPSP. RWM uses steamflow only to determine below LPAP.
	C	RWM uses either total feedwater or steamflow to determine below LPSP.
	D	RWM uses either total feedwater or steamflow to determine below LPSP.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	N/A

Source Documentation					
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank				
Reference(s):	GP-3, Normal Plant Shutdown Section 6.0 ST-O-62A-210-2				
Learning Objective:	PLOT5062A.06e				
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">201006 K6.02</td> <td style="text-align: right;">Importance: RO / SRO</td> </tr> <tr> <td></td> <td style="text-align: right;">2.9 / 2.9</td> </tr> </table>	201006 K6.02	Importance: RO / SRO		2.9 / 2.9
201006 K6.02	Importance: RO / SRO				
	2.9 / 2.9				
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the following will have on the Rod Worth Minimizer System: <ul style="list-style-type: none"> <li>• Reactor water level control input</li> </ul>					

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 022

22. Following a plant transient and scram, the following conditions exist:

- RPV level is -60 inches steady
- RPV pressure is 1030 psig steady.
- T-101 is being implemented
- Reactor Water Cleanup (RWCU) is in Vessel to Vessel for RPV pressure control.
- RWCU Filter Demins are bypassed
- T-227, "Defeating RWCU Isolation Interlocks" has been implemented.

15 minutes later, the following valid alarm is received:

"CLEAN-UP RECIRC PUMP SUCTION LINE BREAK" (214 E-4)

Based on the above conditions, which statement below is correct regarding the alarm and RWCU operation?

- A. Expected alarm, operation can continue without Operator action.
- B. Expected alarm, throttle closed the MO-2-12-74, Bypass valve.
- C. Unexpected alarm, the RO must manually isolate RWCU valves.
- D. Unexpected alarm, verify the automatic isolation of RWCU valves.

## NRC Question Data Sheet

Answer Key		
Question ID# 022 Both RO/SRO		
Choice		Basis or Justification
Correct:	D	Alarm indicates a sensed high flow and is an immediate automatic isolation. This isolation is not bypassed by T-227 procedure.
Distractors:	A	This alarm is only expected during plant shutdown and depressurized and RWCU is isolated.
	B	Filter Demins are bypassed in for Recirc Mode. Distractor to close MO-74 Bypass to reduce high flow condition.
	C	T-227 procedure only bypasses the SBLC and low level isolation signals. All others including High Flow are not bypassed.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	T-227, Defeating RWCU Isolation Interlocks ARC 214 E-4		
Learning Objective:	PLOT5012.04d		
Knowledge/Ability K/A	204000 A3.06 Reactor Water Cleanup	Importance:	RO / SRO 3.1 / 3.1
(Description of K&A, from catalog) Ability to monitor automatic operations of the Reactor Water Cleanup System including: <ul style="list-style-type: none"> <li>• Lights and alarms</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

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## QUESTION ID: 023

23. Unit 2 was operating in Mode 4 with Shutdown Cooling (SDC) in service when a loss of offsite power (LOOP) occurred. Emergency diesel generators failed to start resulting in NO emergency AC bus power (Station Blackout).

Based on the above conditions, which one of the following is correct regarding the expected Shutdown Cooling (SDC) Isolation valve positions?

	MO-2-10-18 <u>SDC INBOARD ISOLATION</u>	MO-2-10-17 <u>SDC OUTBOARD ISOLATION</u>
A.	OPEN	OPEN
B.	OPEN	CLOSED
C.	CLOSED	OPEN
D.	CLOSED	CLOSED

## NRC Question Data Sheet

Answer Key		
Question ID# 023 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	LOOP results in immediate PCIS Group Isolations on loss of RPS power. Outboard IV (MO-17) is powered from Div II 250VDC safety related bus. Inboard IV (MO-18) is powered from Div I 480VAC E-bus (E124-R-C).
Distractors:	A	Both valves receive isolation signal, Outboard valve has power.
	C	Inboard valve does not have power.
	D	Inboard valve does not have power.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	GP-8B COL 56E.1.A-2, 480 Emergency MCC		
Learning Objective:	PLOT5010.02		
Knowledge/Ability K/A	205000 K2.02 RHR Shutdown Cooling Mode	Importance:	RO / SRO 2.5 / 2.7
(Description of K&A, from catalog) Knowledge of electrical power supplies to the following: <ul style="list-style-type: none"> <li>• Motor Operated valves</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 024

24. Shutdown Cooling (SDC) is being placed in service IAW SO10.1.B-2. During this evolution for 'A' RHR, MO-2-10-016A, 'Min Flow' valve is closed with the respective breaker opened to prevent a vessel draindown path.

Which one of the following is the impact of operating the 'A' RHR pump with the MO-16A valve disabled?

- A. During pump starts, leak-by through this valve may result in an excessive cooldown rate.
- B. During pump starts, excessive motor amps may result due to pump starting under load.
- C. During initial pump operation, pump flow shall be limited to 4000 gpm to prevent pump runout.
- D. During initial pump operation, pump flow shall be at least 500 gpm to prevent pump overheating.

### NRC Question Data Sheet

Answer Key		
Question ID# 024 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Pump overheating will occur if the operator does not establish shutdown cooling flow.
Distractors:	A	Leak-by is not a concern with these valves.
	B	Pump is not started under load, motors amps will be normal for pump start.
	C	For continuous pump operation, <i>a minimum of 4000 gpm is required to prevent overheating and vibration.</i>

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.25	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #C03-SRO20 reformatted		
Reference(s):	SO 10.7.B-2		
Learning Objective:	PLOT5010.04c		
Knowledge/Ability K/A	205000 A1.02 RHR Shutdown Cooling Mode	Importance: RO / SRO 3.3 / 3.2	
(Description of K&A, from catalog) Ability to predict and/or monitor changes in parameters associated with operating the shutdown cooling mode controls including: <ul style="list-style-type: none"> <li>• SDC/RHR pump flow</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

## QUESTION ID: 025

25. A LOCA and reactor scram have occurred with the following plant conditions:

- RPV level reached minus -190 inches and is now -170 inches rising.
- RPV pressure is 720 psig lowering slowly.
- Drywell pressure is 14 psig rising slowly.
- Torus pressure is 13 psig rising slowly.
- CRS has directed the RO to spray the torus with the 'A' RHR Pump.

Based on the above conditions, which one of the following statements is correct regarding the ability to align 'A' Loop RHR for containment spray operations?

Torus Sprays:

- A. CANNOT be aligned because the 'C' RHR pump is also running and CANNOT be manually stopped with the LOCA signal present.
- B. CANNOT be aligned because the MO-2-10-154A, Outboard Injection valve is interlocked OPEN and CANNOT be manually closed.
- C. CAN be aligned AFTER the RO places the "Ctmt Spray Override 2/3 Core Coverage Switch (S18A)" in "Manual Override" position.
- D. CAN be aligned AFTER the RO places the "Ctmt Spray Valve Control Switch (S17A) in the "Manual" position.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 025 Both RO/SRO		
Choice		Basis or Justification
Correct:	D	With a LOCA signal sealed-in, the Containment Spray Valve Control Switch (S17A) is still required to manually align for sprays.
Distractors:	A	The 'C' RHR pump can be manually stopped even with the LOCA signal sealed-in.
	B	MO-154A can be manually closed since a valve "injection" open signal does not yet exist with RPV pressure at 720 psig.
	C	The Containment Spray Override (S18A) switch is NOT required since a LOCA signal is present and RPV level is above 2/3 core height.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.25	3	N/A

<b>Source Documentation</b>			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	T-203		
Learning Objective:	PLOT5010.04s		
Knowledge/Ability K/A	226001 K4.03 RHR/LPCI Containment Spray Mode	Importance: RO / SRO 2.9 / 2.9	
(Description of K&A, from catalog) Knowledge of RHR/LPCI: Containment Spray System Mode design feature(s) and/or interlocks which provide for the following: <ul style="list-style-type: none"> <li>• Prevention of inadvertent containment spray activation</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 026**

26. A reactor startup and power ascension is in progress on Unit 3. The Turbine Generator has been synchronized to the grid and loaded when the following transient occurs:

- Reactor power is 18%.
- Running EHC Hydraulic fluid pump trips.
- Standby EHC pump fails to start.
- Main Turbine trips on low EHC pressure.

Based on the above conditions, which one of the following is correct regarding pressure control and plant response?

- A. Six (6) Turbine Bypass valves will open INDEFINITELY to control pressure and NO reactor scram is expected to occur.
- B. Six (6) Turbine Bypass valves open for a SHORT TIME to control pressure and operator action will be required to avoid a reactor scram.
- C. Reactor scrams IMMEDIATELY on high pressure/power and NO Turbine Bypass valves open due to the loss of EHC hydraulics.
- D. Reactor scrams IMMEDIATELY on the turbine trip and Turbine Bypass valves will open for a short time following the scram.

## NRC Question Data Sheet

Answer Key		
Question ID# 026 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	6 BPVs are expected for 18% power. BPVs have separate accumulators to allow opening for some time without EHC fluid pressure.
Distractors:	A	BPVs accumulators will eventually run out due to design valve actuator leakage.
	C	With bypass valve operation, an immediate reactor scram is not expected at this power level.
	D	Scram on turbine trip is bypassed at this power level.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.75	3 min	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC 206 C-5	
Learning Objective:	PLOT5001B.03a	
Knowledge/Ability K/A	245000 K3.02 Main Turbine Generator and Auxiliary Systems	Importance: RO / SRO 3.9 / 4.0
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the Main Turbine Generator and Auxiliary Systems will have on the following: <ul style="list-style-type: none"> <li>• Reactor pressure</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 027**

27. Unit 2 is operating at 100% rated power when an electrical fault results in the lockout and deenergization of the #2 13 kV Auxiliary Bus.

Based on the above conditions, which one of the following is expected response of the Condensate and Reactor Feedwater pumps?

- A. 'A' Condensate pump trips and NO Reactor Feedwater pumps trip.
- B. 'B' Condensate pump trips and ONLY the 'A' Reactor Feedwater pump trips.
- C. 'A' and 'C' Condensate pumps trip and ALL Reactor Feedwater pumps trip.
- D. 'B' and 'C' Condensate pumps trip and ALL Reactor Feedwater pumps trip.

### NRC Question Data Sheet

Answer Key		
Question ID# 027 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	#2 Bus powers B and C Condensate pumps. Operating experience has demonstrated that a loss of Both condensate pumps at rated power results in a complete and unavoidable loss of feedwater since all RFPs trip on low suction pressure.
Distractors:	A	This is the response for a loss of the #1 Aux Bus.
	B	#2 Bus powers B and C Condensate pumps. Operating experience has demonstrated that a loss of Both condensate pumps at rated power results in a complete and unavoidable loss of feedwater since all RFPs trip on low suction pressure.
	C	'A' pump not powered from #2 Aux Bus.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 200px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 150px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	SO 53.7.F		
Learning Objective:	PLOT5005.02a		
Knowledge/Ability K/A	256000 K2.01 Condensate System	Importance: RO / SRO 2.7 / 2.8	
(Description of K&A, from catalog) Knowledge of electrical power supplies to the following: <ul style="list-style-type: none"> <li>• System pumps</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 028**

28. Unit 2 is operating at 100% power when a problem is discovered on the '2A' RPS Motor-Generator Set. The CRS has directed you to transfer '2A' RPS Bus to the Alternate Uninterruptible Power Supply, 20Y050.

Which one of the following Primary Containment Isolation System (PCIS) Groups will need to be RESET after the power transfer?

- A. Group II Inboard Half Isolation.
- B. Group II Outboard Half Isolation.
- C. Group III Inboard Half Isolation.
- D. Group III Outboard Half Isolation.

### NRC Question Data Sheet

Answer Key		
Question ID# 028 Both RO/SRO		
Choice		Basis or Justification
Correct:	C	Transfer to Alternate 20Y50 UPS power results in momentary loss of RPS 'A' and PCIS Div I logic. This results in a Group III Inboard isolation.
Distractors:	A	Group II Inboard on loss of Vital AC power 20Y33.
	B	Group II Outboard on loss of Vital AC power 20Y34.
	D	Group III Outboard on loss of RPS 'B'.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.0	3 min	N/A

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Modified Bank Item #2565 modified <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-8C	
Learning Objective:	PLOT5007G.05h	
Knowledge/Ability K/A	262002 K1.08 Containment isolation system	Importance: RO / SRO 2.9 / 3.1
(Description of K&A, from catalog) Knowledge of physical connections and/or cause-effect relationships between Uninterruptible Power Supply (AC) and the following: <ul style="list-style-type: none"> <li>• Containment isolation system</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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## QUESTION ID: 029

29. A Laundry Drain Tank radwaste release was started earlier in the shift in accordance with SO 20B.7.A, Laundry Drain Tank B Release to Conowingo Pond and ST-C-095-805-2, Liquid Radwaste Discharge.

You receive the following indications:

- “Radwaste Discharge Rad Monitor Downscale” annunciator (ARC 218 B-3).
- RIS-0-17-350, Radwaste Rad Monitor “DOWNSCALE” light is lit.
- RIS-0-17-350, Radwaste Rad Monitor “INOP” light is lit.

Based on the above conditions, choose the correct impact statement and required procedural action?

AO-0-20-308, “Radwaste Discharge to Canal” valve will:

- A. remain Open, the radwaste release may continue provided Chemistry performs periodic grab samples.
- B. remain Open, the radwaste release may continue provided Chemistry verifies that ODCM limits will not be exceeded.
- C. auto Close, the radwaste release may be restarted provided the Rad Monitor is Reset and Chemistry is notified.
- D. auto Close, the radwaste release must be terminated and Chemistry contacted to verify that ODCM limits were not exceeded.

## NRC Question Data Sheet

Answer Key		
Question ID# 029 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	An INOP condition is an automatic isolation. The radwaste release is automatically terminated per ARC, ST and ODCM.
Distractors:	A	Releases with an INOP rad monitor may only be performed IAW ODCM and required compensatory measures, including analyzing two independent samples and performing Independent Verification of calcs and valve lineup.
	B	Downscale/Inop will auto close valve and terminate release.
	C	ODCM and ST conditions have neither checked or satisfied to restart the release.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3 min	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ST-C-095-805-2, ODCM ARC 218 B-3	
Learning Objective:	PLOT5063.03a	
Knowledge/Ability K/A	272000 A2.06 Radiation Monitoring System	Importance: RO / SRO 2.8 / 2.9
(Description of K&A, from catalog) Ability to (a) predict the impacts of the following on the Radiation Monitoring System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: <ul style="list-style-type: none"> <li>• Downscale trips</li> </ul>		

### REQUIRED MATERIALS:

#### Notes and Comments

Prepared By:  
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**QUESTION ID: 030**

30. Following a small break LOCA, the crew has initiated Drywell Sprays to reduce containment pressure. Which one of the following correctly states the reason drywell sprays are secured before drywell pressure reaches 2 psig?
- A. Prevents unstable steam condensation in the downcomers.
  - B. Prevents opening of the Torus to Drywell Vacuum Breakers.
  - C. Prevents lowering NPSH on running ECCS pumps below limits.
  - D. Prevents opening of the Reactor Building to Torus Vacuum Breakers.

## NRC Question Data Sheet

Answer Key		
Question ID# 030 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Correct per T-102 bases.
Distractors:	A	This is the bases for the torus sprays initiation pressure and is not the bases for this step.
	B	Torus to DW Vacuum breaker actuation is expected as drywell pressure lowers.
	C	This is T-102 Caution #10 to remind the operator that a reduction in pump NPSH will occur as containment pressure is lowered but is not the reason for the step.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	T-102 Step PC/P-8		
Learning Objective:	PLOT2102.03		
Knowledge/Ability K/A	290001 K1.02 Secondary Containment	Importance: RO / SRO 3.4 / 3.6	
(Description of K&A, from catalog) Knowledge of the physical connections and/or cause-effect relationships between Secondary Containment and the following: <ul style="list-style-type: none"> <li>• Primary Containment system: plant specific</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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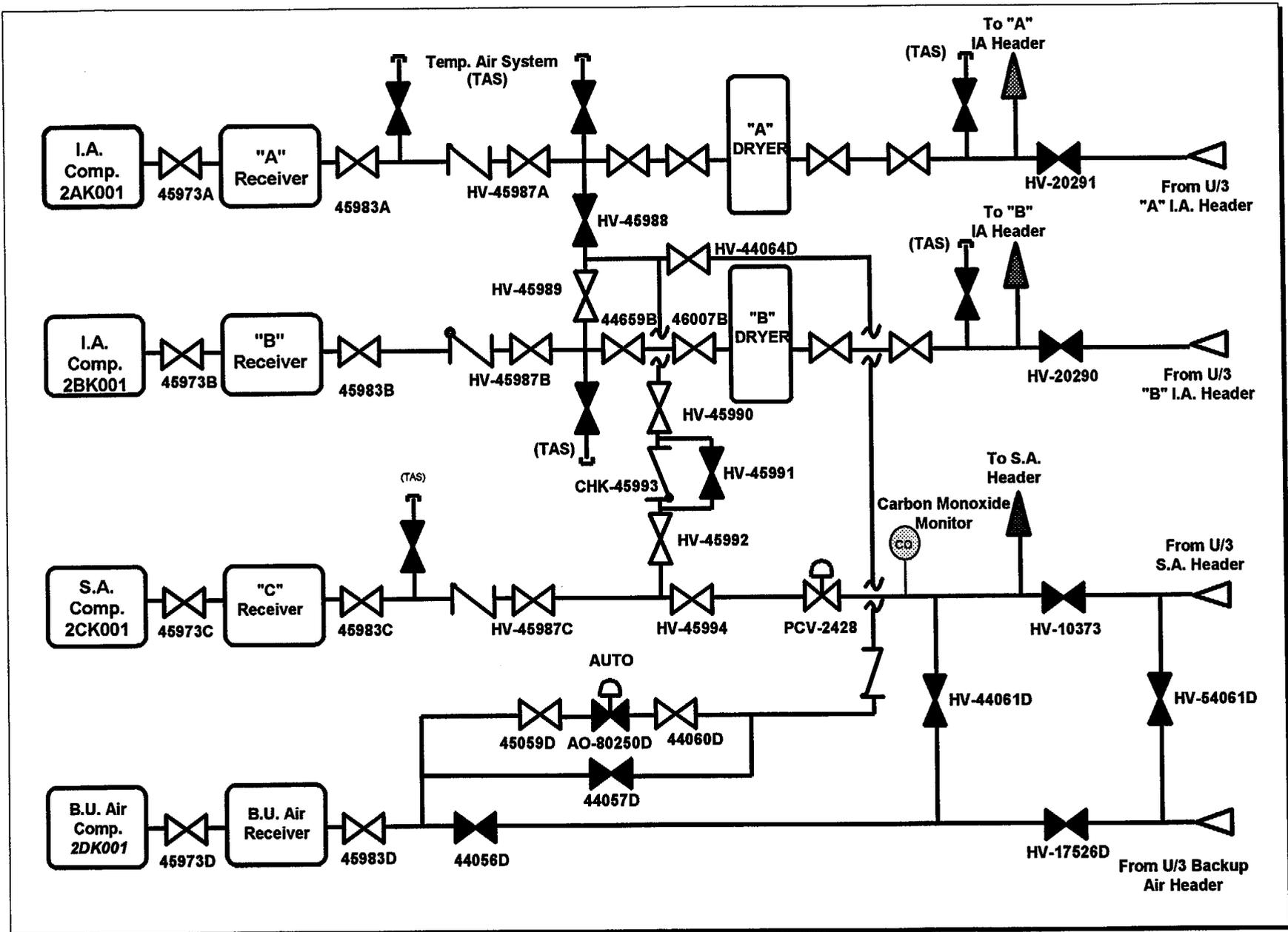
QUESTION ID: 031

31. Unit 2 is experiencing a Loss of Instrument Air with the following conditions:

- Instrument Air 'A' header is 70 psig lowering.
- Instrument Air 'B' header is 110 psig steady.
- Equipment Operator reports 40 psid across the 'A' Instrument Air Dryer due to a clogged outlet filter.
- Compressed Air system is in a normal lineup with no leaks or breaches.

Based on the above conditions, refer to the attached Operator Aid and determine which action below will correct this condition?

- A. Align Backup Air to the 'A' Instrument Air Header.
- B. Align Service Air to the 'A' Instrument Air Header.
- C. Cross-tie the Unit 2 'A' to Unit 3 'A' Instrument Air Headers.
- D. Cross-tie the Unit 2 'A' to Unit 2 'B' Instrument Air Headers.



Compressed Air Op Aid

### NRC Question Data Sheet

Answer Key		
Question ID# 031 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Outlet filter causes complete loss of dryer. Per ON-119, >20 psid indicates a dryer problem and directs opening Unit Cross-tie provided no system breaches. An operational concern exists whenever Unit Instrument Air headers are cross-tied.
Distractors:	A	This alignment cannot supply the 'A' header.
	B	This alignment cannot supply the 'A' header.
	D	This alignment cannot supply the 'A' header.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.25	3	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ON-119 Section 2.9 and bases	
Learning Objective:	PLOT5036.22b	
Knowledge/Ability K/A	300000 K5.13 Instrument Air System	Importance: RO / SRO 2.9 / 2.9
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to the Instrument Air System: <ul style="list-style-type: none"> <li>• Filters</li> </ul>		

**REQUIRED MATERIALS:**

Compressed Air system Operator Aid

**Notes and Comments**

Instrument Air Dryers have inlet and outlet coalescing filters. Either filter clogging causes complete loss of dryer with no way to bypass the dryer. Dryers must be removed from service and filters replaced.

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## QUESTION ID: 032

32. Unit 2 Traversing In-Core Probe (TIP) operation is in progress for a LPRM calibration. A feedwater transient is lowering reactor water level and results in the following conditions:

- Reactor was manually scrammed.
- RPV level reached minus (-) 10 inches and is now plus (+) 20 inches.
- PRO observes the in-service TIP is still driving into the core and the ball valve(s) position red light is lit.

Based on the above conditions, assess the TIP system operation and choose a required course of action?

- A. Since reactor level did not reach the isolation setpoint, allow the TIP to continue its drive cycle.
- B. Since the reactor was manually scrammed, remove power to the TIP drive to stop the detector as-is.
- C. Since the isolation signal failed, take manual control of the TIP and reverse the detector to the shield chamber.
- D. Since the TIP valve control failed, take manual control of the TIP and fire the shear valve on the inserted detector.

### NRC Question Data Sheet

Answer Key		
Question ID# 032 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	SO procedure addresses manual control in event of a malfunction to reverse the detector into the shield chamber.
Distractors:	A	When RPV level lowers to the Gp Ild isolation, the TIP detector should automatically withdraw to the shield and ball valves auto close. Misconception that the TIPs do not withdraw until RPV level reaches the Lo-Lo or Lo-Lo-Lo setpoints.
	B	Industry experience with TIPs not withdrawing as required, power removed to the drives for troubleshooting.
	D	SO procedure addresses shear valve as a last resort with explicit Shift Management approval.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.75	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Modified Bank Item #C03-RO-42 <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	SO 7F-7.A TIP System Isolation in Event of a Containment Isolation.		
Learning Objective:	PLOT5007F.06b		
Knowledge/Ability K/A	215001 K6.04 Traversing In-Core Probe	Importance: RO / SRO 3.1 / 3.4	
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the following will have on the Traversing In-core Probe: Primary Containment Isolation System: Mark I&II			

**REQUIRED MATERIALS:**

**Notes and Comments**

TIP ball valves not isolated directed from PCIS, instead from limit switch on detector returned to shield chamber. PCIS signals detector to immediately reverse and return to the shield.

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QUESTION ID: 033

33. A Unit 2 Core Reload is in progress. The Refuel Platform Main Hoist is lowering the third (3<sup>rd</sup>) fuel bundle around the 'A' Wide Range Neutron Monitor (WRNM) detector.

Based on the above conditions, which one of the following requires the immediate suspension of this core alteration?

- A. The Refuel Platform Operator reports that the "Rod Block Interlock #1" light on the Refuel Platform is NOT illuminated.
- B. The Unit 2 Reactor Operator reports that the white "Rod Withdraw Permissive" light on Panel C05 is NOT illuminated.
- C. The Plant Reactor Operator reports that the 'A' RHR pump has been temporarily shutdown while aligned to Fuel Pool Cooling.
- D. The Unit 2 Reactor Operator reports that 'A' WRNM count rate has doubled as the bundle was seated in the fuel support piece.

## NRC Question Data Sheet

Answer Key		
Question ID# 033 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Correct, if the light does NOT light when the Refueling platform is over the core with its main hoist loaded to >485 lbs, core alterations shall be terminated.
Distractors:	B	Misconception regarding meaning of light, which should EXTINGUISH when the Refueling platform is over the reactor with its main hoist loaded >485 lbs.
	C	Temporary shutdowns of Fuel Pool Cooling are permitted without interruption of core movements.
	D	Count rate doubling "2 times" is only a concern <i>after</i> the 4 <sup>th</sup> fuel assembly is loaded into the core directly adjacent to WRNM.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.5	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank		
Reference(s):	ON-124, Fuel Handling Problems FH-6C, Core Component Transfers		
Learning Objective:	NLSRO0763.06		
Knowledge/Ability K/A	234000 K3.04 Fuel Handling Equipment	Importance:	RO / SRO 2.9 / 3.8
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the Fuel Handling Equipment will have on the following: <ul style="list-style-type: none"> <li>• Core modifications/alterations</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 034

34. Holddown beam failures have resulted in the displacement of Reactor Recirculation Jet Pumps at BWRs.

Which one of the following statements is correct regarding the potential safety concern when operating with a failed Jet Pump?

- A. Inability to lower level in the core during an ATWS.
- B. Insufficient submergence of the core during a LOCA.
- C. Inadequate core circulation during a Loss of Recirc Pumps transient.
- D. Incomplete core mixing during a Loss of Feedwater Heating transient.

## NRC Question Data Sheet

Answer Key		
Question ID# 034 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Inoperable jet pump can increase the blowdown area and reduce the capability to reflood the core to 2/3 core height during a LOCA.
Distractors:	A	Level is intentionally lowered during an ATWS, distractor that failed jet pump would impact ATWS strategy.
	C	Jet pump would impact core natural circulation but only a concern during a LOCA for design coastdown assumptions.
	D	Assymetric feedwater heating is a concern for core thermal limits but not related to jet pump failure.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	Tech Spec 3.4.2 Bases Jet Pumps	
Learning Objective:	PLOT5004.03a	
Knowledge/Ability K/A	290002 K4.01 Reactor Vessel Internals	Importance: RO / SRO 3.7 / 3.9
(Description of K&A, from catalog) Knowledge of Reactor Vessel Internals design feature(s) and/or interlocks which provide for the following: <ul style="list-style-type: none"> <li>• 2/3 Core coverage following a DBA LOCA</li> </ul>		

**REQUIRED MATERIALS:**

**Notes and Comments**

Recent Industry Event at Quad Cities, jet pump displacement due to holddown beam failure.

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QUESTION ID: 035

35. While operating near end-of-cycle in coastdown, Unit 2 experienced a loss of 20Y050, Uninterruptible power supply with the following subsequent actions:

- A manual reactor scram was performed.
- All Operator Scram Actions were performed.

Based on the above conditions, which one of the following is correct regarding RPV pressure control after the first ten minutes?

RPV pressure will:

- A. RISE and Turbine Bypass Valves must be used to control pressure.
- B. RISE and Alternate Steam Users must be aligned to control pressure.
- C. LOWER and Turbine Bypass Valves must be manually closed to prevent an uncontrolled cooldown.
- D. LOWER and Main Steam Isolation Valves must be manually closed to prevent an uncontrolled cooldown.

### NRC Question Data Sheet

Answer Key		
Question ID# 035 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Since Turbine Bypass is not available after the Turbine PMG loses power, alternate steam users will be required due to decay heat.
Distractors:	A	Turbine Bypass Valves not available due to loss of EHC power and backup PMG power.
	C	RPV pressure rises. Distractor that EHC pressure control would be lost in this condition.
	D	RPV pressure rises. Distractor that EHC pressure control would be lost in this condition.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	N/A

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	ON-112, T-100
Learning Objective:	PLOT1550.17b PLOT2100.03
Knowledge/Ability K/A	295006 AK3.03 Scram
	Importance: RO / SRO 3.8 / 3.9
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to Scram: <ul style="list-style-type: none"> <li>• Reactor pressure response</li> </ul>	

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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## QUESTION ID: 036

36. During a reactor startup and heatup, GP-2 "Normal Plant Startup" requires the operator to manually close the following Feedwater Long Path Recirc Valves:

- MO-38A, Long Path Recirc 'A' Line.
- MO-38B, Long Path Recirc 'B' Line.
- MO-2663, Long Path Recirc Common.

In accordance with GP-2 "Normal Plant Startup", Long Path Recirc valves are manually closed at \_\_\_(1)\_\_\_ to prevent an automatic isolation of \_\_\_(2)\_\_\_ valve(s) on high reactor pressure.

- |    |          |              |
|----|----------|--------------|
|    | (1)      | (2)          |
| A. | 450 psig | MO-2663      |
| B. | 650 psig | MO-38A and B |
| C. | 450 psig | MO-38A and B |
| D. | 650 psig | MO-2663      |

### NRC Question Data Sheet

Answer Key		
Question ID# 036 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	MO-38A and B only auto close at 600 psig. GP-2 requires long path isolated at 450 psig.
Distractors:	A	MO-2663 not isolated by PCIS.
	B	GP-2 requires valves closed at 450 psig to avoid 600 psig isolation.
	D	GP-2 requires valves closed at 450 psig to avoid 600 psig isolation. MO-2663 not isolated by PCIS.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-2 Normal Plant Startup	
Learning Objective:	PLOT5007G.01s	
Knowledge/Ability K/A	295007 AK2.06 High Reactor Pressure	Importance: RO / SRO 3.5 / 3.7
(Description of K&A, from catalog) Knowledge of the interrelations between High Reactor Pressure and the following: <ul style="list-style-type: none"> <li>• PCIS/NSSSS: Plant Specific</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

## QUESTION ID: 037

37. A reactor startup and heatup was in progress with Reactor Water Cleanup (RWCU) operating in Vessel to Vessel mode. Following a steam leak in the drywell, the following conditions exist:

- Reactor Scram and all rods inserted.
- Drywell pressure is 2.5 psig rising slowly.
- RPV level is minus (-) 5 inches lowering.
- PRO has completed scram actions and reports MO-15, Inboard Isolation valve failed to close and both the red and green indicating lights are OUT.

Based on the above conditions, correctly complete the following statement.

The RWCU MO-15, Inboard isolation valve should have closed on \_\_\_\_ (1) \_\_\_\_ and the valve's motor control center tripped on \_\_\_\_ (2) \_\_\_\_ overload.

- |                          |          |
|--------------------------|----------|
| (1)                      | (2)      |
| A. low reactor level     | thermal  |
| B. low reactor level     | magnetic |
| C. high drywell pressure | thermal  |
| D. high drywell pressure | magnetic |

## NRC Question Data Sheet

Answer Key		
Question ID# 037 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	RWCU isolates on low RPV level and both lights out indicates MCC tripped on magnetics.
Distractors:	A	thermal overloads bypassed on isolation signal and lights would still be lit.
	C	Common misconception that RWCU isolates on 2 psig drywell signal. Thermal overloads bypassed on isolation signal and lights would still be lit.
	D	Common misconception that RWCU isolates on 2 psig drywell signal.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.25	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	GP-8 series, Containment Isolation		
Learning Objective:	PLOT-5012.01i, 5012.06d		
Knowledge/Ability K/A	295009 AK2.04 Low Reactor Water Level	Importance: RO / SRO 2.6 / 2.6	
(Description of K&A, from catalog) Knowledge of the interrelations between Low Reactor Water Level and the following: <ul style="list-style-type: none"> <li>• Reactor Water Cleanup</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

## QUESTION ID: 038

38. The following conditions exist on Unit 2:

- An electrical ATWS has occurred.
- Reactor power is 6%.
- The CRS has directed T-220 to insert control rods.
- CRD Flow Control Valve (AO-19A) is full open.
- The Rod Worth Minimizer (RWM) failed to Bypass.

Based on the above conditions, complete the following statement.

When the URO selects an out-of-sequence control rod and places the switch to "Emergency In", the control rod:

- A. inserts at normal rod speed with an expected "Rod Drift" annunciator.
- B. inserts at higher than normal rod speed with a "RWM Rod Block" annunciator.
- C. will NOT move until the RWM rod block is removed with the Bypass switch.
- D. will NOT move until the Charging Header Isolation (HV-56) valve is closed.

### NRC Question Data Sheet

Answer Key		
Question ID# 038 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Correct, "Emergency In" will not bypass the RWM rod block, RWM must be manually bypassed.
Distractors:	A	Rod will not insert. Misconception that "Emergency In" bypasses all rod blocks. Note that "Rod Drift" is expected alarm when "Emergency In" is used.
	B	Rod will not insert.
	D	HV-56 is required to be closed on a hydraulic ATWS and flow control valve AO-19 open.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.5	3	N/A

Source Documentation					
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank                        Aug 2001 ID#368 reformatted				
Reference(s):	T-101, T-220				
Learning Objective:	PLOT2101.05I				
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">295015 AK3.01</td> <td style="text-align: right;">Importance: RO / SRO</td> </tr> <tr> <td>Incomplete Scram</td> <td style="text-align: right;">3.4 / 3.7</td> </tr> </table>	295015 AK3.01	Importance: RO / SRO	Incomplete Scram	3.4 / 3.7
295015 AK3.01	Importance: RO / SRO				
Incomplete Scram	3.4 / 3.7				
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to Incomplete Scram: <ul style="list-style-type: none"> <li>• Bypassing rod insertion blocks</li> </ul>					

REQUIRED MATERIALS:

Notes and Comments  
 NRC Question reformatted with some changes to distractors.

Prepared By:  
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 PBAPS NRC Exam Author

## QUESTION ID: 039

39. The 3A Core Spray pump is in full flow test mode in accordance with ST-O-014-301-3, Core Spray Pump Functional and IST. A steam leak in the drywell has caused the following conditions:

- Reactor was scrammed and all rods inserted.
- RPV level reached -60 inches and is now rising with HPCI.
- Drywell pressure is 4.0 psig rising.
- RPV pressure is 800 psig lowering.
- Offsite power remains available to the 4KV buses.

Based on the above conditions, which one of the following is the correct response of the Unit 3 Core Spray system?

- A. ALL Core Spray pumps are operating on min flow.
- B. ONLY 3A Core Spray pump is operating on min flow.
- C. ALL Core Spray pumps are tripped and ALL pumps will start when RPV pressure lowers to 450 psig.
- D. ONLY 3A and 3C Core Spray pumps are operating in full flow test and 3B loop pumps are running on min flow.

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 039 Both RO/SRO</b>		
Choice	Basis or Justification	
Correct:	B	Correct, > 2 psig signal closes full flow test valve.
Distractors:	A	No Core Spray "initiation" pump start signal is reached.
	C	3A Core Spray running, no trip signal to any CS pumps and no loss of power.
	D	No Core Spray "initiation" pump start signal is reached.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

<b>Source Documentation</b>			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #5765 reformatted		
Reference(s):	SO 14.7.A-2		
Learning Objective:	PLOT5014.04h		
Knowledge/Ability K/A	295024 EA1.03 High Drywell Pressure	Importance: RO / SRO 4.0 / 3.9	
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to High Drywell Pressure: <ul style="list-style-type: none"> <li>• LPCS: plant specific</li> </ul>			

**REQUIRED MATERIALS:**

None

**Notes and Comments**

Bank question reformatted, not significantly modified

**Prepared By:**

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BAPS NRC Exam Author

**QUESTION ID: 040**

40. Which statement below describes the operational basis for the automatic Reactor Recirculation Pump trip on high reactor pressure?
- A. Prevents loss of the main condenser integrity to assure availability as a heat sink due to an ATWS.
  - B. Prevents loss of the reactor pressure vessel integrity as a fission product barrier due to an ATWS.
  - C. Prevents Safety Relief Valve/Safety Valve operation due to a Group I MSIV Isolation transient.
  - D. Prevents damage to Recirculation Pump components due to a Turbine Trip w/o Bypass transient.

### NRC Question Data Sheet

Answer Key		
Question ID# 040 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Correct, Excessively high pressure may rupture the RCPB during an ATWS. For the overpressurization event, the RPT aids in termination of the ATWS along safety relief valves to limit peak pressure.
Distractors:	A	ATWS RPT trip does not ensure condenser integrity or availability.
	C	Does not prevent or avoid SRV/SV operation resulting from a MSIV isolation.
	D	RPV and pump protected during a planned High Reactor Pressure transient.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.0	3	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	Tech Spec 3.3.4.1 bases High Reactor Pressure	
Learning Objective:	PLOT5002.05f	
Knowledge/Ability K/A	295025 EK1.02 High Reactor Pressure	Importance: RO / SRO 4.1 / 4.2
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to High Reactor Pressure: <ul style="list-style-type: none"> <li>• Reactor Vessel Integrity</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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## QUESTION ID: 041

41. An ATWS has occurred and T-117 Level /Power Control is in progress with the following conditions:
- Reactor power is 15%.
  - Level has been lowered to -70 inches using T-240, Terminate and Prevention of Injection into the RPV.
  - Containment conditions are degrading.
  - The CRS has redirected the PRO to lower level in accordance with T-240 Attachment 1 Figure 2 criteria.

Refer to the attached T-240 Attachment 1 Figure 2. In accordance with this step, lowering reactor level until Figure 2 criteria is met accomplishes which one of the following?

- A. Utilizes steam cooling to assure adequate core cooling and prevent exceeding 1500°F clad temperature.
- B. Improves boron effectiveness in the core by lowering thermal neutron flux into the lower core region.
- C. Lowers driving head which reduces natural circulation and core flow to void the core and lower core power.
- D. Uncovers feedwater spargers to reduce core inlet subcooling and the potential for Thermal Hydraulic Instability.

QUESTION 41:

Excerpt from T-240, "Terminating and Preventing Injection into the RPV"

ATTACHMENT 1

T-117, "LEVEL / POWER CONTROL" CRITERIA FOR RESTORING RPV INJECTION

FIGURE 2

IF T-117 directed that level be lowered to protect Primary Containment,

THEN restore RPV injection when ANY of the following conditions exist:

- RPV level reaches -172 inches
- OR
- Reactor power drops below 4%
- OR
- All SRVs remain closed and Drywell pressure drops below 2 psig

### NRC Question Data Sheet

Answer Key		
Question ID# 041 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Correct per T-117 bases.
Distractors:	A	Core submergence ensures ACC here. Steam cooling later if level drops below -172 inches.
	B	Boron effectiveness is improved later in T-117 when level is restored after HSBW is injected. Not the reason to lower level here.
	D	Feedwater spargers already uncovered per previous step. Per bases, there is no further effect on subcooling.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	T-117 LQ-11 and LQ-13 bases		
Learning Objective:	PLOT2117.05		
Knowledge/Ability K/A	295031 EK1.03 Reactor Low Water Level	Importance: RO / SRO 3.7 / 4.1	
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to Reactor Low Water Level: <ul style="list-style-type: none"> <li>• Water level effects on reactor power</li> </ul>			

**REQUIRED MATERIALS:**  
T-240 Attachment 1 Figure 2

Notes and Comments

Prepared By:  
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QUESTION ID: 042

42. A LOCA has occurred and level is now reading minus (-) 150 inches on the LR-110A Blue pen at the 20C04C RCIC panel.

Based on the above conditions, which one of the following process parameters is providing this recorder level indication?

Level is sensed by the:

- A. LT-73A, Fuel Zone level transmitter.
- B. LT-113, Fuel Zone level transmitter.
- C. LT-72A, Wide Range level transmitter.
- D. LT-112, Wide Range level transmitter.

### NRC Question Data Sheet

Answer Key		
Question ID# 042 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	LR-110A Blue pen comes from either LT-72A or 73A. When reactor level (WR) lowers below minus (-) 100 inches, the recorder swaps from Wide Range (LT-72A) to the Fuel Zone (LT-73A) transmitter.
Distractors:	B	LT-113 is always the Fuel Zone input to the LI-113 indicator on the 'A' RHR Panel.
	C	Blue pen has swapped from Wide Range, LT-72A to Fuel Zone, LT-73A. Green pen is always Wide Range.
	D	LT-112 is the uncompensated Wide Range input to the HPCI Alternate Control Station.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.0	3	N/A

Source Documentation					
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank#5880				
Reference(s):	ST-O-098-01N-2, Daily Surveillance Log				
Learning Objective:	PLOT5002B.05a				
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">295031 EA2.01</td> <td style="width: 40%; text-align: right;">Importance: RO / SRO</td> </tr> <tr> <td></td> <td style="text-align: right;">4.6 / 4.6</td> </tr> </table>	295031 EA2.01	Importance: RO / SRO		4.6 / 4.6
295031 EA2.01	Importance: RO / SRO				
	4.6 / 4.6				
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to Reactor Low Water Level: <ul style="list-style-type: none"> <li>• Reactor water level</li> </ul>					

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 043

43. During a loss of coolant accident (LOCA), the following conditions exist:

- T-102, Primary Containment Control is being implemented.
- DW/G-3.6 is being directed for combustible gas levels.
- Venting the drywell is being directed using a T-200 procedure.
- Purging the drywell CANNOT be performed.

Based on the above conditions, venting the containment in this condition will be directed to:

- A. reduce drywell  $H_2/O_2$  gas concentrations thereby preventing a deflagration.
- B. improve the effectiveness of drywell sprays thereby preventing a deflagration.
- C. reduce drywell pressure to limit peak pressure should a deflagration occur.
- D. promote the mixing of gases to limit potential deflagrations to localized areas.

## NRC Question Data Sheet

Answer Key		
Question ID# 043 Both RO/SRO		
Choice		Basis or Justification
Correct:	C	Correct per T-102 bases.
Distractors:	A	Common misconception. Venting alone does not reduce gas concentrations.
	B	Venting does not improve the spray effectiveness.
	D	Venting alone does not promote mixing of gases.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	4.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank		<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank
Reference(s):	T-102 Sheet 2 DW/G bases		
Learning Objective:	PLOT2101.05		
Knowledge/Ability K/A	500000 EK3.07 High Containment Hydrogen Concentration	Importance: RO / SRO 3.1 / 3.7	
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to High Primary Containment Hydrogen Concentrations: <ul style="list-style-type: none"> <li>• Operation of drywell vent</li> </ul>			

**REQUIRED MATERIALS:**

Portion of T-102 Sheet 2 Step DW/G-3

Notes and Comments

Prepared By:

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## QUESTION ID: 044

44. A loss of coolant accident occurred on Unit 2 one hour ago with the following conditions:

- T-102, Primary Containment Control is being implemented.
- CAD analyzers were started five minutes ago per RRC 7J.1-2, "Drywell and Torus H<sub>2</sub>/O<sub>2</sub> Sampling Startup during a Plant Event".
- H<sub>2</sub>/O<sub>2</sub> Analyzer Range control switches were placed to 10%.
- 'A' H<sub>2</sub>/O<sub>2</sub> Analyzer started on the drywell reads 6% H<sub>2</sub> concentration.
- 'B' H<sub>2</sub>/O<sub>2</sub> Analyzer started on the drywell reads 1% H<sub>2</sub> concentration.

Based on the above conditions, which one of the following is correct regarding the H<sub>2</sub>/O<sub>2</sub> CAD Analyzer indications?

The readings are:

- A. ABNORMAL, one of the analyzers is malfunctioning.
- B. ABNORMAL, the analyzers are on the incorrect range.
- C. NORMAL, the analyzers will take one hour to warmup.
- D. NORMAL, the analyzers are within acceptable tolerances.

## NRC Question Data Sheet

### Answer Key

Question ID# 044 Both RO/SRO

Choice		Basis or Justification
Correct:	C	correct per startup procedure. Takes 20 minutes to stabilize between sample points and takes one hour to warmup after starting from Off or Standby.
Distractors:	A	Differences in readings are normal during startup
	B	Analyzers should be in 10% range
	D	Analyzers should read within 1% and minimum detectable is 0.5%.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	N/A

### Source Documentation

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	SO 7J.1.A-2 RRC 7J.1-2	
Learning Objective:	PLOT5007B.05d	
Knowledge/Ability K/A	500000 EA2.01 High Containment Hydrogen Concentration	Importance: RO / SRO 3.1 / 3.5
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to High Primary Containment Hydrogen Concentrations: <ul style="list-style-type: none"> <li>• Hydrogen monitoring system availability</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 045

45. The plant has been manually scrammed due to a rapidly lowering Main Condenser vacuum with the following conditions:
- RPV level is 24 inches steady.
  - RPV pressure is 950 psig steady.
  - Main Condenser vacuum is 5 inches Hg lowering.
  - 'A' Reactor Feedwater Pump failed to trip and is running.

Based on the above conditions, which one of the following is a potential adverse effect of continued operation of the Reactor Feedwater Pump?

- A. Overheating of the feedwater pump turbine seals.
- B. Overheating of the Main Condenser exhaust boot.
- C. Overpressurization of the Main Condenser shell casing.
- D. Overpressurization of the feedwater pump turbine casing.

### NRC Question Data Sheet

Answer Key		
Question ID# 045 Both RO/SRO		
Choice		Basis or Justification
Correct:	C	Loss of Condenser vacuum procedure requires the MSIVs be closed if vacuum reaches 5" Hg vac to prevent shell overpressurization.
Distractors:	A	Seals though affected will not overheat.
	B	Exhaust boot though affected will not overheat.
	D	RFPT casing is protected by the overpressure.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.75	3	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank
Reference(s):	OT-106 Section 3.12 bases	
Learning Objective:	PLOT5006.06b	
Knowledge/Ability K/A	295002 AK3.03 Loss of Main Condenser Vacuum	Importance: RO / SRO 3.3 / 3.3
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to Loss of Main Condenser Vacuum: <ul style="list-style-type: none"> <li>• Reactor Feedpump Turbine Trip</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 046

46. A Loss of Offsite Power (LOOP) has occurred and all site equipment has operated as designed.

Based on the above conditions, which one of the following distribution components has control power supplied ONLY by Balance of Plant (BOP) batteries?

- A. 2SU Startup Bus Switchgear (00A003).
- B. 2SU-A Startup Bus Switchgear (00A003B).
- C. 343 SU Transformer Switchgear (00A004).
- D. 3SU Startup Transformer Switchgear (00A009).

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 046 Both RO/SRO</b>		
Choice	Basis or Justification	
Correct:	D	correct, since BOP battery chargers are not emergency bus powered, batteries are discharging.
Distractors:	A	Powered by Station 125V DC batteries with chargers energized from the 4KV buses.
	B	Powered by Station 125V DC batteries with chargers energized from the 4KV buses.
	C	Powered by Station 125V DC batteries with chargers energized from the 4KV buses.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

<b>Source Documentation</b>			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #5465		
Reference(s):	SO 53.6 series		
Learning Objective:	PLOT5053.01b		
Knowledge/Ability K/A	295003 AK2.01 Partial or Complete Loss of AC Power	Importance: RO / SRO 3.2 / 3.2	
(Description of K&A, from catalog) Knowledge of the interrelations between Partial or Complete Loss of AC Power and the following:			
<ul style="list-style-type: none"> <li>• Station Batteries</li> </ul>			

**REQUIRED MATERIALS:**

**Notes and Comments**

This knowledge item is critical at PBAPS for LOOP recovery actions. Per Power Systems, it is believed that offsite power is likely to be first available from Muddy Run, connected to the 3SU distribution. The concern is that 3SU DC control power, fed from BOP batteries only, may not be available to close the breakers since the batteries will have discharged.

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QUESTION ID: 047

47. The following plant conditions exist:

- A Loss of Offsite Power has occurred.
- Drywell pressure is 3.6 psig slowly rising.
- E-1 and E-4 Diesel Generators (DG) are running.
- NO Diesel Generator (DG) cooling water is available.

Based on the above conditions, which action below is required to shutdown the running E-1 and E-4 Diesels in accordance with SE-11, Loss of Offsite Power?

- A. Direct the EO to depress the “red buttons” to trip the fuel racks.
- B. Place the DG Control Switches to the “Pull-To-Lock” position.
- C. Pull the 4KV Feeder UV fuse blocks to remove the start signal.
- D. Install electrical jumpers to insert DG differential OC signal.

### NRC Question Data Sheet

Answer Key		
Question ID# 047 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Correct per SE-11 Sheet 1.
Distractors:	A	This action, though it would trip the diesels, is not directed since it does not provide positive control from the control room.
	B	Placing DG control switches to PTL does not shutdown diesels with an MCA (2# DW or -160" LoLoLo) signal present. PTL directed only if MCA not present.
	C	Addressed during SE-11 4KV "Backfeeding" to allow feeder breaker closure, action is not related to diesels.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3 min	N/A

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	SE-11 Sheet 1 and bases SE-11 Attachment 'A'
Learning Objective:	PLOT1555.03
Knowledge/Ability K/A	295003 AA1.02                      Importance: RO / SRO Partial or Complete Loss of AC Power                      4.2 / 4.3
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to Partial or Complete Loss of AC Power: <ul style="list-style-type: none"> <li>• Emergency Generators</li> </ul>	

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 048**

48. Procedure OT-110 "Reactor High Level" requires that for an unexpected rise in RPV level above +46 inches, the operator is to verify that the Main Turbine is tripped.

Complete the following statement.

Based on OT-110, the Main Turbine trip is verified to:

- A. reduce the steaming rate to minimize effects of steam carryunder in the downcomer.
- B. eliminate dynamic pipe loads downstream of turbine stop valves due to two phase flow.
- C. minimize the risk of turbine damage due to moisture carryover with the steam flow.
- D. prevent a manual isolation of the MSIVs if water level reaches the main steam lines.

### NRC Question Data Sheet

Answer Key		
Question ID# 048 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Correct, OT-110 and Tech Spec bases describe high level trip to prevent turbine damage.
Distractors:	A	Common misconception/confusion of carryover vs carryunder.
	B	If level reaches MSLS, all loads are manually isolated per OT-110.
	D	If level reaches MSLS, all loads are manually isolated per OT-110.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.0	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input checked="" type="checkbox"/> ILT Exam Bank	<input checked="" type="checkbox"/> Previous NRC Exam 0801#221 <input type="checkbox"/> Other Exam Bank	
Reference(s):	OT-110 Section 3.5		
Learning Objective:	PLOT1540.05		
Knowledge/Ability K/A	295008 AK2.08 High Reactor Water Level	Importance:	RO / SRO 3.4 / 3.5
(Description of K&A, from catalog) Knowledge of the interrelations between High Reactor Water Level and the following: <ul style="list-style-type: none"> <li>• Main Turbine: plant specific</li> </ul>			

**REQUIRED MATERIALS:**

**Notes and Comments**

Question and responses slightly modified since NRC exam.

**Prepared By:**

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**QUESTION ID: 049**

49. A steam leak has resulted in a high drywell temperature with the following initial conditions:
- RPV level dropped to -170 inches.
  - Drywell cooling was restarted with T-223 "Drywell Cooler Fan Bypass".

Present conditions are:

- RPV level is -100 inches rising.
- Drywell pressure is 1.3 psig rising.
- Drywell temperature is 180°F rising.
- All Drywell Cooling fans are running in SLOW.

Based on the above conditions, which of the following drywell cooling fan operations is correct if Drywell pressure rises to above 2 psig?

- A. Fans will trip and BYPASS switch operation is required to restart.
- B. Fans will trip and must be RESET locally at the MCCs to restart.
- C. Fans in Standby will AUTO start and no operator action required.
- D. Fans will continue in SLOW speed and no operator action required.

### NRC Question Data Sheet

#### Answer Key

Question ID# 049 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Correct per T-223.
Distractors:	B	Local resets not required. Trips may occur if initially running in FAST.
	C	Fans in standby will not start.
	D	Fans will trip.

#### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.75	3	N/A

#### Source Documentation

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank
Reference(s):	T-223 Note	
Learning Objective:	PLOT5040C.04c PLOT2102.05I	
Knowledge/Ability K/A	295012 AA1.01 High Drywell Temperature	Importance: RO / SRO 3.5 / 3.6
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to High Drywell Temperature: <ul style="list-style-type: none"> <li>• Drywell ventilation system</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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## QUESTION ID: 050

50. After a Loss of Offsite Power (LOOP) and MSIV isolation from high power, the following conditions exist:
- RPV pressure is 1050 psig rising.
  - Torus level is 14.9 feet.
  - SRVs are being used to control RPV pressure per T-101.
  - Instrument Nitrogen is being supplied by the Backup Instrument N<sub>2</sub> Bottles.
  - 'B' SRV was the last SRV operated.

Based on the above conditions, correctly complete the following statement regarding operation of the SRVs.

To control reactor pressure, the PRO is required to next operate the:

- A. 'D' SRV to evenly distribute torus heat loading.
- B. 'K' SRV to evenly distribute torus heat loading.
- C. 'D' SRV to evenly distribute backup nitrogen bottle loading.
- D. 'K' SRV to evenly distribute backup nitrogen bottle loading.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 050 Both RO/SRO		
Choice		Basis or Justification
Correct:	B	With Instrument Nitrogen supplied by the bottles, the "K" SRV is selected next to distribute heat evenly in the torus per T-101, RPV Control.
Distractors:	A	Instrument Nitrogen is not aligned to the "D" SRV with a loss of off-site power. Backup instrument nitrogen bottles only supply ADS valves.
	C	Instrument Nitrogen is not aligned to the "D" SRV with a loss of off-site power. Backup instrument nitrogen bottles only supply ADS valves.
	D	Although the ADS SRVs are supplied by two separate backup instrument nitrogen headers, they are normally cross-connected before the pressure control valves.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	N/A

<b>Source Documentation</b>			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	T-101 and bases		
Learning Objective:	PLOT5007.04g PLOT5001G.11		
Knowledge/Ability K/A	295013 AK1.03 High Suppression Pool Temperature	Importance:	RO / SRO 3.0 / 3.3
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to High Suppression Pool Temperature: <ul style="list-style-type: none"> <li>• Localized Heating</li> </ul>			

**REQUIRED MATERIALS:**

Notes and Comments

Prepared By:  
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QUESTION ID: 051

51. Which one of the following is the reason why the reactor is SCRAMMED prior to evacuating the Main Control Room in accordance with SE-1, "Plant Shutdown from the Remote Shutdown Panel"?
- A. Ensures that inventory makeup requirements will be within RCIC capability.
  - B. Ensures that inventory makeup requirements will be within HPCI capability.
  - C. Scramming from outside the Control Room would require access to plant areas that may be inaccessible due to post-accident high rad levels.
  - D. Scramming from outside the Control Room would require RPS bus power to be tripped causing concurrent isolations of all PCIS valve groups.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 051 Both RO/SRO		
Choice		Basis or Justification
Correct:	A	Correct in accordance with SE-1
Distractors:	B	HPCI is used only in SE-10 and not applicable for this condition.
	C	Accidents not within scope of SE-1.
	D	MSIVs are manually closed prior to evacuation and all Group isolations are expected during SE-1.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.25	3	N/A

<b>Source Documentation</b>		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	SE-1	
Learning Objective:	PLOT1555.09	
Knowledge/Ability K/A	295016 AK3.01 Control Room Abandonment	Importance: RO / SRO 4.1 / 4.2
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to Control Room Abandonment: <ul style="list-style-type: none"> <li>• Reactor Scram</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 052**

52. Unit 2 was operating at full power in Mode 1 when a positive reactivity event occurred. The CRS has directed you to monitor for evidence of fuel damage.

Based on the above conditions, which one of the following parameters would be the FIRST to indicate a limited fuel failure?

- A. Main Steam Line Radiation Monitors.
- B. Air Ejector Discharge Radiation Monitors.
- C. Offgas Adsorber Outlet Radiation Monitors.
- D. Main Stack Radiation Monitors.

## NRC Question Data Sheet

Answer Key		
Question ID# 052 Both RO/SRO		
Choice		Basis or Justification
Correct:	B	SJAE first indication, since N-16 decays and the high gas concentration makes this the most sensitive for indicating fission product gases.
Distractors:	A	Fission products are masked by N-16 rad. Only gross fuel failures will be seen here.
	C	Adsorber outlet at the discharge of the holdup pipe and will indicate later.
	D	Even with input of gland seal exhaust, Main Stack will not be the first indication of fuel failure due to dilution.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 0999#114		
	<input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank		
	<input checked="" type="checkbox"/> ILT Exam Bank		
Reference(s):	ARC 218 E-1, E-2		
Learning Objective:	PLOT5001C.06e		
Knowledge/Ability	295017 AK2.09	Importance: RO / SRO	
K/A	High Offsite Release Rate	2.8 / 2.9	
(Description of K&A, from catalog)			
Knowledge of the interrelations between High Offsite Release Rate and the following:			
<ul style="list-style-type: none"> <li>• Condenser Air Removal system: plant specific</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 053**

53. A Vent Stack High Radiation condition exists with the following conditions:
- “2 VENT EXH STACK RAD MONITOR HI A(B)” alarming (218 B-5, C-5).
  - ON-104, “Vent Stack High Radiation” procedure is being implemented.
  - Equipment Cell Exhaust has just been placed on Standby Gas Treatment.
  - Reactor Zone Vent Exhaust radiation reading above normal, but NOT in alarm.
  - A steam leak has been discovered in the Reactor Building, but there are NO Reactor Building areas in alarm.

Based on the above conditions, which one of the following actions is correct if the “2 VENT EXH STACK RAD MONITOR HI HI A(B)” alarms (218 B-4,C-5) are now received?

- A. EXIT ON-104 and ENTER T-103 “Secondary Containment Control”.
- B. EXIT ON-104 and ENTER T-104 “Radioactivity Release Control”.
- C. Continue in ON-104 and ENTER T-103 “Secondary Containment Control” concurrently.
- D. Continue ON-104 and ENTER T-104 “Radioactivity Release Control” concurrently.

## NRC Question Data Sheet

Answer Key		
Question ID# 053 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Correct procedure use per ON-104 and T-104.
Distractors:	A	No T-103 entry conditions, continue in ON-104.
	B	Enter T-104 but T-104 <i>requires</i> ON-104 be executed concurrently.
	C	No T-103 entry conditions.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	ON-104 and T-104 bases		
Learning Objective:	PLOT1550.09c PLOT2104.01		
Knowledge/Ability K/A	295017 2.4.4 High Offsite Release Rate	Importance: RO / SRO 4.0 / 4.3	
(Description of K&A, from catalog) Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 054

54. Unit 3 is operating at 100% power with the following conditions:

- In-service TBCCW pump develops a large leak.
- TBCCW Head Tank Low alarm is received (217 B-5).
- Standby TBCCW pump auto starts.
- Both TBCCW are still running and cavitating.

Based on the above conditions, which one of the following is correct regarding temperatures of TBCCW loads a few minutes later with NO operator action?

- A. Station Air Compressor temps will immediately RISE due to loss of cooling.
- B. Station Air Compressor temps will be UNAFFECTED since RBCCW swaps over to supply these loads.
- C. Condensate pump temps will immediately RISE due to loss of cooling.
- D. Condensate pump temps will be UNAFFECTED since RBCCW swaps over to supply these loads.

### NRC Question Data Sheet

Answer Key		
Question ID# 054 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Correct, no cooling to compressors since RBCCW swapover only occurs if BOTH TBCCW pumps trip.
Distractors:	B	No RBCCW swapover under these conditions.
	C	Operating experience shows Condensate pumps may operate for many hours without cooling water and no temperature rise.
	D	RBCCW does not supply Condensate pumps after a swapover.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	ON-118 Section 2.5		
Learning Objective:	PLOT1550.21		
Knowledge/Ability K/A	295018 AK1.01 Partial of Complete loss of CCW	Importance: RO / SRO 3.5 / 3.6	
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to Partial or Complete Loss of Component Cooling Water: <ul style="list-style-type: none"> <li>• Effects on component/system operations</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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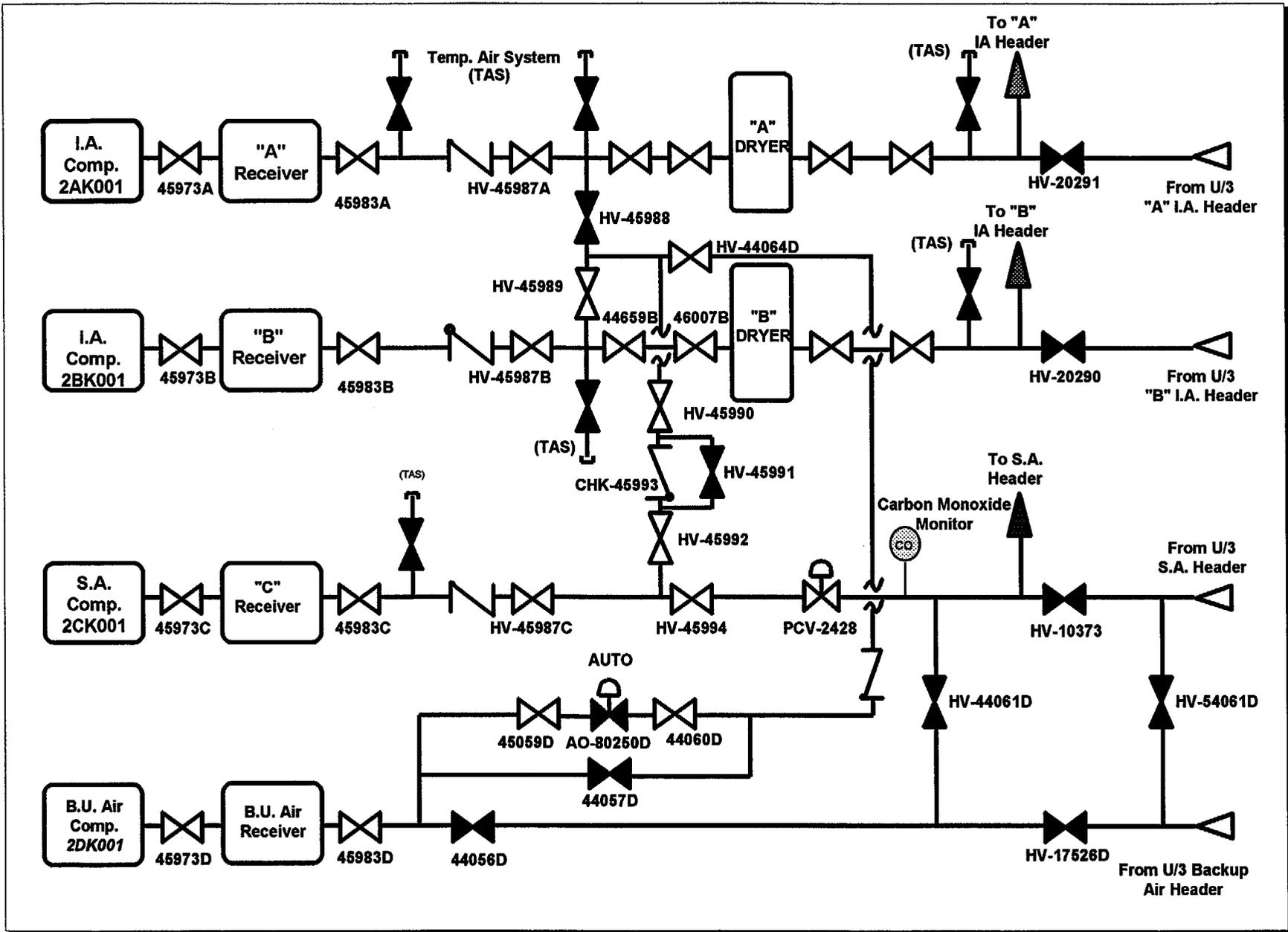
QUESTION ID: 055

55. Unit 2 is operated at rated power when the 'B' Instrument Air (IA) Compressor trips on overcurrent. The following conditions exist:

- Compressed air system is in a normal lineup.
- 'A' Instrument Air header pressure is 110 psig steady.
- 'B' Instrument Air header pressure is 90 psig slowly lowering.

Based on the above conditions, refer to the attached "Compressed Air System" Operator Aid and determine the expected air system response?

- A. 'A' Instrument Air compressor loads and pickup the 'B' Header.
- B. 'C' Service Air compressor loads and pickup the 'B' header.
- C. 'D' Backup Air compressor loads and pickup the 'B' header.
- D. NO compressors load to pickup the 'B' header as it depressurizes.



Compressed Air Op Aid

## NRC Question Data Sheet

Answer Key		
Question ID# 055 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Correct, SA compressor picks up 'B' header and PCV-2428 will close to divert air to IA, if necessary.
Distractors:	A	'A' compressor will not load since IA cross-tie valves normally closed.
	C	'D' compressor will not load since BOTH header pressures must lower for AO-80250D to open.
	D	Compressors will respond. This is true for the 'A' Header.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ON-119 NOTES	
Learning Objective:	PLOT5036.04a	
Knowledge/Ability K/A	295019 AK 3.02 Partial or Complete Loss of Instrument Air	Importance: RO / SRO 3.5 / 3.4
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to Partial or Complete Loss of Instrument Air: <ul style="list-style-type: none"> <li>• Standby Air Compressor operation</li> </ul>		

**REQUIRED MATERIALS:**

Compressed Air System Operator Aid

Notes and Comments

Prepared By:

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## QUESTION ID: 056

56. Unit 3 is at 100% power when the '3A' Control Rod Drive (CRD) pump trips on overcurrent. The '3B' CRD pump was previously blocked for maintenance.
- At time 1133 am, multiple accumulator trouble lights illuminate on the Full Core Display.
  - At time 1137 am, CRD Charging Header pressure drops to 939 psig.

Based on the above conditions, you are required to perform a \_\_\_\_ (1) \_\_\_\_ at time \_\_\_\_ (2) \_\_\_\_ in accordance with ON-107, "Loss of CRD Regulating Function".

- |                              |         |
|------------------------------|---------|
| (1)                          | (2)     |
| A. GP-9 Fast Power Reduction | 1153 am |
| B. GP-9 Fast Power Reduction | 1157 am |
| C. T-100 Manual Scram        | 1153 am |
| D. T-100 Manual Scram        | 1157 am |

## NRC Question Data Sheet

Answer Key		
Question ID# 056 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Correct, 20 minutes to restore charging header pressure
Distractors:	A	This is 20 minutes from accumulator alarm, fast power reduction not required.
	B	ON-107 requires a scram
	C	This is 20 minutes from accumulator alarm, scram not yet required.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 0801#314 <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank		
Reference(s):	ON-107, Loss of CRD Regulating Function		
Learning Objective:	PLOT1540.12a		
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">295022 AA1.02 Loss of CRD Pumps</td> <td style="width: 40%; text-align: right;">Importance: RO / SRO 3.6 / 3.6</td> </tr> </table>	295022 AA1.02 Loss of CRD Pumps	Importance: RO / SRO 3.6 / 3.6
295022 AA1.02 Loss of CRD Pumps	Importance: RO / SRO 3.6 / 3.6		
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to Loss of CRD Pumps: <ul style="list-style-type: none"> <li>• RPS</li> </ul>			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 057

57. A LOCA has occurred on Unit 3 and venting the containment in accordance with the T-200s is required for pressure control. Correctly complete the following statement.

Based on the above conditions, venting from torus is preferred because it \_\_\_(1)\_\_\_ and is allowed UNTIL torus water level EXCEEDS \_\_\_(2)\_\_\_.

- |    |  |         |
|----|--|---------|
|    | (1)  | (2)     |
| A. | provides for a more controlled vent rate         | 18 feet |
| B. | provides for a more controlled vent rate         | 21 feet |
| C. | takes advantage of the scrubbing action of water | 18 feet |
| D. | takes advantage of the scrubbing action of water | 21 feet |

### NRC Question Data Sheet

#### Answer Key

Question ID# 057 Both RO/SRO		
Choice		Basis or Justification
Correct:	D	Correct, torus preferred due to Iodine scrubbing provided level is below 21 feet. Although torus vents are located above this level, T-102 and T-200 limit level to 21 feet since this is the upper limit of torus level indication in the control room.
Distractors:	A	Torus venting does not provide a more controlled vent rate. Level of 18 feet is the elevation of the bottom of the Torus to DW Vacuum breakers and is the torus level limit for drywell sprays.
	B	Torus venting does not provide a more controlled vent rate.
	C	Level of 18 feet is the elevation of the bottom of the Torus to DW Vacuum breakers and is the torus level limit for drywell sprays.

#### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.75	3	N/A

#### Source Documentation

Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank A01#103	
Reference(s):	T-102 PC/P bases T-200 NOTES	
Learning Objective:	PLOT2102.05b	
Knowledge/Ability K/A	295029 EK2.08 High Suppression Pool Water Level	Importance: RO / SRO 2.6 / 2.9
(Description of K&A, from catalog) Knowledge of the interrelations between High Suppression Pool Water Level and the following: <ul style="list-style-type: none"> <li>• Drywell/Suppression Chamber Vent</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 058

58. Unit 3 has experienced a LOCA and the following conditions exist:

- Torus level lowered to 12.0 feet and stabilized.
- Torus pressure is 8 psig steady.
- Torus temperature is 200°F steady.
- 'A' RHR Loop flow is 22,000 gpm.
- 'B' Core Spray Loop flow is 6,000 gpm.
- No other ECCS pumps are running.

Based on the above conditions, which ECCS below has sufficient NPSH for continued pump operation?

- A. 'A' loop of RHR ONLY.
- B. 'B' Loop of Core Spray ONLY.
- C. BOTH 'A' Loop of RHR and 'B' Loop of Core Spray.
- D. NEITHER 'A' Loop of RHR OR 'B' Loop of Core Spray.

### NRC Question Data Sheet

#### Answer Key

Question ID# 058 Both RO/SRO

Choice		Basis or Justification
Correct:	B	Correct, Core Spray is operating in the safe region.
Distractors:	A	RHR is in the UNSAFE region of the curves.
	C	RHR is in the UNSAFE region of the curves.
	D	RHR is in the UNSAFE region of the curves. Core spray is operating in the safe region.

#### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.25	3	N/A

#### Source Documentation

Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input checked="" type="checkbox"/> ILT Exam Bank	<input checked="" type="checkbox"/> Previous NRC Exam 0999#119 <input type="checkbox"/> Other Exam Bank
Reference(s):	T-102 Sheet 3	
Learning Objective:	PLOT2102.05a	
Knowledge/Ability K/A	295030 EK1.02 Low Suppression Pool Water Level	Importance: RO / SRO 3.5 / 3.8
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to Low Suppression Pool Water Level: <ul style="list-style-type: none"> <li>• Pump NPSH</li> </ul>		

REQUIRED MATERIALS:  
TRIPs T-102 Sheet 3 NPSH Curves

Notes and Comments

Prepared By:  
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**QUESTION ID: 059**

59. A Unit 2 low torus level condition exists and you have been directed to makeup to the torus using T-233-2, CST Makeup to the Torus via HPCI.

Based on the above conditions, which one of the following is the correct lineup?

- A. With HPCI Shutdown, throttle open the HPCI Minimum Flow valve (MO-2-23-25) to gravity drain the CST to the torus.
- B. With HPCI Shutdown, throttle open the HPCI Full Flow Test valve (MO-2-23-21) to gravity drain the CST to the torus.
- C. With HPCI Operating, throttle open the HPCI Minimum Flow valve (MO-2-23-25) to pump the CST to the torus.
- D. With HPCI Operating, throttle open the HPCI Full Flow Test valve (MO-2-23-21) to pump the CST to the torus.

## NRC Question Data Sheet

### Answer Key

Question ID# 059 Both RO/SRO

Choice		Basis or Justification
Correct:	A	Correct lineup.
Distractors:	B	Full flow test valve not used.
	C	HPCI is shutdown and lineup uses gravity drain.
	D	HPCI is shutdown and lineup uses Min Flow Valve.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

### Source Documentation

Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #4090 reformatted	
Reference(s):	T-233	
Learning Objective:	PLOT5023.001e, 03c	
Knowledge/Ability K/A	295030 EA1.06 Low Suppression Pool Water Level	Importance: RO / SRO 3.4 / 3.4
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to Low Suppression Pool Water Level: <ul style="list-style-type: none"> <li>• Condensate storage and transfer (makeup to the suppression pool): plant specific</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 060

60. Unit 3 was at rated conditions when a steam leak occurred in the RWCU valve pit and the following conditions exist:

- The reactor was scrammed due to high area temperatures.
- A valid PCIS Group III isolation is present on each of the following parameters:
  - Reactor Water Level
  - Reactor Building High Exhaust Radiation

Based on the above conditions, restarting Reactor Building Ventilation for personnel access:

- A. IS NOT permitted when ANY valid PCIS isolation signal is present.
- B. IS NOT permitted with the Reactor Building High Radiation signal.
- C. IS permitted using GP-8B "PCIS Isolation -Groups II and III" to reset the isolations.
- D. IS permitted using T-222 "Secondary Containment Ventilation Bypass" to bypass the isolations.

## NRC Question Data Sheet

### Answer Key

Question ID# 060 Both RO/SRO

Choice		Basis or Justification
Correct:	B	Correct, to prevent a possible release, Reactor Building Ventilation is NOT restarted if a high rad condition exists.
Distractors:	A	Only Low RPV level and High Drywell pressure signals only may be bypassed per T-222.
	C	Isolation signals not cleared and GP-8B directs use of SGTS if a high rad signal exists.
	D	Only Low RPV level and High Drywell pressure signals only may be bypassed per T-222. High rad may not be bypassed.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.25	3	N/A

### Source Documentation

Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank C03#97 reformatted	
Reference(s):	T-103 SC/T T-222 GP-8B	
Learning Objective:	PLOT2103.05	
Knowledge/Ability K/A	295033 EK2.02 High Secondary Containment Radiation Levels	Importance: RO / SRO 3.8 / 4.1
(Description of K&A, from catalog) Knowledge of the interrelations between High Secondary Containment Area Radiation levels and the following: Process Radiation Monitoring System		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Chris Michaels (717) 456-3559  
 PBAPS NRC Exam Author

QUESTION ID: 061

61. The following alarms are received on Unit 2:

2 VENT EXH STACK RAD MONITOR HI TROUBLE A (218 B-5)  
2 VENT EXH STACK RAD MONITOR HI TROUBLE B (218 C-5)

In accordance with the ON-104 procedure, the crew has placed both the Reactor Building as well as Equipment Cell Exhaust on Standby Gas Treatment (SGTS). However, Unit 2 Vent Stack radiation levels continue to rise.

Based on the above conditions and the ON-104 procedure, which area is next investigated as the source of the high radiation?

- A. Steam Packing Exhauster.
- B. Offgas Recombiner Room.
- C. Pearl Building.
- D. Radwaste Building.



**QUESTION ID: 062**

62. The Plant Reactor Operator (PRO) has just received a fire alarm from the Turbine Building. The Fire Brigade has been dispatched.

In accordance with FF-01, "Fire Brigade" procedure, the PRO is **REQUIRED** to call for **OFFSITE** fire fighting support:

- A. immediately if the fire spreads into two or more T-300 fire areas.
- B. immediately if plant safe shutdown systems or ECCS is in jeopardy.
- C. within 15 minutes if the Incident Commander reports the fire is **NOT** extinguished.
- D. after 20 minutes if the Incident Commander reports the fire is **NOT** under control.

## NRC Question Data Sheet

### Answer Key

Question ID# 062 Both RO/SRO

Choice		Basis or Justification
Correct:	D	Correct, per FF-01.
Distractors:	A	Size of fire not defined by FF-01
	B	Requirement from ON-114 to enter T-300 procedures and scram the reactor.
	C	Direction from FF-01 and Emergency Plan to declare a Unusual Event.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

### Source Documentation

Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 09/98 <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank	
Reference(s):	FF-01 Notes	
Learning Objective:	PSEG0214L.03	
Knowledge/Ability K/A	600000 AK1.02 Plant Fire On Site	Importance: RO / SRO 2.9 / 3.1
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to Plant Fire On-Site: <ul style="list-style-type: none"> <li>• Fire Fighting</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Chris Michaels (717) 456-3559  
 BAPS NRC Exam Author

QUESTION ID: 063

63. During operation in Mode 4, a loss of shutdown cooling occurs. The following conditions exist:

- Shutdown Cooling valves isolated and cannot be reopened.
- Reactor Recirculation pumps cannot be immediately started.

Based on the above conditions, which statement below is the reason ON-125, "Loss of Shutdown Cooling" directs that RPV level be raised to above +50 inches?

- A. Provides sufficient margin above the low level isolation setpoint to permit an isolation reset.
- B. Provides sufficient level and NPSH in preparation for an RHR or Recirc pump start.
- C. Establishes a longer "time to boil" while aligning alternate decay heat removal systems.
- D. Establishes favorable conditions for core circulation to prevent stagnation in the vessel.



**QUESTION ID: 064**

64. Unit 2 is operating at normal full power. NMD is performing a move of an old jet pump when the Aux Hoist fails and the jet pump falls onto irradiated fuel.

The following indications are observed:

- “Refueling Floor Vent Exhaust Hi Radiation” alarm (218 A-1).
- “Reac Bldg or Refueling Floor Vent Exhaust Hi Rad Trip” alarm (218 D-4).

Refuel Floor Exh Rad Trip Units

Channel A: 28 mR/hr

Channel B: 32 mR/hr

Channel C: 0 mR/hr failed

Channel D: 0 mR/hr failed

Based on the above radiation monitor conditions, which one of the following is correct response of the Refuel Floor Ventilation and Standby Gas Treatment (SBGT)?

- A. Refuel Floor Ventilation Isolates.  
SBGT initiates and aligns.
- B. Refuel Floor Ventilation continues to operate.  
SBGT initiates and aligns.
- C. Refuel Floor Ventilation Isolates.  
SBGT does NOT initiate.
- D. Refuel Floor Ventilation continues to operate.  
SBGT does NOT initiate.

## NRC Question Data Sheet

### Answer Key

Question ID# 064 Both RO/SRO

Choice		Basis or Justification
Correct:	A	Correct, 'A' or 'C' with 'B' or 'D' Rad Monitors tripped results in Group III isolation.
Distractors:	B	Distractor if candidate does not recognize that rad monitors Refuel Floor 'A' and 'B' satisfy both the Group III isolation and SGTS initiation logic.
	C	Distractor if candidate does not recognize that rad monitors Refuel Floor 'A' and 'B' satisfy both the Group III isolation and SGTS initiation logic.
	D	Distractor if candidate does not recognize trip units in trip condition and/or correct combination of channels.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.75	3	N/A

### Source Documentation

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC 218 D-4	
Learning Objective:	PLOT5040B.04a	
Knowledge/Ability K/A	295023 AA1.04 Refueling Accidents	Importance: RO / SRO 3.4 / 3.7
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to Refueling Accidents: <ul style="list-style-type: none"> <li>• Radiation Monitoring Equipment</li> </ul>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Chris Michaels (717) 456-3559  
 BAPS NRC Exam Author

## QUESTION ID: 065

65. Following a seismic event and scram, continued RPV backleakage through failed MO-12A and MO-11A, Core Spray Injection valves has resulted in Core Spray 'A' piping damage and flooding in the Unit 3 Reactor Building.

The following conditions exist on Unit 3 RB 91'6" elevation with all other areas unaffected:

Reactor Building Area	Rad	Level	Temp
3A Core Spray Pump Room	200 mR/hr	4 feet	175°F
Sump Room	30 mR/hr	3 feet	140°F
RCIC Room	10 mR/hr	3 feet	110°F

Based on the above conditions only, a T-112, "Emergency Blowdown":

- A. IS REQUIRED since water levels exceed the action level in more than one area.
- B. IS REQUIRED since temperatures exceed the action level in more than one area.
- C. IS NOT REQUIRED since NO parameters exceed the action levels in more than one area.
- D. IS NOT REQUIRED since a primary system is NOT discharging into the Reactor Building.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 065 Both RO/SRO		
Choice		Basis or Justification
Correct:	A	Correct, Both Core Spray Room and Sump/RCIC room areas are above ACTION levels and Primary System is discharging into RB.
Distractors:	B	Temp above an action level exists in only one area. Sump Room not addressed by T-103.
	C	Parameters DO exceed ACTION in more than one area.
	D	Primary system is discharging through Core Spray. Refer to T-103 Note# 25.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	N/A

<b>Source Documentation</b>		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-103 SCC-10 and bases	
Learning Objective:	PLOT2103.05	
Knowledge/Ability K/A	295036 EK3.01 Secondary Containment High Sump/ Area Water Level	Importance: RO / SRO 2.6/ 2.8
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to Secondary Containment High Sump/Area Water Level: <ul style="list-style-type: none"> <li>• Emergency Depressurization</li> </ul>		

**REQUIRED MATERIALS:**

T-103 Sheet 1

Notes and Comments

Prepared By:

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PBAPS NRC Exam Author

66. A plant startup and heatup is in progress on Unit 3 in accordance with GP-2, Normal Plant Startup. Both Recirc pumps are in service and control rods are being withdrawn to heatup the plant IAW GP-2-3 rod pull Appendix.

The following temperature data has been recorded over the past one hour period:

time	RPV Drain temp	'A' Recirc Loop Temp	'B' Recirc Loop Temp
0915	211°F	250°F	252°F
0930	250°F	275°F	278°F
0945	275°F	305°F	308°F
1000	285°F	325°F	332°F
1015	316°F	340°F	345°F

Based on the above conditions, which of the following describes the status of the heatup rate and operator action required by GP-2?

The plant heatup rate:

- A. IS BELOW the GP-2, "Normal Plant Startup" guideline and additional control rods will be withdrawn.
- B. has REACHED the GP-2, "Normal Plant Startup" guideline and control rod withdrawal will be stopped.
- C. has REACHED the Reactor Coolant Temp ST limit and control rod withdrawal will be stopped.
- D. has EXCEEDED the Tech Spec LCO limit and control rods must be inserted in the reverse order.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 066 Both RO/SRO		
Choice		Basis or Justification
Correct:	D	LCO heatup rate exceeded. Tech Specs and GP-2 require control rods to be inserted.
Distractors:	A	Exceeded the LCO. Distractor since GP-2 identifies 80 deg F heatup as a guideline and directs establishing the 80 deg HUR with control rods.
	B	Has exceeded the LCO limit of 100 deg F and rods must be inserted. Plausible since GP-2 specifies an 80 deg F/hr guideline and 90 deg ST limit to prevent exceeding LCO. Control rod withdrawal would be stopped at 90 deg F/hr.
	C	Has exceeded the LCO limit of 100 deg F. Control rods must be inserted.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.75	3	N/A

<b>Source Documentation</b>			
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	<input checked="" type="checkbox"/> Previous NRC Exam 08/01#337 <input type="checkbox"/> Other Exam Bank Modified	
Reference(s):	GP-2, Section 6.1.39 ST-O-080-500-3 TS 3.4.9		
Learning Objective:	PLOT1530.04		
Knowledge/Ability K/A	PWG 2.1.7 Generic - Conduct Of Operations	Importance:	RO / SRO 3.7 / 4.4
(Description of K&A, from catalog) Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.			

REQUIRED MATERIALS:  
None

Notes and Comments

- 1) Conditions changed, distractor changed, new answer is 'B'
- 2) ST-O-080-500-3 provides additional guidance including the 90 deg F/hr limit to prevent exceeding the LCO.

Prepared By:

Chris Michaels (717) 456-3559  
PBAPS NRC Exam Author

QUESTION ID: 067

67. As the Plant Reactor Operator (PRO), you are conducting ST-O-014-301-3 "Core Spray Loop 'A' Pump Valve Flow and Cooler Functional and Inservice Test". Step 6.2.2 (attached) has just been directed. The Equipment Operator reports that the 'A' Core Spray oil level is about 1/8 inch above the operating range maximum level.

In accordance with the Operations Manual, the PRO will initial Step 6.2.2 as:

- A. "SAT" and log the test results in the ST/SI/RT Status Log.
- B. "SAT" and log the test results in the Potential Tech Spec Action Log.
- C. "UNSAT" and log the test results in the Tech Spec Action Log.
- D. "UNSAT" and log the test results in the Narrative Control Room Log.

6.2 Core Spray A Pump and Room Cooler Operability Test

**NOTE**

The next step ensures Core Spray piping is full.

6.2.1 **IF** Control Room annunciator 324 A-4, "A CORE SPRAY LINE VENT ACCUMULATOR LOW LEVEL" is LIT, **THEN PERFORM** the following. **OTHERWISE, N/A** this step.

< At South Isol Vlv Rm, 135', R3-25 >

1. **SLOWLY OPEN** IDV-3-14-3758A "PI-3758A Instrument Drain Valve" **AND VENT** until steady stream of water flows from valve, **THEN CLOSE** IDV-3-14-3758A.

*PRO*

< At A Core Spray Room, 91'6", R3-9 >

6.2.2 **VERIFY** oil levels in Core Spray A Pump are between operating range maximum and minimum lines on sightglasses.

6.2.3 **RECORD** static pump suction pressure from PI-3-14-036A "A Core Spray Pump Suction Pressure".

\_\_\_\_\_ PSIG

6.2.4 **VERIFY** HS-3-33-24B "A Core Spray Pump Room Unit Cooler Fan B" in RUN.

6.2.5 **VERIFY** HS-3-33-24A "A Core Spray Pump Room Unit Cooler Fan A" in OFF.



**QUESTION ID: 068**

68. A Reactor startup is in progress. Plant conditions are as follows:

- Reactor pressure is 750 psig.
- Mode Switch is in SHUTDOWN.
- All rods are fully inserted.

When directed by the CRS to place the Mode Switch to STARTUP/HOT STANDBY, the RO inadvertently places the Mode Switch to RUN.

Based on the above conditions after the Mode Switch is placed in RUN the MSIVs will be \_\_\_\_ (1) \_\_\_\_ and RPS will be \_\_\_\_ (2) \_\_\_\_.

- |           |         |
|-----------|---------|
| (1)       | (2)     |
| A. CLOSED | RESET   |
| B. CLOSED | TRIPPED |
| C. OPEN   | TRIPPED |
| D. OPEN   | RESET   |

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 068 RO/SRO</b>		
Choice		Basis or Justification
Correct:	B	MSIVs will close due to <850# in RUN and RPS will trip on MSIV closure.
Distractors:	A	RPS will NOT be reset.
	C	MSIVs will be CLOSED.
	D	MSIV will be CLOSED and RPS will be TRIPPED.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.25	3	N/A

<b>Source Documentation</b>		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-2 Normal Plant Startup.	
Learning Objective:	PLOT-5060F 4k; PLOT-5007G 4d	
Knowledge/Ability K/A	PWG 2.2.2 Generic - Equipment Control	Importance: RO / SRO 4.0 / 3.5
(Description of K&A, from catalog) Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Chris Michaels (717) 456-3559  
 PBAPS NRC Exam Author

QUESTION ID: 069

69. Which one of the following revisions may be prepared and processed as a Temporary Change (TC) in accordance with T&RM AD-PB-101-1003, Temporary Changes to Procedures?

The revision to:

- A. the acceptance criteria in a Surveillance Test procedure (ST).
- B. the stated automatic actions in an Annunciator Response Card (ARC).
- C. a continuing actions step in an Emergency Response procedure (ERP).
- D. the wording of a CAUTION statement in a System Operating procedure (SO).



**QUESTION ID: 070**

70. Unit 2 has been operating at rated power when a loss of feedwater heating transient occurs. The following plant conditions exist:
- Reactor Engineer reports that the actual Minimum Critical Power Ratio ( $MCPR_{act}$ ) reached 1.05 during the event but is now 1.22.
  - The MCPR operating limit from the Core Operating Limits Report (COLR) is 1.30.
  - Control rod scram times are all within Tech Spec limits.
  - All other equipment is operating normally.

Based on the above conditions, which of the following statements is correct?

- A. MCPR is within operating limits.
- B. MCPR 3D Monicore calculation is in error.
- C. MCPR exceeded both the operating and the safety limit.
- D. MCPR exceeded the operating limit but not the safety limit.

## NRC Question Data Sheet

### Answer Key

Question ID# 070 Both RO/SRO

Choice		Basis or Justification
Correct:	C	Safety limit is 1.09 and was exceeded.
Distractors:	A	MCPR exceeded both operating and safety limits.
	B	Assymetric feedwater heating does cause 3D Monicore calculation problems but not to the extent of invalidating the P1 for MCPR.
	D	MCPR exceeded both operating and safety limits.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.75	3	N/A

### Source Documentation

Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-5,12 Tech Specs SL 2.0, 3.3.	
Learning Objective:	PLOT1800.08	
Knowledge/Ability K/A	PWG 2.2.22 Generic - Equipment Control	Importance: RO / SRO 3.4 / 4.1
(Description of K&A, from catalog) Knowledge of Limiting Conditions for Operations and Safety Limits.		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:

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PBAPS NRC Exam Author

**QUESTION ID: 071**

71. Following a loss of condenser vacuum, gross fuel failure has resulted in an offsite release to the Main Stack. Unit 2 conditions are as follows:

- The reactor was scrammed with all rods inserted.
- The Main Stack rad release has stabilized at the ALERT level.
- Condenser vacuum is 12 inches Hg lowering slowly.
- RPV pressure is 940 psig and controlled by EHC.

Based on the above conditions, which one of the following actions is **REQUIRED** to control the radioactive release?

- A. Start the Mechanical Vacuum Pump and depressurize to the condenser at <math><100^{\circ}\text{F/hr}</math>.
- B. Start the Mechanical Vacuum Pump and perform a rapid depressurization to the condenser regardless of cooldown rates.
- C. Close the Main Steam Isolation Valves and depressurize to the Suppression Pool at <math><100^{\circ}\text{F/hr}</math>.
- D. Close the Main Steam Isolation Valves and perform an Emergency Blowdown to the Suppression Pool regardless of cooldown rates.

### NRC Question Data Sheet

#### Answer Key

Question ID# 071 Both RO/SRO

Choice		Basis or Justification
Correct:	C	T-104 requires MSIVs to be isolated to stop the rad release. Depress will be performed in accordance with T-101 <100°F/hr.
Distractors:	A	MVP will not be started with gross fuel failure and condenser will not be used to depressurize.
	B	T-101 RCP/12 to rapidly depressurize is not required since rad release is not approaching the GE level (a T-104 blowdown limit) and a primary system breach is not in progress.
	D	Emergency Blowdown is not required (or permitted) by T-104 since rad release is not approaching the GE level and a primary system breach is not in progress.

#### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.75	3	N/A

#### Source Documentation

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-104 Step RR-10, 11 and bases	
Learning Objective:	PLOT2104.03	
Knowledge/Ability K/A	PWG 2.3.11 Generic - Radiation Controls	Importance: RO / SRO 2.7 / 3.2
(Description of K&A, from catalog) Ability to control radiation releases		

**REQUIRED MATERIALS:**  
T-104, T-101 TRIP flowcharts

Notes and Comments

Prepared By:  
Chris Michaels (717) 456-3559  
PBAPS NRC Exam Author

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Primary Containment Oxygen Concentration

LCO 3.6.3.2 The primary containment oxygen concentration shall be < 4.0 volume percent.

APPLICABILITY: MODE 1 during the time period:

- a. From 24 hours after THERMAL POWER is > 15% RTP following startup, to
- b. 24 hours prior to reducing THERMAL POWER to < 15% RTP prior to a reactor shutdown.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 Restore oxygen concentration to within limit.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $\leq$ 15% RTP.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.2.1 Verify primary containment oxygen concentration is within limits.	7 days



**1.0 PURPOSE**

This test tracks the total hours the 6" and 18" Primary Containment Purge/Vent Isolation Valves are open when Reactor pressure is greater than 100 psig, Reactor is critical, and Reactor is in Mode 1 or 2. This test is issued weekly and performed once per shift. **CM-1**

**2.0 TEST EQUIPMENT**

None

**3.0 PREREQUISITES**

Initial

3.1 Test Initiation

None

3.2 Document Review

3.2.1 **ENSURE** procedure is current revision. \_\_\_\_\_

3.2.2 **OBTAIN** a copy of last performed RT-O-007-560-2 "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log" **AND RECORD** on Data Sheet 1 the Total Hours to date in "Total Fwd" space. **IF** this test is being performed for the first time this calendar year, **THEN ENTER "0"**. \_\_\_\_\_

3.3 Equipment Configuration

3.3.1 **VERIFY** the following conditions exists:

1. Reactor pressure is greater than 100 psig. \_\_\_\_\_

RO

2. Reactor is critical. \_\_\_\_\_

RO

3. Reactor is in Mode 1 or 2. \_\_\_\_\_

RO

3.4 Required Redundant Safety Related Equipment

None

**3.0 PREREQUISITES (Continued)**Initial

## 3.5 Approval to Start Test

3.5.1 **OBTAIN** RO Permission  
to begin.

_____	/	/	_____
Time		Date	RO

**4.0 PRECAUTIONS, LIMITATIONS, AND GENERAL INSTRUCTIONS**

## 4.1 Plant Impact Statement

4.1.1 This does not impact plant availability in any manner. This test is only performed when Reactor pressure is greater than 100 psig, Reactor is critical, and Reactor is in Mode 1 or 2.

## 4.2 Precautions

None

## 4.3 Limitations

None

## 4.4 General Instructions

4.4.1 **IF** any procedure step can **NOT** be completed **OR** produces an unexpected response, **THEN STOP** the test **AND RETURN** the equipment to a safe condition **AND NOTIFY** the RO or SMgt.4.4.2 **IF** any Black Box is initialed, **THEN STOP** the test **AND RETURN** the equipment to a safe condition **AND NOTIFY** the RO or SMgt.4.4.3 **IF** procedure is aborted, **THEN NOTIFY** SMgt **AND WRITE "TEST ABORTED"** in Section 3 of Cover Page.

4.4.4 All persons who initial steps in Sections 3.0, 6.0, or 7.0 are responsible for completing Section 10.0.

4.4.5 All applicable **R** steps are identified immediately in front of the initials.**5.0 ACCEPTANCE CRITERIA**

The total accumulated time a purge or vent flow path exists when Reactor pressure is greater than 100 psig, Reactor is critical, and Reactor is in Mode 1 or 2 is less than 90 hours/year.

**6.0 PERFORMANCE STEPS**Initial  
Sat UnSat

## 6.1 Data Acquisition

**NOTE**

All data and sign-offs for the following steps are located on Data Sheets 1 and 2.

< At Control Room Panel 20C003-03 >

- 6.1.1 **INDICATE** with a Check Mark "√" flow path(s) used **OR N/A** for non-use **AND INITIAL AND DATE** once per shift on Data Sheet 2.
- 6.1.2 **RECORD** the time any flow path is open or required conditions for timing established with valves open.
- 6.1.3 **RECORD** the time all flow paths are closed or required conditions for timing no longer exists.
- 6.1.4 **CALCULATE AND RECORD** "Flow Path Open Total Time".
- 6.1.5 **CALCULATE AND RECORD** "Accumulated Total Time Since Beginning of Calendar Year".
- 6.1.6 **NOTIFY** SMgt once "Accumulated Total Time Since Beginning of Calendar Year" is greater than 80 hours.
- 6.1.7 **VERIFY** "Accumulated Total Time Since Beginning of Calendar Year" is less than 90 hours **AND INITIAL** block on Data Sheet 1.
- 6.1.8 **IF** no calculations were performed then **VERIFY** "Accumulated Total Time Since Beginning of Calendar Year" is less than 90 hours. N/A if calculations were performed.

R \_\_\_\_\_



**7.0 PROCEDURE COMPLETION**

Initial

7.1 Independent Verification

7.1.1 **WHEN** weekly data is collected, **THEN VERIFY** calculations are correct. N/A if no calculations were performed.

\_\_\_\_\_  
IV

7.2 Records Completion

7.2.1 **COMPLETE** Section 2 of Cover Page (and Section 3 if applicable).

\_\_\_\_\_

**8.0 REFERENCES**

8.1 Governing

8.1.1 CM-1, Letter to NRC from G. A. Hunger, Jr. dated Sept. 29, 1994 transmitting TSCR 93-16 (A0905549-43, T03767, T03768) and (A0902903-67, T03820).

8.2 Interfacing

None

8.3 Developmental

8.3.1 Letter of Thomas Ippolito, NRC to Edward Bauer, Jr., PECO dated November 29, 1978.

8.3.2 This procedure supersedes ST-O-007-560-2.

**9.0 CORRECTIVE ACTIONS**

**IF** corrective actions are necessary, **THEN INITIATE** an A/R or ETT to correct problems.



**DATA SHEET 1**  
**6" AND 18" FLOW PATH TOTAL HOUR LOG**

Any 6" or 18" Flow Path Open OR Req'd Conditions Exist for Timing with Valves Open		ALL 6" or 18" Flow Paths Closed OR Required Conditions No Longer Exists		Flow Path Open Total Time  (Hours & Minutes)	Accumulated Total Time Since Beginning of Calendar Year (Note 1)	Accumulated Total Time Since Beginning of Calendar Year < 90 hrs
TIME	DATE	TIME	DATE		Total Fwd: <u>55</u>	Initial Sat Unsat
0705	10/1/02	1015	10/1/02	3hrs 10min		R <input type="checkbox"/>
0205	10/2/02	0930	10/2/02	7hrs 25min		R <input type="checkbox"/>
0130	10/4/02	0655	10/4/02	6hrs 25min		R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
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						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>

NOTE 1: IF "Accumulated Total Time Since Beginning of Year" is greater than or equal to 80 hrs, THEN NOTIFY SMgt.

**DATA SHEET 2**

DAY / SHIFT	DATE	FLOW PATHS USED (See below)							Initial	
		1	2	3	4	5	6	7	<u>Sat</u>	<u>Unsat</u>
MON D									_____	_____
N									_____	_____
TUE D									_____	_____
N									_____	_____
WED <u>(D)</u>	10/1/02			✓		✓			_____	_____
N									_____	_____
THUR D									_____	_____
<u>(N)</u>	10/3/02			✓		✓			_____	_____
FRI D									_____	_____
<u>(N)</u>	10/4/02			✓		✓			_____	_____
SAT D									_____	_____
N									_____	_____
SUN D									_____	_____
N									_____	_____

1. AO-2-07B-2519 and AO-2-07B-2520 OPEN in a Drywell N2 Purge Flowpath
2. AO-2-07B-2519 and AO-2-07B-2521B OPEN in a Torus N2 Purge Flowpath
3. AO-2-07B-2505 and AO-2-07B-2520 OPEN in a Drywell Purge Supply Flowpath
4. AO-2-07B-2521A and AO-2-07B-2521B OPEN in a Torus Purge Supply Flowpath
5. AO-2-07B-2506 and AO-2-07B-2507 OPEN in a Drywell Exhaust Flowpath
6. AO-2-07B-2511 and AO-2-07B-2512 OPEN in a Torus Exhaust Flowpath
7. Abnormal Flowpath.

Description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

D = Day Shift - 6:45a - 6:45p  
 N = Night Shift - 6:45p - 6:45a

72. Unit 2 is reducing reactor power in accordance with GP-3 in preparation for a forced outage. The following conditions exist:

- Reactor power is 25%.
- To support drywell work, the Primary Containment must be deinerted in accordance with SO 7B.4.A-2, "Containment Atmosphere Deinerting and Purging Via SBT System".
- The current RT-O-007-560-2, Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log is attached.

Based on the above conditions, correctly complete the statement below.

To de-inert the containment, the Containment 6" and 18" valves:

- A. CAN be opened for the next 18 hours with the current conditions.
- B. CAN be opened for the next 73 hours with the current conditions.
- C. CANNOT be opened until reactor power is reduced to below 15% power.
- D. CANNOT be opened since accumulated hours exceed the allowable value.

## NRC Question Data Sheet

### Answer Key

Question ID# 072 Both RO/SRO

Choice		Basis or Justification
Correct:	A	Correct. With pressure >100 psig and the reactor critical and in Modes 1 or 2, a limit of 90 hours is allowed in accordance with RT-O-007-560-2. This knowledge dovetails with the Tech Spec for Primary Containment Oxygen 3.6.3.2 "de-inerting window".
Distractors:	B	Containment can be deinerted, Tech Spec applicability is 24 hours and then an additional 24 hours to reduce oxygen within limit and only then must power be reduced $\leq 15\%$ within 8 hours. Common misconception.
	C	Power is not required to be reduced below 15%.
	D	Containment valves can be opened since accumulated hours are within the 90 hour limit.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.25	3	N/A

### Source Documentation

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank
Reference(s):	RT-O-007-560-2(3)	
Learning Objective:	PLOT-5007B.01e	
Knowledge/Ability K/A	PWG 2.2.22 Generic - Radiological Controls	Importance: RO / SRO 2.5 / 3.4
(Description of K&A, from catalog) Knowledge of the process for performing a containment purge.		

#### REQUIRED MATERIALS:

Filled out RT-O-007-560-2  
Tech Spec 3.6.3.2 (without bases)

#### Notes and Comments

Question stem and distractors modified.

#### Prepared By:

Chris Michaels (717) 456-3559  
PBAPS NRC Exam Author

## QUESTION ID: 073

73. Unit 3 is responding to a LOCA and a high power ATWS. The following procedures are being implemented:
- T-215, Control Rod Insertion by Withdraw Line Venting.
  - T-216, Control Rod Insertion by Manual Scram.

Plant conditions then deteriorate such that SAMP entry is required. When the SAMP procedures are entered, the control room staff should \_\_\_\_ (1) \_\_\_\_ the T-100 series TRIPS and \_\_\_\_ (2) \_\_\_\_ the T-200 series TRIPS.

- |    |                    |             |
|----|--------------------|-------------|
| A. | (1)<br>CONTINUE IN | (2)<br>EXIT |
| B. | CONTINUE IN        | CONTINUE IN |
| C. | EXIT               | EXIT        |
| D. | EXIT               | CONTINUE IN |

**NRC Question Data Sheet**

**Answer Key**

Question ID# 073 Both RO/SRO

Choice		Basis or Justification
Correct:	D	Bases state that all T-100 TRIPS are exited but T-200 TRIPS are continued unless specifically directed to be exited by the SAMPs.
Distractors:	A	Bases state that all T-100 TRIPS are exited but T-200 TRIPS are continued unless specifically directed to be exited by the SAMPs.
	B	Bases state that all T-100 TRIPS are exited but T-200 TRIPS are continued unless specifically directed to be exited by the SAMPs.
	C	Bases state that all T-100 TRIPS are exited but T-200 TRIPS are continued unless specifically directed to be exited by the SAMPs.

**Psychometrics**

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	N/A

**Source Documentation**

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-Intro Bases	
Learning Objective:	PLOT2100.06	
Knowledge/Ability K/A	PWG 2.4.16 Generic - Emergency Procedures and Plan	Importance: RO / SRO 3.0 / 4.0
(Description of K&A, from catalog) Knowledge of EOP implementation hierarchy and coordination with other support procedures.		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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BAPS NRC Exam Author

QUESTION ID: 074

74. Following a transient on Unit 2, an Alert was declared at 0330 hours.

As the NRC Communicator, which of the following is correct regarding notification of State and County Agencies in accordance with ERP-110 "Emergency Notifications"?

- A. Place an OMNI telephone call within 15 minutes.
- B. Place an OMNI telephone call within 1 hour.
- C. Fax the Emergency Notification Worksheet within 15 minutes.
- D. Fax the Emergency Notification Worksheet within 1 hour.

### NRC Question Data Sheet

#### Answer Key

Question ID# 074 Both RO/SRO

Choice		Basis or Justification
Correct:	A	The state and county agencies are required to be called within 15 minutes using the OMNI telephone system.
Distractors:	B	The call is required within 15 minutes, not 1 hour.
	C	The Emergency Notification Worksheet is faxed to the NRC, not the State and County Agency.
	D	The Emergency Notification Worksheet is faxed to the NRC, not the State and County Agency.

#### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.75	3	N/A

#### Source Documentation

Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ERP-110 and Attachment 1	
Learning Objective:	PEPP-0010.03	
Knowledge/Ability K/A	PWG 2.4.43 Generic - Emergency Procedures and Plan	Importance: RO / SRO 2.8 / 3.5
(Description of K&A, from catalog) Knowledge of emergency communications systems and techniques.		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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PBAPS NRC Exam Developer

**QUESTION ID: 075**

75. For an actual fire reported at Peach Bottom, which one of the following affected areas will REQUIRE entry into ON-114, Actual Fire Reported?
- A. Inner Screen Structure.
  - B. Water Treatment Plant.
  - C. SU-25 Startup Switchgear House.
  - D. Low Level Radwaste Storage Facility.

## NRC Question Data Sheet

### Answer Key

Question ID# 075 Both RO/SRO

Choice		Basis or Justification
Correct:	A	Correct due to degrading plant on loss of heat sink.
Distractors:	B	Although a concern for chemical storage, not a vital structure per ON-114 bases.
	C	Although an offsite source, not a vital structure per ON-114 bases.
	D	Although a source of radioactive material, not a vital structure per ON-114 bases.

### Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.0	3	N/A

### Source Documentation

Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #5279	
Reference(s):	ON-114 and Bases	
Learning Objective:	PBIG PLOT-1550.02	
Knowledge/Ability K/A	PWG 2.4.25 Generic - Emergency Procedures and Plan	Importance: RO / SRO 2.9 / 3.4
(Description of K&A, from catalog) Knowledge of fire protection procedures.		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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## QUESTION ID: 076

76. Unit 2 is operating at 40% power during a startup with the following Main Generator conditions:

- 460 MWe
- 150 MVARs lagging

A loss of stator water cooling results in an EHC runback. Stator Amps are noted to be at the following values at the indicated times: (times are in seconds, t=0 sec is the beginning of the EHC runback).

t = 0 sec: 12,000A	t = 120 sec: 9,971A
t = 30 sec: 11,943A	t = 150 sec: 9,314A
t = 60 sec: 11,285A	t = 180 sec: 8,657A
t = 90 sec: 10,628A	t = 210 sec: 8,000A

Based on the initial conditions and the given stators amps, the Reactor Recirc Pumps should be \_\_\_\_ (1) \_\_\_\_ at t = 60 sec, and the Main Generator should be \_\_\_\_ (2) \_\_\_\_ at t = 210 sec.

- |            |         |
|------------|---------|
| (1)        | (2)     |
| A. TRIPPED | TRIPPED |
| B. RUNNING | TRIPPED |
| C. TRIPPED | RUNNING |
| D. RUNNING | RUNNING |

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 076 RO Only		
Choice	Basis or Justification	
Correct:	B	Since the initial conditions were less than 45%, the Recirc Pumps would not trip. After 3.5 minutes (210 seconds) stator amps were not below 7726A, the generator should have tripped.
Distracters:	A	Would be correct if student assumes initial conditions are >45%.
	C	Would be correct if student assumes final stator amps are below the limit and initial conditions were >45%.
	D	Would be correct if student assumes final stator amps are below the limit.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	N/A

<b>Source Documentation</b>		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	SO 50.8.A-2 and OT-113	
Learning Objective:	PLOT-5050.06e	
Knowledge/Ability K/A	295005 AA1.04 Main Turbine Generator Trip	Importance: RO / SRO 2.7 / 2.8
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to Main Turbine Generator Trip: Main generator controls		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Developer

**QUESTION ID: 077**

77. Unit 2 was operating at 100% power when a loss of both CRD pumps occurred. An ATWS occurred when the manual scram was inserted. Plant conditions are as follows:

- Reactor Power is 35%.
- Main Turbine and Generator are still on line.
- All "Control Rod Drive Scram Solenoid Group 1, 2, 3, 4" white lights are NOT LIT on Panel 20C015 and 20C017.
- All blue scram lights on the full core display are LIT.

Based on the above conditions, which one of the following actions will insert control rods?

- A. Deenergizing scram solenoids per T-213-2, Scram Solenoid Deenergization.
- B. Venting the scram air header per T-214-2, Isolating and Venting the Scram Air Header.
- C. Insert control rods per T-216-2, Control Rod Insertion by Manual Scram or Individual Scram Test Switches.
- D. Driving control rods per T-220-2, Driving Control Rods During Failure to Scram.



**QUESTION ID: 078**

78. During an ATWS, T-117 "Level/ Power Control" is only performed for reactor power levels:
- A. LESS than 4% since power cannot be accurately monitored.
  - B. LESS than 4% since power cannot sustain SRV operations.
  - C. GREATER than 4% since power can exceed SRV tailpipe design limits.
  - D. GREATER than 4% since power can exceed containment heat removal.

### NRC Question Data Sheet

Answer Key		
Question ID# 078 RO Only		
Choice	Basis or Justification	
Correct:	D	Correct per T-117 bases.
Distractors:	A	4% is TRIP threshold for power production and probability of THI.
	B	Opening SRVs is expected but, if at all possible, avoided in an ATWS.
	C	SRV tailpipe limits based on RPV pressure and torus level. Not a basis for level power control.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	4.0	3	N/A

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <span style="margin-left: 150px;"><input type="checkbox"/> Previous NRC Exam</span> <input checked="" type="checkbox"/> Modified Bank Item #2897 <span style="margin-left: 150px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-101, T-117 LQ-6 Bases	
Learning Objective:	PLOT2101.05a PLOT2117.05a	
Knowledge/Ability K/A	295037 PWG 2.1.27 Scram Condition Present and Reactor Power above APRM downscale or Unknown.	Importance: RO / SRO 2.8 / 2.9
(Description of K&A, from catalog) Knowledge of system purpose and/or function		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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PBAPS NRC Exam Author

**QUESTION ID: 079**

79. Following a Reactor Recirculation pump trip from 100% power, which statement below describes the response of RPV level indication due to operating in single loop?
- A. Narrow Range levels all indicate approximately 10 to 12 inches higher than Wide Range levels.
  - B. Narrow Range level associated with the idle loop may oscillate and read up to 10 inches higher than the active loop.
  - C. Wide Range levels all indicate approximately 10 to 12 inches higher than Narrow Range levels.
  - D. Wide Range level associated with the idle loop may oscillate and read up to 10 inches higher than the active loop.

### NRC Question Data Sheet

Answer Key		
Question ID# 079 RO Only		
Choice	Basis or Justification	
Correct:	D	Correct, reverse flow through the idle loop causes turbulence at the Wide Range variable leg tap and results in this indication.
Distractors:	A	Distractor correct when operating at extended core flows (>70%), high velocity flow through the weir causes low pressure at WR variable leg tap and WR levels reads lower than NR levels.
	B	Only the Wide Range levels are affected.
	C	same as A, Wide Range levels read lower.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.0	3	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	OT-112 Note and bases	
Learning Objective:	PLOT5002B.05g	
Knowledge/Ability K/A	295001 AA1.07 Partial or Complete Loss of Forced Core Flow Circulation	Importance: RO / SRO 3.1 / 3.2
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to Partial or Complete Loss of Forced Core Flow Circulation: Nuclear boiler instrumentation system		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 080**

80. Unit 3 is operating at 100% power when the following occurs:

- “Reac Bldg. Hi-Lo Diff Pressure” in alarm (ARC 317 K-5).
- “Reac Bldg. Refueling Area Hi-Lo Diff Press” in alarm (ARC 317 L-1).
- Unit 3 Reactor Building DP (DPI-30003-1) reads +1.5 inches water rising.
- An Equipment Operator reports a large steam leak in the Unit 3 HPCI Room.

Based on the above conditions, Annunciator “Reac Bldg. Hi-Lo Diff Pressure” (317 K-5) alarm response card directs \_\_\_\_ (1) \_\_\_\_ because \_\_\_\_ (2) \_\_\_\_.

- A. (1) entry into T-103, Secondary Containment Control,  
(2) it will reduce the driving head of the steam leak
- B. (1) entry into T-104, Radioactive Release Control,  
(2) of a steam hazard in the Reactor Building room
- C. (1) entry into T-103, Secondary Containment Control,  
(2) a potential rad release via the Refuel Floor blowout panels
- D. (1) entry into T-104, Radioactive Release Control,  
(2) a potential rad release via the Reactor Building Vent Stack



## QUESTION ID: 081

81. A Unit 2 startup and heatup is in progress. The URO places the DRIVE WTR PRESS control switch (MO-2-03-020 valve) to OPEN for 2 seconds and then stops valve movement.

Based on the above conditions, complete the following statement that predicts the change in CRD operation due to throttling the valve.

During the NEXT rod withdrawal, CRD System Flow will \_\_\_(1)\_\_\_ and Control Rod Speed will be \_\_\_(2)\_\_\_.

- |    |             |               |
|----|-------------|---------------|
| A. | (1)<br>RISE | (2)<br>FASTER |
| B. | RISE        | SLOWER        |
| C. | BE CONSTANT | FASTER        |
| D. | BE CONSTANT | SLOWER        |

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 081 RO Only</b>		
Choice	Basis or Justification	
Correct:	D	Flow control valve controls flow at set value, a lower drive water header pressure results in lower drive speed.
Distractors:	A	Flow initially rises then return to the set value. Opening drive water control valve lowers NOT raises drive pressure and drive speed lowers.
	B	Flow initially rises then return to set value.
	C	Opening drive water control valve lowers NOT raises drive pressure. Rod speed goes down.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

<b>Source Documentation</b>		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #3896	
Reference(s):	SO 3.1.B-2	
Learning Objective:	PLOT5003A.04h	
Knowledge/Ability K/A	201001 K5.02 Control Rod Drive Hydraulic System	Importance: RO / SRO 2.6 / 2.6
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to Control Rod Drive Hydraulic System: Flow indication		

REQUIRED MATERIALS:

Notes and Comments  
Question reformatted

Prepared By:  
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**QUESTION ID: 082**

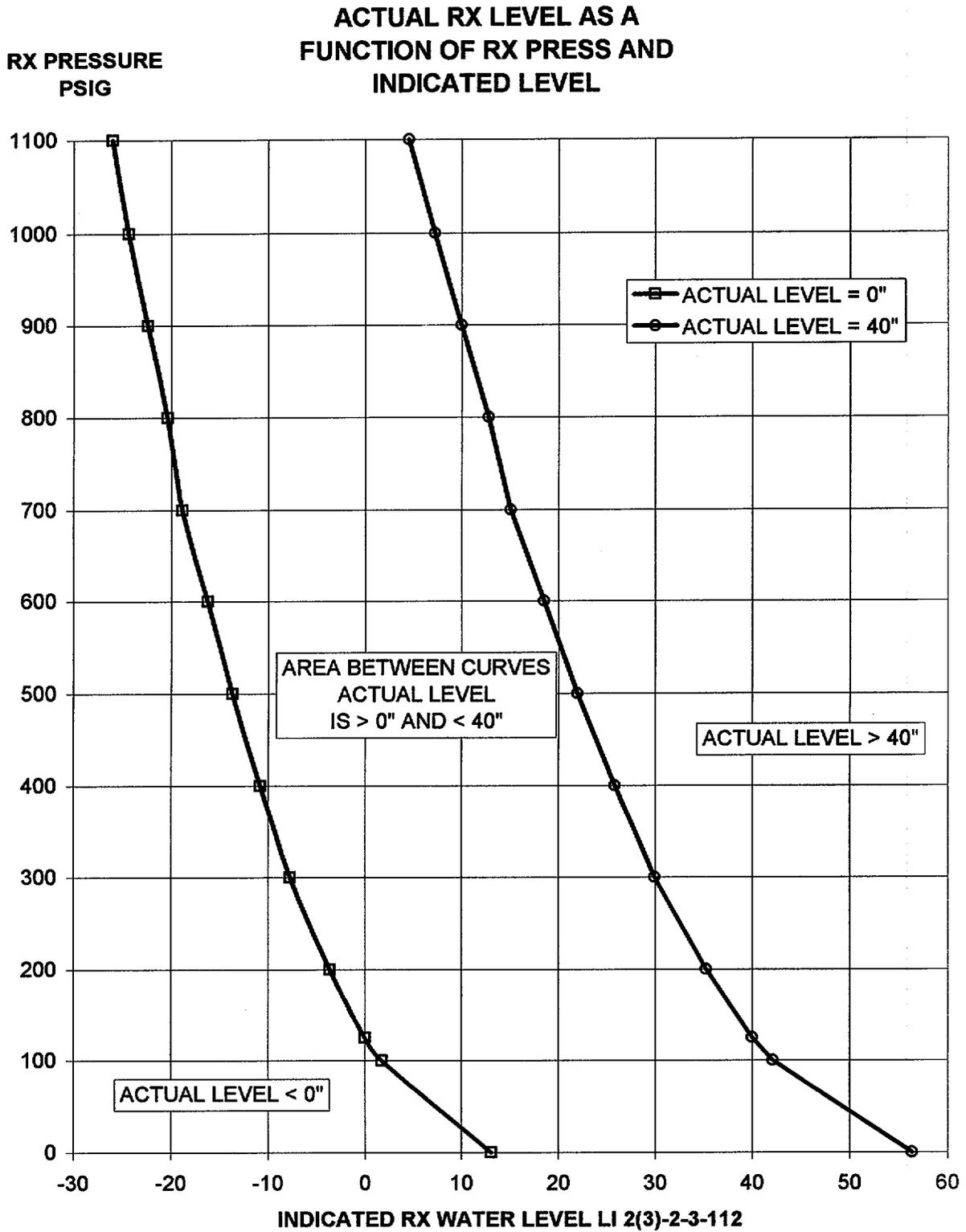
82. A fire in the Control Room requires the shutdown of both Units from the HPCI Alternate Control Stations (HPCI ACS). The following plant conditions exist at the Unit 3 HPCI ACS:

- SE-10, Alternative Shutdown is being implemented.
- HPCI is injecting into the RPV in accordance with SE-10 Att 9.
- RPV pressure is 400 psig steady.
- RPV level indicates +40 inches rising.

Based on the above conditions, refer to SE-10 Attachment 9 Figure 1 (attached) and determine which statement below is correct?

- A. Actual level is within 0 to +40 inches and HPCI will trip when level reaches the high level setpoint.
- B. Actual level is within 0 to +40 inches and HPCI will NOT trip at the high level setpoint.
- C. Actual level is above +40 inches and HPCI will trip when level reaches the high level setpoint.
- D. Actual level is above +40 inches and HPCI will NOT trip at the high level setpoint.

FIGURE 1



## NRC Question Data Sheet

Answer Key		
Question ID# 082 RO Only		
Choice	Basis or Justification	
Correct:	D	Correct, LI-112 is not compensated and actual level is above +40 inches. HPCI trip on high level is bypassed at the HPCI ACS.
Distractors:	A	Actual level is above +40 inches. HPCI will not trip.
	B	Actual level is above +40 inches. HPCI will not trip.
	C	HPCI trip on high level is bypassed at the HPCI ACS.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input checked="" type="checkbox"/> Other Exam Bank LOR#298</span>		
	<input type="checkbox"/> ILT Exam Bank		
Reference(s):	SE-10 Attachment 9		
Learning Objective:	PLOT1555.11		
Knowledge/Ability K/A	206000 PWG 2.1.23 High Pressure Coolant Injection System	Importance:	RO / SRO 3.9 / 4.0
(Description of K&A, from catalog) Ability to perform specific system and integrated plant procedures during different modes of plant operations.			

**REQUIRED MATERIALS:**

SE-10 Attachment 9 Figure 1 Actual Rx Level as a function of Rx press and Indicated level.

Notes and Comments

Prepared By:  
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PBAPS NRC Exam Author

QUESTION ID: 083

83. During a plant transient RCIC is running in CST to CST for pressure control.

If CST level lowers to 5 feet, the RCIC CST Suction Valve will \_\_\_(1)\_\_\_ and RCIC Full Flow Test will \_\_\_(2)\_\_\_.

- |    |             |             |
|----|-------------|-------------|
| A. | (1)<br>OPEN | (2)<br>OPEN |
| B. | OPEN        | CLOSE       |
| C. | CLOSE       | CLOSE       |
| D. | CLOSE       | OPEN        |

### NRC Question Data Sheet

Answer Key		
Question ID# 083 RO Only		
Choice	Basis or Justification	
Correct:	C	RCIC CST Suction MO-18 auto closes after the torus suctions open and RCIC full flow test closes on interlock.
Distractors:	A	Both valve close on low CST level.
	B	Both valve close on low CST level.
	D	Both valve close on low CST level.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	SO-13.1.B		
Learning Objective:	PLOT-5013.04g		
Knowledge/Ability K/A	217000K1.01	Importance:	RO / SRO 3.5 / 3.5
(Description of K&A, from catalog) Knowledge of the physical connections and/or cause-effect relationships between RCIC and the following: Condensate Storage and Transfer System			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Developer

QUESTION ID: 084

84. During a LOCA, the "Blowdown Timers Initiated" annunciator is received.

Which of the following actions is directed in accordance with RRC 1G.1-3, Automatic Depressurization System Inhibit to prevent the blowdown?

- A. Depressing either ADS Logic Reset "Timer" pushbuttons.
- B. Depressing both ADS Logic Reset "Timer" pushbuttons.
- C. Rotating either ADS Inhibit keylock switches to the "INHIBIT" position.
- D. Rotating both ADS Inhibit keylock switches to the "INHIBIT" position.

### NRC Question Data Sheet

Answer Key		
Question ID# 084 RO Only		
Choice	Basis or Justification	
Correct:	D	Correct per the listed procedure.
Distractors:	A	This is not correct and would not be effective.
	B	This would be effective until the timer timed out again, but it is not directed by the procedure.
	C	Only one inhibit switch in inhibit will not prevent a blowdown and only one switch is not correct per the procedure.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.0	3	N/A

Source Documentation	
Source:	<input type="checkbox"/> New Exam Item <span style="margin-left: 200px;"><input type="checkbox"/> Previous NRC Exam</span> <input checked="" type="checkbox"/> Modified Bank Item #156 LOR <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank
Reference(s):	RRC 1G1.3, Automatic Depressurization System Inhibit
Learning Objective:	PLOT5001G 4a
Knowledge/Ability K/A	Generic 2.4.49 <span style="float: right;">Importance: RO / SRO 4.0 / 4.0</span>
(Description of K&A, from catalog) Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 085

85. A plant shutdown is in progress per GP-3. Plant conditions are as follows:

- Reactor power is 20%.
- Primary Containment de-inerting is in progress per SO-7B.4.A-2, Containment Atmosphere De-Inerting and Purging via SBT System.
- During the shutdown with de-inerting in-progress, a LOCA occurs and primary containment pressure peaks at 40 psig.
- All appropriate PCIS occurred EXCEPT that the AO-2506, Inboard and AO-2507, Outboard 18" Vent valves failed to close.

Based on the above conditions, this vent path will:

- A. rupture and cause increased Vent Stack rad levels.
- B. remain intact and cause increased Main Stack rad levels.
- C. rupture and cause increased Reactor Building rad levels.
- D. remain intact and cause increased Radwaste Building rad levels.



**QUESTION ID: 086**

86. The following conditions exist:

- Following a Safety Relief Valve lift (RV-71C), 'C' SRV Tailpipe Vacuum Relief Valve (VRV-8096C) is stuck open and will not reseal.
- A rapid depressurization is required in accordance with T-112 "Emergency Blowdown".

Based on the above conditions, select the statement that (1) predicts the adverse effect of opening the 'C' SRV under these conditions AND (2) identifies a course of action to perform the Emergency Blowdown.

- A. (1) overpressurization and SRV valve damage could occur.  
(2) Open all five ADS safety relief valves.
- B. (1) waterhammer and tailpipe sparger damage could occur.  
(2) Open all five ADS safety relief valves.
- C. (1) Torus pressure would rapidly rise above drywell pressure.  
(2) Open the four ADS valves and one NON-ADS valve, for a total of five open SRVs.
- D. (1) Drywell pressure would rapidly rise above torus pressure.  
(2) Open the four ADS valves and one NON-ADS valve, for a total of five open SRVs.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 086 RO Only		
Choice	Basis or Justification	
Correct:	D	Vacuum breakers located in the drywell. Since the 'C' ADS SRV is not available, the CRS will direct 4 ADS valve and then an additional non-ADS SRV for a total of 5 SRVs.
Distractors:	A	No SRV damage with open vacuum breaker.
	B	No waterhammer since that is the purpose of the vacuum breaker.
	C	Torus pressure will not rise, open a Non-ADS valve for 5 SRVs open.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	N/A

<b>Source Documentation</b>		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-112	
Learning Objective:	PLOT2112.05	
Knowledge/Ability K/A	239002 A2.01 Relief/Safety Valves	Importance: RO / SRO 3.0 / 3.3
(Description of K&A, from catalog) 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: <b>Stuck open vacuum breakers</b>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Chris Michaels (717) 456-3559  
 PBAPS NRC Exam Author

**QUESTION ID: 087**

87. Unit 3 is performing a startup. Preparations are being made to place Feedwater in Long Path Recirc. The MO-3-02-29A/B, Feed Water Stops, are closed.

In this mode of operation, which of the following is function of the Reactor Feedwater System?

- A. Provide feedwater level control for RPV.
- B. Provide a flush path for feedwater heaters.
- C. Provide a feedwater return path for RWCU.
- D. Provide a feedwater injection path for HPCI/RCIC.

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 087 RO Only</b>		
Choice	Basis or Justification	
Correct:	B	Correct since the MO-29A/B are closed.
Distractors:	A	Would be correct if the MO-29A/B were open.
	C	Would be correct if the MO-29A/B were open.
	D	Would be correct if the MO-29A/B were open.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.5	3	N/A

<b>Source Documentation</b>			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank		<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank
Reference(s):	GP-2		
Learning Objective:	PLOT 5006.7		
Knowledge/Ability K/A	259001 2.1.27 System Generic	Importance: RO / SRO 2.8 / 2.9	
(Description of K&A, from catalog) Knowledge of system purpose and or function. Rector Feedwater System			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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PBAPS NRC Exam Developer

**QUESTION ID: 088**

88. Unit 2 is operating at power when an unisolable reactor steam leak occurs in the Reactor Building:

- Group III isolation occurred on high radiation.
- All systems operated correctly EXCEPT that BOTH Standby Gas Treatment Filter Train Inlet dampers did NOT open.
- "EMER GAS FILTER VALVE FAILURE" is in alarm (217 K-2).

Based on the above conditions, which one of the following is correct regarding the impact on the offsite release?

The failure results in:

- A. an unmonitored, filtered ground-level release from the Rx Building.
- B. an unmonitored, unfiltered ground-level release from the Rx Building.
- C. a monitored, unfiltered release from Unit 2 Rx Building Vent Stack.
- D. a monitored, unfiltered release from the Station Main Offgas Stack.

### NRC Question Data Sheet

Answer Key		
Question ID# 088 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	RB Ventilation isolated, SBGT has no flow, release is from reactor building leakage which is unmonitored release at ground-level.
Distractors:	A	Release is NOT filtered.
	C	RB Ventilation is isolated from the Vent Stack on the PCIS Group III.
	D	Without SGTS, release is NOT from the main stack and is not from any monitored release point.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 08/01#333 <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-8 Group III ON-104 Section I bases	
Learning Objective:	PLOT5009A.03b	
Knowledge/Ability K/A	261000 A4.01 Standby Gas Treatment	Importance: RO / SRO 3.1 / 3.1
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room: Off-site release levels: plant specific		

REQUIRED MATERIALS:

Notes and Comments  
slightly modified

Prepared By:  
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PBAPS NRC Exam Author

QUESTION ID: 089

89. Unit 3 is operating at 100% power when a RWCU Filter Demin failure cause a resin intrusion into the RPV.

Regarding reactor water quality, pH will \_\_\_\_ (1) \_\_\_\_ and conductivity will \_\_\_\_ (2) \_\_\_\_.

- |    |             |             |
|----|-------------|-------------|
| A. | (1)<br>RISE | (2)<br>RISE |
| B. | LOWER       | RISE        |
| C. | RISE        | LOWER       |
| D. | LOWER       | LOWER       |



**QUESTION ID: 090**

90. Following a load drop on Unit 2, a rod pattern adjustment is being performed with the following conditions:

- APRMs initially read 65%.
- “APRM HIGH” alarm is received (211 B-2).
- “APRM HI HI/INOP” alarm is received (211 A-3).
- “Rod Withdrawal Block” alarm is received (211 D-3).
- URO observes APRM#2 is failed upscale.

Based on the above conditions, which one of the following is correct response of the Rod Block Monitor (RBM) to the failure when the next control rod is selected?

- A. RBM Channel ‘A’ trips INOP and inserts a RBM rod block.
- B. RBM Channel ‘A’ adjusts the to the High Trip Setpoint.
- C. RBM Channel ‘B’ trips INOP and inserts a RBM rod block.
- D. RBM Channel ‘B’ adjusts the to the High Trip Setpoint.

### NRC Question Data Sheet

Answer Key		
Question ID# 090 RO Only		
Choice	Basis or Justification	
Correct:	D	RBM uses the failed APRM signal and adjusts the RBM accordingly. The #1 APRM (alt #3) supplies the 'A' RBM and the #2 APRM (alt#4) supplies the 'B' RBM channel.
Distractors:	A	Although a rod block is inserted from the APRM failure, the RBM will not provide a rod block as a result of this failure. The RBM channel does not trip inop.
	B	The #1 APRM (alt #3) supplies the 'A' RBM and the #2 APRM (alt#4) supplies the 'B' RBM channel.
	C	Although a rod block is inserted from the APRM failure, the RBM will not provide a rod block as a result of this failure. The RBM channel does not trip inop.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	ARC 211 C-3, Rod Block Monitor High /Inop ARC 211 C-4, RBM Downscale /Trouble		
Learning Objective:	PLOT5060.06c		
Knowledge/Ability K/A	215002 PWG 2.4.31 Rod Block Monitor	Importance:	RO / SRO 3.3 / 3.4
(Description of K&A, from catalog) Knowledge of annunciators, alarms and indications and use of response instructions.			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
Rich Edens/ Chris Michaels (717) 456-3559  
PBAPS NRC Exam Author

**QUESTION ID: 091**

91. Following a steam leak in the drywell, the 'A' Loop of RHR was placed Torus Cooling in accordance with RRC 10.1 "RHR System Torus Cooling during a Plant Event" with the following conditions:

- Drywell pressure was 3 psig rising.
- RPV level was -30 inches lowering.
- RPV pressure was 700 psig lowering.

Several minutes after Torus Cooling was initiated, the leak worsened with the following current conditions:

- Drywell pressure is 20 psig rising.
- RPV level is -110 inches lowering.
- RPV pressure is 400 psig lowering.

Based on the above conditions, which one of the following is correct regarding the Torus Cooling and LPCI valve lineups?

- A. Torus Cooling/Spray valves will automatically close and LPCI will valves will automatically align for injection.
- B. Torus Cooling/Spray valves will automatically close and the PRO must manually align RHR for LPCI injection.
- C. The PRO must manually close the Torus Cooling/Spray valves and LPCI will automatically align for injection.
- D. The PRO must manually close the Torus Cooling/Spray spray lineup and then manually align RHR for LPCI injection.

### NRC Question Data Sheet

Answer Key		
Question ID# 091 RO Only		
Choice	Basis or Justification	
Correct:	A	Correct, both Torus Cooling valves and LPCI will align as designed since the S18 Keylock switch was not required.
Distractors:	B	RHR will align for injection with the LOCA signal.
	C	Torus Cooling valves will close. This would be true if the S18 key was used to open Torus Cooling/Spray Valves.
	D	Torus valves will auto close and LPCI will auto align with the LOCA signal.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	T-204 Section 4.1		
Learning Objective:	PLOT5010.04a		
Knowledge/Ability K/A	219000 A4.02 RHR/LPCI: Torus Suppression Pool Cooling Mode.	Importance:	RO / SRO 3.7 / 3.5
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room: Valve Lineup			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

**QUESTION ID: 092**

92. With the plant operating, the 'A' RHR pump was in Torus Cooling in support of RCIC testing when the following occurred:

- 'A' RHR pump tripped.
- The RO closed the RHR Torus Cooling valves in response to the pump trip.
- "A LPCI LINE VENT ACCUMULATOR LOW LEVEL" alarm (228 B-4).

Based on the above conditions, which one of the following is correct regarding operation of the 'A' RHR Loop?

- A. Open stayfull valves and allow at least 10 minutes prior to resuming Torus cooling on the loop.
- B. Open stayfull valves and verify the alarm clears, notify the CRS of the status of the 'A' stayfull.
- C. Stayfull is not operating properly, a manual fill and vent is required prior to operating the 'A' loop.
- D. Stayfull is not operating properly, notify the Engineering Duty Manager to investigate 'A' stayfull.

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 092 RO Only</b>		
Choice	Basis or Justification	
Correct:	B	Correct, stayfull is isolated during torus cooling and the tripped pump would result in a loss of stayfull. Alarm should clear when stayfull valves are reopened.
Distractors:	A	No time specified in RHR procedures. Assurance that loop is filled is not assured with time.
	C	Manual fill and vent is not required. There is no indication of a system breach.
	D	Stayfull is normally isolated in this mode. Stayfull is realigned upon securing the torus cooling lineup.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

<b>Source Documentation</b>		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC 228 B-4 SO10.1.D-2(3)	
Learning Objective:	PLOT5010.05f	
Knowledge/Ability K/A	219000 K5.01 RHR/LPCI: Torus Suppression Pool Cooling Mode	Importance: RO / SRO 2.6 / 2.7
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI: Torus/Suppression Pool Cooling Mode: System Venting		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

**QUESTION ID: 093**

93. Torus sprays are being lined up on Unit 2 per T-203-2, Initiation of Torus Sprays Using RHR. Conditions are:

- MO-2-10-034A, Torus Cooling Full Flow Test Valve, is throttled OPEN.
- Flow on FI-2-10-136A reads 8,000gpm.
- MO-2-10-038A, Torus Spray Valve, is CLOSED.

The next action is to throttle OPEN MO-2-10-038A to obtain 9,000gpm. As MO-2-10-038A is throttled OPEN, actual flow through the MO-2-034A, Torus Cooling Full Flow Test valve, will \_\_\_\_ (1) \_\_\_\_ and total flow, as indicated on FI-2-10-136A, will \_\_\_\_ (2) \_\_\_\_.

- |    |      |      |
|----|------|------|
|    | (1)  | (2)  |
| A. | RISE | RISE |
| B. | DROP | DROP |
| C. | RISE | DROP |
| D. | DROP | RISE |

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 093 RO Only		
Choice	Basis or Justification	
Correct:	D	As the 38A is throttled open, d/p across the 34A will drop. As the d/p drops, flow will drop. Total flow will rise, which is displayed on FI-136A.
Distractors:	A	Would be correct if the torus cooling valve is opened.
	B	Would be correct if torus cooling valve is being closed.
	C	Would be correct if torus sprays were being removed from service.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	N/A

<b>Source Documentation</b>		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-203-2	
Learning Objective:	PSEG-0114L.05, Torus and Containment Spray Operations	
Knowledge/Ability K/A	230000 A1.04 RHR/LPCI:Torus/Suppression Pool Spray Mode	Importance: RO / SRO 3.2* / 3.3
(Description of K&A, from catalog) Ability to predict and/or monitor changes in parameters associated with operating the Torus Spray mode systems controls including: <b>System Flow</b>		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Richard Edens (717) 456-3578  
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QUESTION ID: 094

94. A plant startup is in progress per GP-2. Plant conditions are as follows:

- Reactor power is 12%.
- Rods are being withdrawn to establish BPVs for turbine generator startup and synchronization.

An EHC failure results in all nine (9) BPVs fully open. Which of the following statements are true?

- A. A PCIS Group I isolation will occur due to high Main Steam Line flow.
- B. A PCIS Group I isolation will occur on low Main Steam Line pressure.
- C. The reactor will scram due to low reactor water level.
- D. The reactor will scram due to high pressure/power.

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 094 RO Only</b>		
Choice	Basis or Justification	
Correct:	B	Nine BPVs will pass more that 12% power, pressure will drop to below the Gp I setpoint.
Distractors:	A	BPVs will not pass enough steam to activate the MSL hi flow signal.
	C	Reactor level will swell high initially, not low.
	D	Pressure and power will drop, not rise.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

<b>Source Documentation</b>	
Source:	<input type="checkbox"/> New Exam Item <span style="margin-left: 200px;"><input type="checkbox"/> Previous NRC Exam</span> <input checked="" type="checkbox"/> Modified Bank Item ILT#0035 <span style="margin-left: 200px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank
Reference(s):	GP-2
Learning Objective:	PLOT5001A.04a
Knowledge/Ability K/A	239001 K4.01 <span style="float: right;">Importance: RO / SRO 3.8 / 3.8</span>
(Description of K&A, from catalog) Knowledge of Main and Reheat Steam system design feature(s) and/or interlocks which provide for the following: Automatic isolation of steam lines.	

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Developer

**QUESTION ID: 095**

95. Following a loss of Reactor Building ventilation, rising temperatures have resulted in the following Unit 2 conditions:
- “HIGH AREA TEMP” is in alarm (210 J-3).
  - “Steam Tunnel” TRS-2-13-139 Pts. 1 and 16 are in alarm.
  - “STEAM LEAK DETECTION SYSTEM HIGH TEMP” (228 E-3).
  - T-103 “Secondary Containment Control” has been entered.
  - The problem has been corrected and Reactor Building ventilation is ready for start.

Based on the above conditions, (1) predict the potential impact of the high Reactor Building temperature during ventilation restoration and (2) select the appropriate procedure to address the condition?

- A. (1) Group I MSIV isolation.  
(2) Perform AO 40B.1-2, “Raising MSL Tunnel PCIS Group I High Temp Trip Setpoints” to avoid the isolation.
- B. (1) Group I MSIV isolation.  
(2) Perform T-222-2, “Secondary Containment Ventilation Bypass” in order to restore ventilation.
- C. (1) Group IV HPCI isolation.  
(2) Perform T-252-2, “RPV Alternate Depressurization” to avoid the HPCI high temp isolation.
- D. (1) Group IV HPCI isolation.  
(2) Perform SO 23.7.C-2 “HPCI System Recovery from System Isolation” to restore HPCI due to the isolation.

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 095 RO Only</b>		
Choice	Basis or Justification	
Correct:	A	Correct, prior to starting ventilation, the AO procedure is performed in this condition to avoid the isolation.
Distractors:	B	T-222 is not required since a Group III isolation signal is not present. RB vent may be restarted in accordance with the SO procedure.
	C	Although HPCI pipe routing temperatures do rise, they are not directly impacted by the ventilation restoration since HPCI steam leak detection high temp is sensed in different areas (North Isolation Valve Room, Torus Room and Equipment Room).
	D	same as C.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	N/A

<b>Source Documentation</b>			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	SO 40B.1.A-2 Section 4.0		
Learning Objective:	PLOT5040B.03a		
Knowledge/Ability K/A	290001 A2.05 Secondary Containment	Importance:	RO / SRO 3.1 / 3.3
(Description of K&A, from catalog) Ability to (a) predict the impacts of the following on Secondary Containment; and (b) based on the those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: High Area temperature			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Chris Michaels (717) 456-3559  
 PBAPS NRC Exam Author

**QUESTION ID: 096**

96. The following plant conditions exist following a LOCA:

- Drywell pressure is 42 psig.
- DWCW pressure on PI-2 (3) 0262 is 40 psig.
- RBCCW pressure on PI-2 (3) 350 is 65 psig.
- RBCCW is supplying Drywell cooling.

Based on the above listed conditions, which of the below listed manual isolations actions are required per the attached GP-8.B, PCIS Isolation – Groups II and III?

- A. No Actions are required.
- B. Close the RBCCW Isolation valves only.
- C. Close the 'A' and 'B' Loop Chilled Water Header inlet and outlet valves only.
- D. Close both the 'A' and 'B' Loop Chilled Water Header inlet and outlet valves and the RBCCW Isolation valves.

NOTES

1. DWCW Header Pressure can be obtained from PI-2(3)0262, located near the DWCW Expansion Tank on Turbine Building 165'.
2. RBCCW Pressure can be obtained from PI-2(3)350 on the 20(30)C012 panel in the Main Control Room.
3. RBCCW pressure needs to be corrected to account for the head pressure induced by piping elevation.

3.5 Use the position of MO-2(3)0245 AND MO-2(3)0246, "Drywell Chilled Water Header Transfer A(B)", Drywell Pressure, DWCW Header Pressure, Corrected RBCCW Pressure (as calculated in step 3.5.1), and the following Table to determine the required actions. **CM-2**

3.5.1 Determine the Corrected RBCCW Pressure (CRP) using the following calculation:

$$\text{CRP} = \text{RBCCW Pressure (from PI-2(3)350)} - 25 \text{ psig}$$

$$\frac{\text{CRP}}{\text{psig}} = \frac{\text{PI-2(3)350}}{\text{psig}} - 25 \text{ psig}$$

MO-2(3)0245 AND MO-2(3)0246 Aligned in "CHILLED WATER" Position

<u>Condition</u>	<u>Actions</u>
A. Drywell Pressure is greater than DWCW Pressure	<ol style="list-style-type: none"> <li>1. Trip <b>BOTH</b> Recirc Pumps</li> <li>2. Close MO-2(3)200A <u>AND</u> MO-2(3)200B</li> <li>3. Close MO-2(3)201A <u>AND</u> MO-2(3)201B</li> <li>4. Trip the Drywell Chillers</li> <li>5. Place the DWCW Pump control switches in "PULL TO LOCK"</li> <li>6. Trip the Drywell Cooler Fans</li> </ol>
B. Drywell Pressure is greater than Corrected RBCCW Pressure	<ol style="list-style-type: none"> <li>1. Trip <b>BOTH</b> Recirc Pumps</li> <li>2. Close MO-2(3)373 <u>AND</u> MO-2(3)374</li> </ol>

MO-2(3)0245 AND MO-2(3)0246 Aligned in "RX BLDG CLG WATER" Position

<u>Condition</u>	<u>Actions</u>
A. Drywell Pressure is greater than DWCW Pressure	No actions required
B. Drywell Pressure is greater than Corrected RBCCW Pressure	<ol style="list-style-type: none"><li>1. Trip <b>BOTH</b> Recirc Pumps</li><li>2. Close MO-2(3)200A <u>AND</u> MO-2(3)200B</li><li>3. Close MO-2(3)201A <u>AND</u> MO-2(3)201B</li><li>4. Close MO-2(3)373 <u>AND</u> MO-2(3)374</li><li>5. Trip the Drywell Cooler Fans</li></ol>

***GP-8.B Subsequent Steps below  
INTENTIONALLY HIDDEN for NRC Exam Use.***

### NRC Question Data Sheet

Answer Key		
Question ID# 096 RO Only		
Choice	Basis or Justification	
Correct:	D	CRP is 40 psig (65-25). Since DW cooling is aligned to RBCCW and DW pressure is greater than RBCCW pressure manual isolation of all three headers is required.
Distracters:	A	This distracter would be correct if the student does not use the corrected RBCCW value for pressure per GP-8.B.
	B	This distracter would be correct if the student assumes DWCW is supplying the drywell, which is the normal supply, and does corrects RBCCW pressure per GP-8.B.
	C	This distracter would be correct if the student assumes DWCW is supplying the drywell, which is the normal supply, and does not correct RBCCW pressure per GP-8.B.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	GP-8.B		
Learning Objective:	PLOT 5035.1.j		
Knowledge/Ability K/A	400000 A4.01 CCWS	Importance:	RO / SRO 3.1 / 3.0
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room: CCW indications and control			

**REQUIRED MATERIALS:**

GP-8.B, R15 applicable modified pages 3 and 4 only.

Notes and Comments

Prepared By:  
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QUESTION ID: 097

97. Unit 3 is in a refueling outage with the following conditions:

- Vessel head is removed.
- Fuel Pool to cavity gates are removed.
- A full core off-load has been performed.
- HPSW "A" is supplying the RHR "A" HX at 5100gpm.
- RHR is lined up for supplemental fuel pool cooling with the "A" RHR pump running at 5000gpm.

Based on the above conditions, which one of the following is a correct method to raise Fuel Pool cooling?

Raise cooling by throttling open the:

- A. CV-2667, RHR Drag valve.
- B. MO-89A HPSW HX Outlet valve.
- C. HV-180, Spoolpiece Inlet Isolation valve.
- D. HV-34457A(B) Fuel Pool Cooling Diffuser valves.

**NRC Question Data Sheet**

<b>Answer Key</b>		
Question ID# 097 RO Only		
Choice		Basis or Justification
Correct:	A	Correct per AO 10.3 procedure.
Distracters:	B	HPSW MO-89A is full open due to orificed design and is not permitted to be throttled. Flow is at maximum.
	C	Valve full open in this lineup.
	D	Diffuser valves are only throttled for in-vessel component flow considerations and does not used to change heat removal capacity.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.0	3	N/A

<b>Source Documentation</b>			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 200px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 200px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	AO 10.3-3, RHR in FPC Assist		
Learning Objective:	PLOT-5010.1r		
Knowledge/Ability K/A	223000 A4.06 Fuel Pool Cooling and Cleanup	Importance:	RO / SRO 2.5 / 2.6
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room: System Temperature			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
Chris Michaels (717) 456-3559  
PBAPS NRC Exam Author

QUESTION ID: 098

98. Prior to a reactor startup, a check-off list (COL) is being performed on the Unit 3 'A' Residual Heat Removal (RHR) Loop. During performance, the Equipment Operator discovers that a step in the COL has an incorrect component identification designation.

Based on the above conditions, which one of the following actions is correct?

The Equipment Operator SHALL:

- A. make a note of the discrepancy on the specific COL step, initial and date the step, CONTINUE the COL to completion.
- B. document the problem with that COL step and only with Shift Management concurrence, CONTINUE the COL to completion.
- C. STOP the COL and NOT continue UNTIL a Concurrent Verification (CV) is performed on the COL step and the component.
- D. STOP the COL and NOT continue UNTIL a Temporary Change (TC) is prepared to correct the designator in the COL step.



**QUESTION ID: 099**

99. Following a 100 day run at rated power, a reactor scram occurred 10/03/02 at 1830 hours. Plant Management has directed a fast turnaround startup scheduled for today.

Reactor Engineering has calculated an estimated critical position based on the following assumptions:

- RPV coolant temperature at 420°F.
- Reactor Recirc pumps at 30% speed.
- Startup scheduled for 10/04/02 at 1030 hours.

Based on the above conditions, which one of the actual startup conditions would result in a criticality EARLIER (a lower rod sequence pull sheet step) than calculated?

- A. Startup time occurs six hours sooner at 0430 hours.
- B. Startup time occurs six hours later at 1630 hours.
- C. Reactor coolant temperature rises to 470° F.
- D. Recirc Pump speed is lowered to minimum.

### NRC Question Data Sheet

Answer Key		
Question ID# 099 RO Only		
Choice	Basis or Justification	
Correct:	B	Correct, six hour delay would result in Xenon decay and positive reactivity.
Distracters:	A	This would in Xenon concentration at its peak following the shutdown, adding maximum negative reactivity from Xenon.
	C	Heatup of reactor coolant (moderator) results in negative reactivity added.
	D	Lower recirc pump speed result in lower total core flow and a minor effect of negative reactivity.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	N/A

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	GP-2 Section 6.1 Caution		
Learning Objective:	PLOT1530.03		
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">PWG 2.2.34 Equipment Control</td> <td style="width: 40%; text-align: right;">Importance: RO / SRO 2.8 / 3.2</td> </tr> </table>	PWG 2.2.34 Equipment Control	Importance: RO / SRO 2.8 / 3.2
PWG 2.2.34 Equipment Control	Importance: RO / SRO 2.8 / 3.2		
(Description of K&A, from catalog) Knowledge of the process for determining the internal and external effects on core reactivity.			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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QUESTION ID: 100

100. Given the following conditions:

- A scheduled Unit 2 surveillance is required on a system in a radiation area.
- All radiological precautions have been taken.
- An ALARA briefing is in progress.

Based on the above conditions, which one of the following will result this activity being performed "As Low As Reasonably Achievable" (ALARA)?

- A. One individual installing shielding in a 90mR/hr area for 30 minutes then performing the surveillance in a 9 mR/hr area for 60 minutes.
- B. One individual performing the surveillance in a 90mR/hr area for 60 minutes.
- C. Two individuals installing shielding in a 90mR/hr area for 15 minutes then performing the surveillance in a 9 mR/hr area for 35 minutes.
- D. Two individuals performing the surveillance in a 90 mR area for 35 minutes.



**QUESTION ID: 101**

76. Unit 2 was raising power following a load drop. The plant was initially at 85% power with normal pressure when the following transient conditions were observed:

- Reactor power rose to 97% power and stabilized at 87%.
- RPV pressure spiked to 1065 psig and stabilized at 1045 psig.

Diagnose the above conditions and select the statement that (1) describes the malfunction and (2) identifies the correct transient procedure?

- A. (1) A pressure regulator in EHC failed and swapped to the standby regulator.  
(2) Implement OT-102 "High Reactor Pressure".
- B. (1) A feedwater heater extraction steam valve isolated on a high heater level.  
(2) Implement OT-104 "Positive Reactivity Insertion".
- C. (1) A Main Steam Isolation Valve disk has separated from its stem and closed.  
(2) Implement OT-102 "High Reactor Pressure".
- D. (1) A Turbine Control Valve stopped opening and stuck at 65% open position.  
(2) Implement OT-104 "Positive Reactivity Insertion".

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 101 SRO Only</b>		
	<b>Choice</b>	<b>Basis or Justification</b>
<b>Correct:</b>	<b>C</b>	Correct, MSIV valve disk closing causes pressure/power to rise and results in new higher stable RPV pressure due to flow restriction. OT-102 entered since pressure caused the power transient.
<b>Distractors:</b>	<b>A</b>	EHC swapping to backup regulator would raise throttle pressure 3 psig with only a minor effect on reactor power.
	<b>B</b>	Although FW Heater would cause power to rise, pressure would be controlled by EHC. OT-104 would be entered but exited when operators recognize power transient caused by pressure.
	<b>D</b>	TCV stopped and stuck would result in other TCVs opening further to maintain pressure. RPV pressure would not be elevated. Further, normal 100% TCV valve positions are 65% in full-arc admission. OT-104 would be entered but exited when operators recognize power transient caused by pressure.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	10CFR55.43.b.5

<b>Source Documentation</b>			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	OT-102 High Pressure and bases		
Learning Objective:	PSEG0302.05		
Knowledge/Ability K/A	295007 AA2.02 High Reactor Pressure	Importance:	RO / SRO 4.1 / 4.1
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to High Reactor Pressure: Reactor power			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

**QUESTION ID: 102**

77. While operating at 100% power with a rising Drywell Pressure at Unit 2:

- Drywell was being vented using SO 7B.3.A-2 "Containment Atmosphere Pressure Control and Nitrogen Makeup".
- The Reactor was scrammed at 1.1 psig drywell pressure.
- Drywell pressure is now 2.5 psig rising.

Based on the above conditions, which one of the following is correct regarding Primary Containment Radiation Gas Sampler (PCRGS) monitoring of noble gas concentrations in the drywell and the applicable procedure?

PCRGS \_\_\_(1)\_\_\_ automatically isolate and noble gas monitoring of the drywell \_\_\_(2)\_\_\_.

- |    |             |   |
|----|-------------|---|
| A. | (1)<br>WILL | (2)<br>is NOT available until the isolation is RESET using GP-8B "PCIS Isolation Group II and III".                 |
| B. | WILL        | is NOT available until the isolation is BYPASSED using GP-8E "Primary Containment Isolation Bypass".                |
| C. | WILL NOT    | and must be MANUALLY isolated due to drywell venting using GP-8B "PCIS Isolation Group II and III".                 |
| D. | WILL NOT    | will CONTINUE to monitor using SO 63G.1.A-2 "Drywell Radiation Leak Detection Panel Startup for Normal Operations". |

### NRC Question Data Sheet

Answer Key		
Question ID# 102 SRO Only		
Choice	Basis or Justification	
Correct:	A	Correct Rad Gas Sampler isolates on Group III with CAC valves.
Distractors:	B	Sampler is isolated to both the drywell and torus sample points.
	C	Sampler will not align to the CAD sample points.
	D	Correct Rad Gas Sampler isolates on Group III with CAC valves.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.0	3	10CFR55.43.b.5

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input checked="" type="checkbox"/> ILT Exam Bank #5721		
Reference(s):	SO 7B.3.A-2 GP-8B		
Learning Objective:	PLOT5007B.04d		
Knowledge/Ability K/A	295010 AA2.03 High Drywell Pressure	Importance:	RO / SRO 3.3 / 3.6
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to High Drywell Pressure: Drywell radiation levels			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

**QUESTION ID: 103**

78. Unit 2 is in Mode 3 and preparations are in progress to start the 'B' Reactor Recirculation Pump (RRP) in accordance with SO 2A.1.B-2 "Starting the Second Recirculation Pump".

The following conditions exist:

- RRP 'A' running at minimum speed.
- 'A' Recirc Loop temperature is 295°F.
- 'B' Recirc Loop temperature is 255°F.
- Bottom Head Drain temp is 158°F.
- RPV Steam Dome pressure is 90 psig .

Based on the above conditions, which one of the following is correct regarding the start of the 'B' RRP?

'B' RRP start:

- A. IS permitted since all differential temperatures are within allowable values.
- B. IS NOT permitted since thermal stresses could be exceeded on 'A' Loop components.
- C. IS NOT permitted since thermal stresses could be exceeded on 'B' Loop components.
- D. IS NOT permitted since thermal stresses could be exceeded on bottom head components.

## NRC Question Data Sheet

Answer Key		
Question ID# 103 SRO Only		
Choice	Basis or Justification	
Correct:	D	Correct, Using steam tables, steam dome temp is 308°F and is NOT within bottom drain diff temp limit ( $\leq 145^\circ\text{F}$ ).
Distractors:	A	Bottom head to steam dome differential temp ( $\leq 145^\circ\text{F}$ ) is exceeded.
	B	$\leq 50^\circ\text{F}$ differential loop to loop limit is sat.
	C	$\leq 50^\circ\text{F}$ differential loop to loop limit is sat.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	10CFR55.43.b.2

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	Tech Spec 3.4.9 and bases SO 2A.1.B-2(3)		
Learning Objective:	PLOT5002.08		
Knowledge/Ability K/A	PWG 2.1.13	Importance:	RO / SRO 2.0 / 2.9
(Description of K&A, from catalog) Ability to explain and apply system limits and precautions.			

**REQUIRED MATERIALS:**

Tech Spec 3.4.9  
Steam Tables

Notes and Comments

Prepared By:

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**QUESTION ID: 104**

79. During rated power operation, ST-O-023-301-2 HPCI Pump, Valve, Flow and Unit Cooler Functional and In-service Test is in progress with the following Unit 2 conditions:

- HPCI is running in accordance with the ST.
- Torus Cooling is in service with the '2D' RHR pump.
- SPOTMOS Torus temperature has risen to 106°F.
- "Torus Water Level Out of Normal Range" alarm is received (226 A-4).
- Torus level has risen to 14.8 feet.

Based on the above conditions, which one of the following is correct in accordance with Technical Specifications?

- A. Secure HPCI immediately and operate torus cooling to reduce torus temp to  $\leq 95^{\circ}\text{F}$  within 24 hours.
- B. Continue HPCI operation and operate torus cooling to reduce torus temp to  $\leq 105^{\circ}\text{F}$  within 24 hours.
- C. Secure HPCI immediately and restore Torus water level to the normal band within 2 hours.
- D. Continue HPCI operation and restore Torus water level to the normal band within 24 hours.

## NRC Question Data Sheet

Answer Key		
Question ID# 104 SRO Only		
Choice	Basis or Justification	
Correct:	A	Correct per Tech Spec 3.6.2.1 A.2 and C.1.
Distractors:	B	True if testing not in progress and HPCI operation not permitted.
	C	Torus level not outside of LCO limits.
	D	Torus level not outside of LCO limits.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	10CFR55.43.b.1

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	Tech Spec 3.6.2.1, 3.6.2.2 and bases ST-O-023-301-2		
Learning Objective:	PLOT5007.08		
Knowledge/Ability K/A	295013 PWG 2.2.22 High Suppression Pool Temperature	Importance: RO / SRO 3.4 / 4.1	
(Description of K&A, from catalog) Knowledge of limiting conditions for operations and safety limits			

**REQUIRED MATERIALS:**

Tech Spec Section 3.6

Notes and Comments

Prepared By:  
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PBAPS NRC Exam Author

**QUESTION ID: 105**

80. Unit 2 was operating at rated power when the following transient occurred:

- An Electrohydraulic Control (EHC) system failure caused Main Turbine Stop valves to close.
- Main Turbine Bypass valves failed to open.
- Reactor steam dome pressure peaked at 1250 psig at which time the reactor scrammed on High Flux.

Based on the above conditions, complete the following statement that correctly assesses the transient as it relates to Technical Specifications?

Reactor steam dome pressure exceeded the \_\_\_\_ (1) \_\_\_\_ and the RPS trip system malfunction was the result of \_\_\_\_ (2) \_\_\_\_ failed scram function(s).

- A. (1) LCO limit only  
(2) one
- B. (1) LCO limit only  
(2) multiple
- C. (1) LCO and Safety Limit  
(2) one
- D. (1) LCO and Safety Limit  
(2) multiple

## NRC Question Data Sheet

Answer Key		
Question ID# 105 SRO Only		
Choice	Basis or Justification	
Correct:	B	Correct. LCO is $\leq 1053$ psig, SL is 1325. TSV scram and High pressure scram both failed to operate.
Distractors:	A	Multiple scram function failures.
	C	Did not exceed SL, multiple scram function failures.
	D	Did not exceed SL.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	10CFR55.43.b.1

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Modified Bank Item#4792 <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	Tech Spec 2.0 SL and bases Tech Spec 3.4.10 and bases		
Learning Objective:	PLOT5002B.08		
Knowledge/Ability K/A	295025 PWG 2.2.22 High Reactor Pressure	Importance: RO / SRO 3.4 / 4.1	
(Description of K&A, from catalog) Knowledge of limiting conditions for operations and safety limits.			

REQUIRED MATERIALS:

Notes and Comments  
Requires diagnosis and evaluation of parameters.

Prepared By:  
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QUESTION ID: 106

81. The following plant conditions exist during an ATWS:

- Reactor power is 36%.
- Reactor pressure is 850 psig controlled with SRVs.
- Torus level is 15.0 feet rising slowly.
- Torus temperature is 190°F rising slowly.

Based on the above conditions, which of the following is the REQUIRED action?

- A. Lower RPV pressure to between 700 and 850 psig.
- B. Lower RPV pressure to between 500 and 650 psig.
- C. Perform a “Emergency Blowdown” using T-112.
- D. Perform a “Rapid Depressurization” using T-101 RC/P-12.

## NRC Question Data Sheet

Answer Key		
Question ID# 106 SRO Only		
Choice	Basis or Justification	
Correct:	C	T-112 Emergency Blowdown IS required since HCTL is violated.
Distractors:	A	Choice if candidate believes pressure may be lowered to within the next Heat Capacity Temperature Limit Curve.
	B	Choice if candidate does not recognize that HCTL is violated.
	D	Rapid Depress using T-101 RC/P-12 not permitted during an ATWS.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	10CFR55.43.b.5

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	T-102 T/T-8 and bases		
Learning Objective:	PLOT2102.05a		
Knowledge/Ability K/A	295026 EA2.03 Suppression Pool High Water Temperature	Importance: RO / SRO	2.7 / 2.7
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to Suppression Pool High Water Temperature: Reactor pressure			

**REQUIRED MATERIALS:**

T-102 PC T/T leg and HCTL Curve T/T-1

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

**QUESTION ID: 107**

82. While operating at full power, a Loss of Instrument Air has occurred. The following conditions exist:

- Instrument air header pressures are 75 psig lowering.
- No compressors are responding to the low pressure condition.
- The URO reports control rod 22-23 is drifting in at position 46.

Based on the above conditions, which one of the following actions is required to be directed?

Direct the URO to:

- A. insert all GP-9-2 Table 1 Control Rods using ON-119 "Loss of Instrument Air".
- B. place the Reactor Mode Switch to Shutdown using ON-119 "Loss of Instrument Air".
- C. insert rod 22-23 to Full-In '00' using Emergency-In using ON-121 "Drifting Control Rod".
- D. select rod 22-23 and monitor for additional drifting rods using ON-108 "Low CRD Scram Air Header Pressure".

## NRC Question Data Sheet

Answer Key		
Question ID# 107 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Correct per ON-119. Any one rod drift requires an immediate scram with the low air header pressure condition.
Distractors:	A	Scram is required.
	C	distractor since action correct for drifting rod only (provided NOT DUE TO Loss of IA) IAW ON-121.
	D	distractor since action correct for Low Scram Air Header pressure, provided it is NOT DUE TO Loss of IA.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	10CFR55.43.b.5

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	ON-119		
Learning Objective:	PLOT1540.22a		
Knowledge/Ability K/A	295019 PWG 2.4.49 Partial or Complete Loss of Instrument Air	Importance:	RO / SRO 4.0 / 4.0
(Description of K&A, from catalog) PWG: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.			

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 PBAPS NRC Exam Author

**QUESTION ID: 108**

83. While operating at 100% power, the following conditions occur:

- “Excess Flow Check Valve Oper /Trouble” alarm received (228 A-4).
- “Feedwater Field Instrument Trouble” alarm received (201 H-1).
- The Reactor Building EO reports an excess flow check valve actuation.
- The packing leak was from a root valve on the 20C065A Instrument Rack, associated with the 3A Narrow Range Reference Leg.

Based on the above conditions, determine the impact on RPV LEVEL instrumentation and select the MOST LIMITING Action (TSA) required by Tech Specs?

Place affected channels in TRIP within:

- A. 1 hour.
- B. 6 hours.
- C. 12 hours.
- D. 24 hours.

## NRC Question Data Sheet

Answer Key		
Question ID# 108 SRO Only		
Choice	Basis or Justification	
Correct:	B	Correct since NR ref leg affects one RPV level (function) channel in each trip system.
Distractors:	A	Distractor if candidate believes that low level scram or isolation function is not maintained.
	C	Distractor if the candidate picks the wrong Tech Spec function annotated by TSA applicability.
	D	Distractor if the candidate identifies the level function in PCIS only.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	4.0	3	10CFR55.43.b.1

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	ARC 228 A-4 GP-25 Appendix 1 and 5 M-352 Sheet 1		
Learning Objective:	PLOT5002B.03a,b		
Knowledge/Ability K/A	295020 AA2.05 Inadvertent Containment Isolation	Importance:	RO / SRO 3.6 / 3.6
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to Inadvertent Containment Isolation: Reactor water level			

**REQUIRED MATERIALS:**

Requires both Tech Specs 3.3.1.1 RPS and 3.3.6.1 PCIS.  
 Modified M-352 Sheet 1 Nuclear Boiler Instrumentation P&ID

**Notes and Comments**

Based on PBAPS Unit 3 (OE11685) on 8/7/00.

**Prepared By:**

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**QUESTION ID: 109**

84. Following a loss of coolant accident (LOCA), the following Unit 2 containment conditions exist:

- Drywell pressure is 25 psig rising.
- Drywell temperature is 320°F rising.
- DW Chilled Water (DWCW) return pressure is 30 psig steady.
- DW Chilled Water (DWCW) is aligned for drywell cooling.

Based on the above conditions, determine the required action for restoring drywell cooling?

Drywell Cooling:

- A. CAN be restored using RRC 44A.1-2 "Maximize Drywell Cooling" but overcurrent trips of the Drywell Cooler Ventilation fans may occur when started.
- B. CAN be restored using SO 44A.6.A-2 "Placing an Additional Drywell Chiller in Service" but the DWCW relief valves may lift when flow is restored.
- C. CANNOT be restored since GP-8B, "PCIS Group Isolation" required DWCW isolation valves be manually closed due to high drywell pressure.
- D. CANNOT be restored using T-223-2 "Drywell Cooler Fan Bypass" since waterhammer could rupture DWCW piping when flow is restored.

## NRC Question Data Sheet

Answer Key		
Question ID# 109 SRO Only		
Choice	Basis or Justification	
Correct:	D	Correct, starting flow would result in boiling and waterhammer when flow is restored in the UNSAFE region of T-223 Figure 1.
Distractors:	A	Restoration not permitted per T-223 but overcurrent trips possible if Fans started in FAST per Rapid Response Card (RRC) in this condition.
	B	Restoration not permitted and SO 44A.6.A does not address condition however, relief valves are a concern but setpoints are set high enough to prevent inadvertent lifting.
	C	Restoration not permitted and DWCW pressure is higher than drywell pressure, GP-8B not required.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.0	3	10CFR55.43.b.5

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	T-223 Figure 1		
Learning Objective:	PLOT2102.05I		
Knowledge/Ability K/A	295028 PWG 2.1.32 High Drywell Temperature	Importance:	RO / SRO 3.4 / 3.8
(Description of K&A, from catalog) Ability to explain and apply system limits and precautions			

**REQUIRED MATERIALS:**

Steam Tables

**Notes and Comments**

Significantly modified LOR bank question

**Prepared By:**

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PBAPS NRC Exam Author

**QUESTION ID: 110**

85. The following plant conditions exist on Unit 3:

- Steam leak exists in Unit 3 Reactor Building.
- RB 165' elev temperature (TR-3-13-139 Point 22) is 325°F.
- Reactor is shutdown.
- RPV pressure is 30 psig steady.
- RPV Wide Range level reads -150 inches steady.
- RPV Fuel Zone level reads -172 inches steady.

Based on the above conditions, which one of the following is correct regarding the use and monitoring of RPV level instruments?

- A. Use Wide Range level, Vigilant Monitoring IS required.
- B. Use Wide Range level, Vigilant Monitoring IS NOT required.
- C. Use Fuel Zone level, Vigilant Monitoring IS required.
- D. Use Fuel Zone level, Vigilant Monitoring IS NOT required.

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 110 SRO Only</b>		
Choice		Basis or Justification
Correct:	C	Fuel Zone above Minimum Indicated Level (MIL) and on the UNSAFE side of the RPV Saturation curve.
Distractors:	A	Wide Range is below MIL and may not be used.
	B	Wide Range is below MIL and Vigilant Monitoring is required.
	D	Vigilant Monitoring is required.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	10CFR55.43.b.5

<b>Source Documentation</b>		
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 09/99 <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank #5326	
Reference(s):	T-103 SC/T-4 and bases	
Learning Objective:	PLOT2103.03	
Knowledge/Ability K/A	295032 EA2.02 Secondary Containment High Area Temperature	Importance: RO / SRO 3.3 / 3.5
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to High Secondary Containment Area Temperature: Equipment Operability		

**REQUIRED MATERIALS:**  
 T-103 Table SC/T-4 RPV Level Instrument Status

Notes and Comments

Prepared By:  
 Chris Michaels (717) 456-3559  
 PBAPS NRC Exam Author

**QUESTION ID: 111**

86. The following conditions exist at Unit 2 Reactor Building 165' El:

- "HIGH AREA TEMP" alarm is received (210 J-3).
- RWCU NRHX Room temperature is 138°F rising (TRS-2-13-139 Pt. 5).
- RWCU Backwash Valve Room is 132°F rising (TRS-2-13-139 Pt. 4).
- General Area 165'El is 130°F rising (TRS-2-13-139 Pt. 22).
- Visible steam is reported on RB 165' elevation.
- GP-15, Local Evacuation has been announced.

Based on the above conditions, AS A MINIMUM, which personnel must be directed to Reactor Building 165 El. to investigate the condition?

- A. One Rad Pro Qualified Equipment Operator.
- B. One Fire Brigade Qualified Equipment Operator.
- C. One Equipment Operator and one Rad Pro Technician.
- D. One Equipment Operator and one Security Force Member.

## NRC Question Data Sheet

Answer Key		
Question ID# 111 SRO Only		
Choice	Basis or Justification	
Correct:	C	Correct per GP-15.
Distractors:	A	One person not permitted for GP-15.
	B	One person not permitted for GP-15
	D	Not in accordance with GP-15.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.0	3	10CFR55.43.b.4

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-15 T-103 SC/T	
Learning Objective:	PLOT1530.02	
Knowledge/Ability K/A	295032 PWG 2.1.14 High Secondary Containment Area Temperature	Importance: RO / SRO 2.5 / 3.3
(Description of K&A, from catalog) Knowledge of system status criteria which require the notification of plant personnel.		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 112**

87. A steam rupture and fuel damage has occurred in the Unit 2 Reactor Building. The following conditions have existed for the past thirty (30) minutes:

- The reactor was scrammed and all MSIVs failed to isolate on the Group I isolation.
- “Reactor Building Area Rad Monitors Hi” is in alarm and RB General Area 135’ Elev ARMs all read full upscale  $>1 \times 10^4$  mR/hr.
- “2 Vent Exh Stack Rad Monitor Hi-Hi A(B)” is in alarm (218 B-4, C-4) and Unit 2 Vent Stack radiation monitors read  $4.5 \times 10^{-2}$   $\mu$ Ci/cc rising.
- “Main Stack Radiation Hi” is in alarm(003 D-2) and Main Stack radiation monitors read  $2 \times 10^{-4}$   $\mu$ Ci/cc rising.
- “Containment Radiation Monitor Hi Rad” is in alarm and Drywell Rad Monitors both read  $2 \times 10^3$  R/hr.
- Dose Assessment team reports that the dose calculation software is not functioning and dose projections will not be available for at least one hour.

Based on the above conditions, which of the following is the emergency classification required to be declared?

- A. Unusual Event
- B. Alert
- C. Site Area Emergency
- D. General Emergency

### NRC Question Data Sheet

Answer Key		
Question ID# 112 SRO Only		
Choice	Basis or Justification	
Correct:	D	Based on control room indication, the candidate must evaluate Vent Rad monitor readings and escalate to the Generals based on rad effluent release.
Distractors:	A	Distractor if candidate only considers in-plant radiation data.
	B	Distractor if candidate recognizes a loss of one barrier from the fission product barrier table.
	C	Distractor if the candidate recognizes the loss and potential loss of two barriers from the fission product table. Fuel barrier threshold not exceeded.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	10CFR55.43.b.4

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ERP-101	
Learning Objective:	PEPP1100.02	
Knowledge/Ability K/A	295034 EA 2.01 Secondary Containment Ventilation High Radiation	Importance: RO / SRO 3.8 / 4.2
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to Secondary Containment Ventilation High Radiation: Ventilation Rad levels		

**REQUIRED MATERIALS:**  
ERP-101 Tables

Notes and Comments

Prepared By:  
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**QUESTION ID: 113**

88. Plant operation is stable following a transient. A failure of the 'A' Reactor Recirculation Pump (RRP) controller resulted in a scoop tube lockup and the following plant conditions:

- Reactor power is 93%.
- 'A' RRP speed is 60%.
- 'B' RRP speed is 77%.
- 'A' Jet pump loop flow is 29.75 Mlbm/hr.
- 'B' Jet pump loop flow is 49.50 Mlbm/hr.

Based on the above conditions, determine which one of the following actions should be directed by the CRS?

- A. Immediately, trip the 'A' RRP and enter "Single Loop" operations.
- B. Immediately, reduce power by inserting GP-9 Table 1 control rods.
- C. Within 1 hour, lower 'B' RRP speed to match Loop flows within  $\leq 5.125$  Mlbm/hr.
- D. Within 12 hours, raise 'A' RRP speed to match Loop flows within  $\leq 10.25$  Mlbm/hr.

## NRC Question Data Sheet

Answer Key		
Question ID# 113 SRO Only		
Choice	Basis or Justification	
Correct:	C	Correct per Tech Specs and OT-112.
Distractors:	A	This action is directed by OT-112 if flows cannot be restored within one hour.
	B	This action is also directed by OT-112 if flows cannot be restored within one hour.
	D	At this core flow, Tech Spec requires smaller differential flow of $\leq 5.125$ Mlbm/hr. 10.25 Mlbm/hr is correct when core flow is less than 71.75 Mlbm/hr.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	10CFR55.43.b.1

Source Documentation	
Source:	<input type="checkbox"/> New Exam Item <span style="margin-left: 150px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 150px;"><input type="checkbox"/> Other Exam Bank</span> <input checked="" type="checkbox"/> ILT Exam Bank C02#SRO18
Reference(s):	Tech Specs SR3.4.1.1 OT-112 Section 3.4 and bases
Learning Objective:	PLOT5002.08
Knowledge/Ability K/A	202002 PWG 2.1.33 Recirculation Flow Control System <span style="float: right;">Importance: RO / SRO 3.4 / 4.0</span>
(Description of K&A, from catalog) Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	

REQUIRED MATERIALS:  
Tech Spec Section 3.4.1

Notes and Comments

Prepared By:  
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**QUESTION ID: 114**

89. The ST-O-010-301-2, 'A' RHR Loop Pump, Valve, Flow and Unit Cooler Functional and Inservice Test" has been completed.

Refer to the completed surveillance test Data Sheets 3 and 4 (attached) and determine which one of the following is correct for the 'C' RHR pump.

- A. Pump is Acceptable, NO actions are required.
- B. Pump is Inoperable, TSA actions are required.
- C. Pump is in the Alert range, additional testing required, notify the System Manager.
- D. Pump is in the Action range, pump remains Operable, notify the System Manager.

**DATA SHEET 3  
2CP035 DATA**

Parameter	Level	Actual Value	Acceptable Range	Action Range
Flowrate (gpm) FI-2-10-136A	165' Cont Rm	<i>11,000 gpm</i>	N/A	N/A
A RHR TEST/SPRAY FLO CMPTR PT. H051	165' Cont Rm	<i>11,000 gpm</i>	11,000 to 11,100	N/A
A RHR LOOP FLO CMPTR PT. H058	165' Cont Rm	<i>11,000 gpm</i>	N/A	N/A
Running Current (amps) 10A-A1C	165' Cont Rm	<i>180 amps</i>	≤ 255 amps	N/A
C RHR LOWER MTR BRG TEMP (°F.) CMPTR PT. W084	165' Cont Rm	<i>95°F</i>	N/A	N/A
C RHR UPPER MTR BRG TEMP (°F.) CMPTR PT. W083	165' Cont Rm	<i>98°F</i>	N/A	N/A
Disch Press. (psig) PI-2-10-107C	116'	<i>207 psig</i>	≥ 205	N/A
Operating Suction Press. (psig) PI-2-10-106C	91'6"	<i>13 psig</i>	N/A	N/A
Pump dP (psid) Per Calc 1 (See Note 1)	N/A		194.4 to 237.6	< 194.4 or > 237.6
Strainer dP (psid) per Calc 2	N/A		≤ 6.3	> 6.3

**Note 1:** Pump dP Acceptance Criteria based on Reference Value of 216 psid at Reference Flow of 11,000 gpm.

**Calc 1:** Pump D/P Calculation

$$\text{Discharge pressure} - \text{Suction pressure} = \text{Pump D/P}$$

$$\text{_____ psig} - \text{_____ psig} = \text{_____ psid}$$

**Calc 2:** Strainer D/P calculation:

$$\text{Static suction pressure} - \text{Operating suction pressure} = \text{Strainer D/P}$$

$$\text{(Step 6.5.6)} \quad \text{(Data Sheet 3)}$$

$$\text{_____ } \mathbf{7} \text{ psig} - \text{_____ psig} = \text{_____ psid}$$

**6.0 PERFORMANCE STEPS (Continued)**

Initial  
Sat   Unsat

6.5.18 **VERIFY** Actual Flowrate and Discharge Pressure recorded on Data Sheet 3 meet Acceptable Range Criteria.

\*

\_\_\_\_\_

6.5.19 **VERIFY** Running Current recorded on Data Sheet 3 meets Acceptable Range Criteria.

\_\_\_\_\_

6.5.20 **VERIFY** strainer D/P recorded in Data Sheet 3 meets Acceptable Range Criteria. **CM-10**

\_\_\_\_\_

< At C RHR Pump Area, 91'6', R2-7 >

6.5.21 **CLOSE** IIV-2-10-106C, "PI-2-10-106C Instr Isol RHR Pump C Suction Pressure."

\_\_\_\_\_

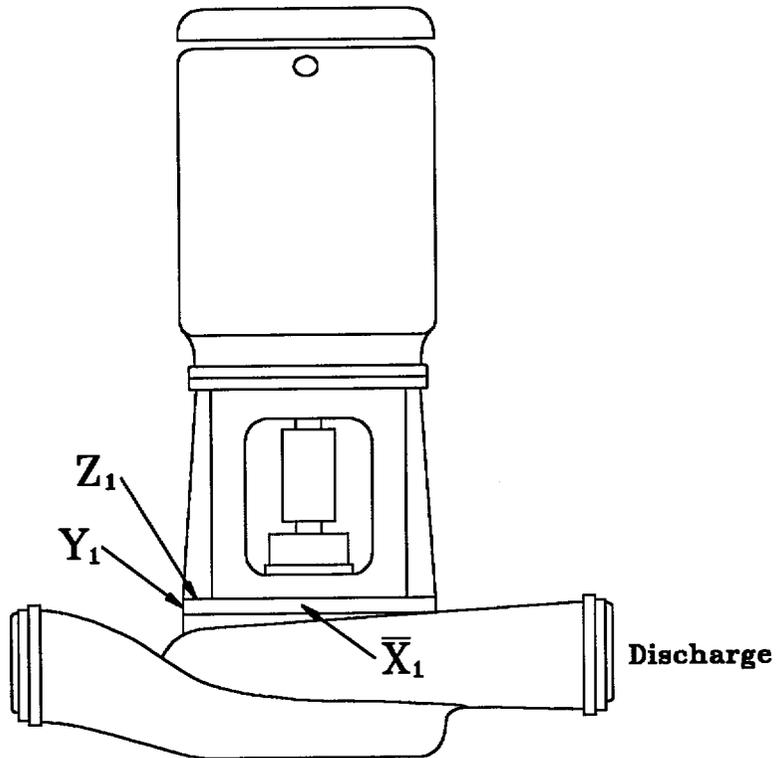
6.5.22 **OBTAIN** 2CP035 "RHR Pump C" bearing housing vibration data in velocity (in/sec) at locations marked X1, Y1, and Z1 on Figure 2. **RECORD** vibration data on Data Sheet 4.

\_\_\_\_\_

6.0 PERFORMANCE STEPS (Continued)

Initial  
Sat Unsat

FIGURE 2



NOTE: The "X" and "Y" planes are in the horizontal direction at right (90 degrees) angles. The "Z" plane is in the vertical direction.

6.0 PERFORMANCE STEPS (Continued)

Initial  
Sat Unsat

DATA SHEET 4

2CP035 VIBRATION DATA

Measured Vibration At Marked Locations	Acceptable Range (IN/SEC PK)	Alert Range (IN/SEC PK)	Action Range (IN/SEC PK)
X1 <u>0.050</u> IN/SEC	≤ 0.125	> 0.125 to ≤ 0.30	> 0.30
Y1 <u>0.100</u> IN/SEC	≤ 0.20	> 0.20 to ≤ 0.480	> 0.480
Z1 <u>0.150</u> IN/SEC	≤ 0.275	> 0.275 to ≤ 0.660	> 0.660

6.5.23 **VERIFY** pump test data recorded on Data Sheets 3 and 4 do **NOT** fall within Action Range. **IF** vibration falls within the Alert Range, **THEN INITIATE** an Action Request (A/R) identifying the condition **AND DOCUMENT** on the cover page.

I \_\_\_\_\_

**NOTE**

IST functional operability of CHK-2-10-48A in the CLOSED direction is verified if RHR A Pump is not rotating **AND** RHR C Pump flowrate is equal to or greater than 10,000 gpm.

< At A RHR Pump Area, 91'6', R2-5 >

6.5.24 **VERIFY** 2AP035 "RHR Pump A" is **NOT** rotating, which indicates CHK-2-10-48A "RHR Pump 2AP035 Discharge Check Valve" is CLOSED.

I \_\_\_\_\_

## NRC Question Data Sheet

Answer Key		
Question ID# 114 SRO Only		
Choice	Basis or Justification	
Correct:	B	Pump DP, as calculated, will be outside Action Range and pump is UNSAT and Inoperable.
Distractors:	A	Data without calculating per the ST will appear to be acceptable.
	C	Vibrations are not in the Alert range.
	D	Pump is in the Action Range on Data Sheet 3 and is Inoperable for the pump.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.5	3	10CFR55.43.b.1

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	NOM-C-11.1 Operability Step 4.10.1.1.b
Learning Objective:	PLOT5010.08
Knowledge/Ability K/A	203000 PWG 2.1.33                      Importance: RO / SRO RHR/LPCI Injection Mode                      3.4 / 4.0
(Description of K&A, from catalog) Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	

**REQUIRED MATERIALS:**

ST-O-010-301-2 "A" RHR Loop Pump, Valve, Flow and Unit Cooler Functional and Inservice Test" pages 30 through 33 completed with the following information:

- RHR Test Spray flow: 11,000 gpm
- RHR Pump current: 180 amps
- Running discharge pressure: 207 psig
- Running suction pressure: 13 psig
- Pump Vibration
- -X1: 0.050 in/sec pk
- -Y1: 0.100 in/sec pk
- -Z1: 0.150 in/sec pk

Prepared By:  
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**QUESTION ID: 115**

90. Unit 2 is operating at power, near end of cycle, with the following Safety Relief Valve (SRV) failures:

- 'D' SRV deenergized (fuses removed) due to a failed solenoid.
- 'E' SRV Bellows is confirmed failed.
- 'L' SRV Bellows is confirmed failed.

Based on the above conditions, which one of the following is correct regarding (1) continued plant operation and (2) the basis, according to Technical Specifications?

- A. (1) Be in Mode 3 within 12 hours and Mode 4 within 36 hours.  
(2) Sufficient relief valves will NOT open on safety function in the event of a design MSIV closure transient.
- B. (1) Be in Mode 3 within 12 hours and dome pressure  $\leq$  100 psig within 36 hours.  
(2) One of the ADS Safety Relief Valves will not function in the event of a LOCA.
- C. (1) NO Tech Spec Actions required.  
(2) Sufficient relief valves are available to open on safety function in the event of a design MSIV closure transient.
- D. (1) NO Tech Spec Actions required.  
(2) Sufficient relief valves are available to be manually opened in the event of an ATWS.

## NRC Question Data Sheet

Answer Key		
Question ID# 115 SRO Only		
Choice	Basis or Justification	
Correct:	C	Correct, a combination of 11 SRV/SVs remain to function in the event of a design overpressurization transient, i.e., MSIV closure.
Distractors:	A	Sufficient SRV/SVs are available.
	B	No SRVs above are designated ADS valves.
	D	Tech Specs require solenoid opening only for ADS. ATWS not considered in this TS bases.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	10CFR55.43.b.2

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	TS 3.4.3 and bases TS 3.5.1 and bases		
Learning Objective:	PLOT5001A.08,9		
Knowledge/Ability K/A	239002 PWG 2.2.25 Relief/Safety Valves	Importance:	RO / SRO 2.5 / 3.7
(Description of K&A, from catalog) Knowledge of bases in technical specifications for limiting conditions for operations and safety limits: Relief/Safety Valves			

**REQUIRED MATERIALS:**

Tech Spec Sections 3.4.3 and 3.5.1

Notes and Comments

Prepared By:  
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## QUESTION ID: 116

91. An electrical problem has resulted in the loss of all Rod Position Indication (RPIS) on the full core display. A few minutes later, a manual reactor scram was performed with the following conditions:

- All RPIS indicators are blank.
- Reactor power is 3.0 E-2% lowering.
- RPV level lowered to -10 inches and is now +20 inches.
- RPV pressure is 1000 psig controlled by EHC.
- Drywell pressure is 0.3 psig.
- Scram Air Header pressure is 0 psig.

Based on the above conditions, which one of the following is correct?

- A. An ATWS is in progress. Exit T-100 and then enter T-101 at RC-1.
- B. An ATWS is in progress. Enter T-100 and concurrently execute T-101 RC/Q rods.
- C. An ATWS is NOT in progress. Exit T-100 and enter T-101 at RC-1.
- D. An ATWS is NOT in progress. Enter T-100 and concurrently enter GP-3, Plant Shutdown.

## NRC Question Data Sheet

Answer Key		
Question ID# 116 SRO Only		
Choice	Basis or Justification	
Correct:	B	Correct, Rod position is unknown and an ATWS is assumed. T-100 refers the operator to perform T-101 RC/Q rods concurrently since rods are assumed to be not full in. No T-101 entry conditions exist.
Distractors:	A	Do not exit T-100 in this condition.
	C	An ATWS is in progress. Do not exit T-100.
	D	An ATWS is in progress. GP-3 not executed concurrently with T-100. T-100 performed and then exited to GP-3.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	3.0	3	10CFR55.43.b.5

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 200px;"><input type="checkbox"/> Previous NRC Exam</span> <input type="checkbox"/> Modified Bank Item <span style="margin-left: 180px;"><input type="checkbox"/> Other Exam Bank</span> <input type="checkbox"/> ILT Exam Bank		
Reference(s):	T-100 Step S-17 and bases T-101 bases		
Learning Objective:	PLOT2100.03		
Knowledge/Ability K/A	214000 PWG 2.4.6 Rod Position Information System	Importance:	RO / SRO 3.1 / 4.0
(Description of K&A, from catalog) Knowledge of Symptom based EOP mitigation strategies.			

REQUIRED MATERIALS:  
T-100 and T-101 flowcharts modified for exam use.

Notes and Comments

Prepared By:  
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**QUESTION ID: 117**

92. Following a Group I isolation on Unit 2, a scram has occurred with the following conditions:

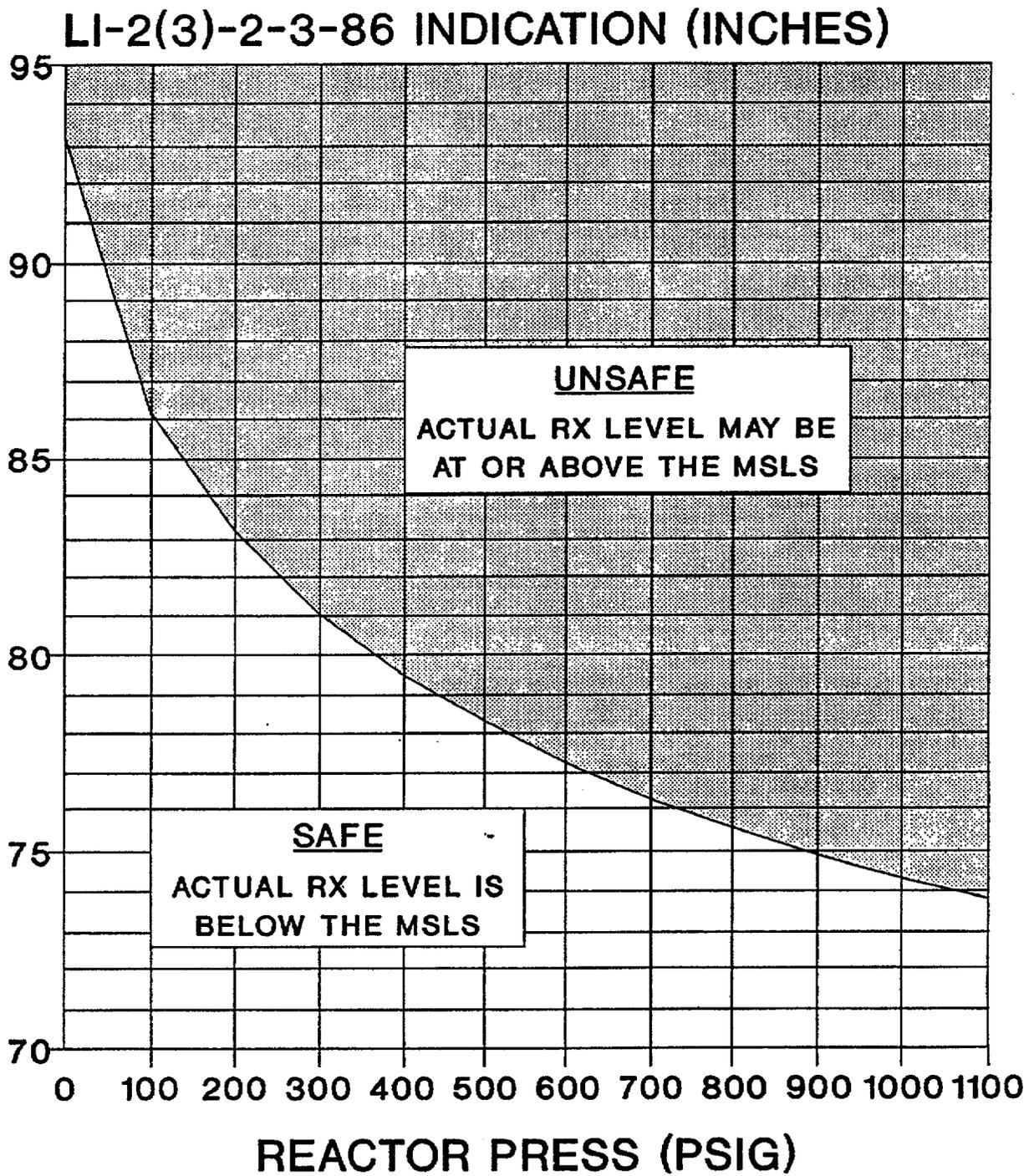
- Drywell pressure is 2.6 psig rising.
- All Scram Actions were performed.
- HPCI tripped on high RPV level.
- RPV Narrow Range level indications are all upscale high.
- RO reports that LI-2-2-3-86 reads 75 inches.
- RPV pressure is 1050 psig rising.
- 'G' SRV is manually open to control RPV pressure.

Based on the above conditions, complete the following statement.

Actual RPV level is \_\_\_(1)\_\_\_ the Main Steam Lines and the CRS will direct the PRO to \_\_\_(2)\_\_\_.

- |          |                   |
|----------|-------------------|
| (1)      | (2)               |
| A. BELOW | Isolate HPCI      |
| B. BELOW | Close the 'G' SRV |
| C. ABOVE | Isolate HPCI      |
| D. ABOVE | Close the 'G' SRV |

# FIGURE 1



## NRC Question Data Sheet

Answer Key		
Question ID# 117 SRO Only		
Choice	Basis or Justification	
Correct:	C	LI-86 is not pressure compensate and actual level is above the MSLs. OT-110 requires HPCI isolated in this condition.
Distractors:	A	Choice if curve not referenced or is misinterpreted. Actual RPV level is above MSLs.
	B	Choice if curve not referenced or is misinterpreted. Actual RPV level is above MSLs. SRV use is required to control pressure in this condition even though potential exists for tailpipe damage.
	D	SRV use is required and directed to control pressure. Due to the high level condition, prolonged openings of the SRVs are directed to avoid SRV tailpipe damage.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH	2.5	3	10CFR55.43.b.5

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	OT-110 Actions and Bases		
Learning Objective:	PLOT1540.03		
Knowledge/Ability K/A	259001 PWG 2.4.49 Reactor Feedwater System	Importance: RO / SRO 4.0 / 4.0	
(Description of K&A, from catalog) Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.			

**REQUIRED MATERIALS:**

OT-110 Figure 1 LI-2-2-3-86 Indication

Notes and Comments

Prepared By:

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QUESTION ID: 118

93. The following Unit 3 conditions exist:

- A steam leak exists in the Turbine Building.
- "2 Vent Exh Stack Rad Monitor Hi Hi A(B)" 218 B-4 (C-4).
- Turbine Building Ventilation is tripped.

Based on the above conditions, which one of the following is the correct regarding Turbine Building (TB) Ventilation?

- A. Restart TB ventilation to ensure a monitored release.
- B. Restart TB ventilation to minimize the radioactive release.
- C. Maintain TB ventilation tripped to lower the radioactive release.
- D. Maintain TB ventilation tripped to limit the unmonitored release.

## NRC Question Data Sheet

Answer Key		
Question ID# 118 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Starting TB vent ensures a monitored release via the Unit 2 Vent Stack.
Distractors:	B	Will not lower the release since still ground level unfiltered release.
	C	Ventilation restarted to monitor through the Vent Stack.
	D	Ventilation restarted to monitor through the Vent Stack.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.0	3	10CFR55.43.b.4

Source Documentation	
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 09/99#126S <input checked="" type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	T-104 RR-6 and bases
Learning Objective:	PLOT2104.03
Knowledge/Ability K/A	288000 PWG 2.4.6 Plant Ventilation Systems <span style="float: right; margin-left: 20px;">Importance: RO / SRO 3.1 / 4.0</span>
(Description of K&A, from catalog) Knowledge of symptom based EOP mitigation strategies	

REQUIRED MATERIALS:

Notes and Comments  
Question reformatted and slightly modified.

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**QUESTION ID: 119**

94. To place the plant in a stable condition following a transient, the Control Room Supervisor directs an Equipment Operator to access a High Radiation Area that does NOT have an existing Radiation Work Permit (RWP).

Based on the above condition, complete the following statement that identifies the MINIMUM requirements for entry into the High Radiation Area.

Entry into the High Radiation Area is permitted provided that the operator:

- A. has the concurrence of the Emergency Director.
- B. has the concurrence of the Radiation Protection Manager.
- C. is escorted by a Level II Rad Protection qualified technician.
- D. is escorted by an Advanced Rad Worker qualified individual.



**QUESTION ID: 120**

95. While operating at power, OT-101 is entered due to rising drywell pressure with the following conditions:

- Drywell pressure is 0.7 psig rising slowly.
- Drywell temperature is 137°F rising slowly.
- The drywell is being vented using SO 7B.3.A-2, "Containment Atmosphere Pressure Control and Nitrogen Makeup".
- Drywell radiation suddenly spikes to  $2.5 \times 10^{-1}$   $\mu\text{Ci/cc}$  and continues to rise.

Based on the above conditions, which plant personnel are contacted while venting containment?

- A. Chemistry to determine if vent path should be aligned from the Torus.
- B. Chemistry to ensure release is maintained below ODCM effluent limits.
- C. Rad Protection to perform a local evacuation of the Radwaste Building.
- D. Rad Protection to perform dose calculations from the Main Stack data.

## NRC Question Data Sheet

Answer Key		
Question ID# 120 SRO Only		
Choice		Basis or Justification
Correct:	B	Vent radiation limit provided to ensure release below ODCM limits.
Distractors:	A	Venting from the Drywell directly in this case, torus "scrubbing" path not required in this condition. This would be true for T-200 venting.
	C	Evacuation of Radwaste building not required for this venting operation. This would be true for T-200 venting.
	D	Offsite dose calculations not required for this venting operation. Venting is maintained below ODCM (and Tech Spec) limits.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.5	3	10CFR55.43.b.4

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	OT-101 Section SO 7B.3.A-2		
Learning Objective:	PLOT1540.04		
Knowledge/Ability K/A	295010 PWG 2.1.14 High Drywell Pressure	Importance:	RO / SRO 2.5 / 3.3
(Description of K&A, from catalog) Knowledge of system status criteria which require the notification of plant personnel.			

REQUIRED MATERIALS:

Notes and Comments

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**QUESTION ID: 121**

96. Unit 2 is in a Refueling Outage. Which one of the following Refuel Floor activities must be DIRECTLY supervised by the Fuel Handling Director (i.e., Designated Alternate is NOT permitted)?
- A. Cleaning recirc jet pumps in the Vessel.
  - B. Loading a new fuel bundle into the Vessel.
  - C. Moving old LPRM strings to the Spent Fuel Pool.
  - D. Shuffling of irradiated fuel in the Spent Fuel Pool.

## NRC Question Data Sheet

Answer Key		
Question ID# 121 SRO Only		
Choice	Basis or Justification	
Correct:	B	New fuel into the core is a Core Alt and requires direct supervision by the Fuel Handling Director.
Distractors:	A	Cleaning jet pumps may be supervised by the Designated Alternate.
	C	Does not require direct supervision of FHD or DA.
	D	Does not require direct supervision of FHD or DA.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.0	3	10CFR55.43.b.7

Source Documentation			
Source:	<input checked="" type="checkbox"/> New Exam Item <span style="margin-left: 100px;"><input type="checkbox"/> Previous NRC Exam</span>		
	<input type="checkbox"/> Modified Bank Item <span style="margin-left: 100px;"><input type="checkbox"/> Other Exam Bank</span>		
	<input type="checkbox"/> ILT Exam Bank <span style="margin-left: 100px;"></span>		
Reference(s):	FH-6C Section 7.0		
Learning Objective:	NLSRO0763.0		
Knowledge/Ability K/A	PWG 2.2.29 Equipment Control	Importance: RO / SRO 1.6 / 3.8	
(Description of K&A, from catalog) Knowledge of SRO Fuel Handling responsibilities			

REQUIRED MATERIALS:

Notes and Comments

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**QUESTION ID: 122**

97. Following a maintenance activity on MO-2-23-057 "HPCI Torus Suction Outboard" valve, a partial ST, ST-O-023-301-2 "HPCI Pump, Valve, Flow and Unit Coolers Functional and Inservice Test" was performed.

The initial stroke time for the valve was in the Action Range but returned within the Acceptable limits after the valve was stroked three additional times.

Based on the above conditions, which one of the following is correct status of the MO-2-23-057, "HPCI Torus Suction Outboard" valve?

- A. NOT OPERABLE and the valve should be examined to determine the root cause of the stroke time.
- B. NOT OPERABLE and a complete ST-O-023-301 should be performed to determine HPCI Operability.
- C. OPERABLE since the initial stroke test of the valve is NOT required as long as the second stroke time is within acceptable limits.
- D. OPERABLE since for post-maintenance testing, the valve only needs to be verified capable of stroking full open to full closed.

**NRC Question Data Sheet**

<b>Answer Key</b>		
<b>Question ID# 122 SRO Only</b>		
<b>Choice</b>		<b>Basis or Justification</b>
<b>Correct:</b>	<b>A</b>	Correct, initial stroke time was in the Action Range. Coaxing not permitted as stated in the Operations Manual.
<b>Distractors:</b>	<b>B</b>	Complete ST will not be performed until after the cause is determined and corrected.
	<b>C</b>	Coaxing the valve to meet acceptance criteria is not permitted. Valve is inoperable.
	<b>D</b>	Valve must meet stroke time requirements regardless of post-maintenance testing requirements.

<b>Psychometrics</b>			
<b>Level of Knowledge</b>	<b>Difficulty</b>	<b>Time Allowance (minutes)</b>	<b>SRO</b>
<b>HIGH</b>	<b>2.5</b>	<b>3</b>	<b>10CFR55.43.b.1</b>

<b>Source Documentation</b>			
<b>Source:</b>	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 0201#142S <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank		
<b>Reference(s):</b>	NOM C-C-11.1 Operability		
<b>Learning Objective:</b>	PLOT1528.01		
<b>Knowledge/Ability K/A</b>	PWG 2.2.21 Equipment Control	<b>Importance: RO / SRO</b> 2.3 / 3.5	
<b>(Description of K&amp;A, from catalog)</b> Knowledge of pre and post maintenance operability requirements.			

**REQUIRED MATERIALS:**

**Notes and Comments**  
Slightly reformatted

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QUESTION ID: 123

98. Unit 2 is operating at power. The Floor Drain Sample Tank needs to be discharged in accordance with ST-C-095-805-2, "Liquid Radwaste Discharge".

Which position below is responsible for REVIEW and VERIFICATION of the Chemistry Technician's calculations?

- A. Chemistry Manager (CM).
- B. Plant Reactor Operator (PRO).
- C. Control Room Supervisor (CRS).
- D. Radiation Protection Manager (RPM).

## NRC Question Data Sheet

<b>Answer Key</b>		
Question ID# 123 SRO Only		
Choice	Basis or Justification	
Correct:	C	Correct per ST approval requirements.
Distractors:	A	Chemistry Manager reviews post-ST data and may not approve the release.
	B	PRO adjusts the rad monitor but does not review and/or approve the calculations.
	D	Rad Pro Manager does not review these rad monitor settings.

<b>Psychometrics</b>			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.0	3	10CFR55.43.b.4

<b>Source Documentation</b>		
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 08/01#323 <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank	
Reference(s):	ST-C-095-805-2	
Learning Objective:	PLOT5020.04	
Knowledge/Ability K/A	PWG 2.3.6 Radiological Controls	Importance: RO / SRO 2.1 / 3.1
(Description of K&A, from catalog) Knowledge of the requirements for reviewing and approving release permits.		

**REQUIRED MATERIALS:**

Notes and Comments  
Question slightly modified and reformatted.

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**QUESTION ID: 124**

99. Unit 2 has experienced a Loss of Coolant Accident with the following conditions:

- Preparations are being made to perform T-200 "Primary Containment Venting".
- An Equipment Operator has been directed to perform T-200C-2 "Containment Venting via the 6 inch ILT Line from the Torus".
- The EO contacts the Control Room and asks whether you want him to electrically or mechanically position the 6 inch ILRT valve.

Based on the above conditions, which one of the following will minimize dose to the operator and explains why the dose is minimized?

- A. Mechanical positioning, performed from a low dose area inside the Reactor Building.
- B. Mechanical positioning, performed from a remote location outside the Reactor Building.
- C. Electrical positioning, performed from a low dose area inside the Reactor Building.
- D. Electrical positioning, performed from a remote location outside the Reactor Building.

## NRC Question Data Sheet

Answer Key		
Question ID# 124 Both RO/SRO		
Choice		Basis or Justification
Correct:	C	Correct, these valves may be electrical positioning performed at RB 135' el East Wall.
Distractors:	A	Valve location is near the vent line resulting in high dose.
	B	Outside valves not operated locally.
	D	Valve control panel located at RB 135' el East Wall.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	2.5	3	10CFR55.43.b.4

Source Documentation					
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam 08/01#284 <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank				
Reference(s):	T-200C-2 Section 4.0				
Learning Objective:	PLOT2102.05c				
Knowledge/Ability K/A	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">PWG 2.3.10</td> <td style="text-align: right;">Importance: RO / SRO</td> </tr> <tr> <td></td> <td style="text-align: right;">2.9 / 3.3</td> </tr> </table>	PWG 2.3.10	Importance: RO / SRO		2.9 / 3.3
PWG 2.3.10	Importance: RO / SRO				
	2.9 / 3.3				
(Description of K&A, from catalog) Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.					

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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**QUESTION ID: 125**

100. Following a loss of coolant accident (LOCA), Chemistry is in the process of obtaining a PASS sample of the containment.

The PASS sample must be obtained within \_\_\_(1)\_\_\_ hours and Chemistry Tech radiation is expected to \_\_\_(2)\_\_\_ 10CFR 20, NRC exposure limits.

- |    |              |                     |
|----|--------------|---------------------|
| A. | (1)<br>three | (2)<br>remain BELOW |
| B. | four         | EXCEED              |
| C. | three        | EXCEED              |
| D. | four         | remain BELOW        |

## NRC Question Data Sheet

Answer Key		
Question ID# 125 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Sample obtained within 3 hours and and system is designed such that the tech will not exceed 10CFR20 exposure limits.
Distractors:	B	Four hours is common misconception.
	C	Exceeding 10CFR 20 dose limits is not allowed by procedure or by system design.
	D	Four hours is common misconception.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
LOW	3.5	3	10CFR55.43.b.4

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ERP-410, Chemistry Group CH-910, Obtaining a PASS Sample	
Learning Objective:	PLOT5021.02	
Knowledge/Ability K/A	PWG 2.4.36 Emergency Plan	Importance: RO / SRO 2.0 / 2.8
(Description of K&A, from catalog) Knowledge of Chemistry / Health Physics tasks during emergency operations.		

REQUIRED MATERIALS:

Notes and Comments

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