U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination

Applicant Information

Name:	Region: I
Date: August 10, 2001	Facility/Unit: Susquehanna Steam Electric Station / Units 1 & 2
License Level: RO	Reactor Type: GE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results

Examination Value	99 ~~100~~ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Points

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 1 SRO ~~20~~ 1

(A) SYO17 A-1, SYO17 J-2 (Course)

(B) 11.(A-1) – 6. (J-2) (Objective)

(C) Question Type (check one)

- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	Turb. Trip	RPV Level					

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)

- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Following LOCA on Unit 1, an anti-motoring trip removes the turbine generator from service. Which one of the following describes how this trip effects RPV water level control?

a. Feedwater and HPCI will raise RPV level to the high level trip.

b. ECCS pump starting will be delayed waiting for the diesels to start.

c. Any ECCS pump that has started will trip and NOT automatically restart.

d. Condensate and feedwater are NOT available for recovery of RPV water level.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295005, AA2.07/ 3.5

(N) NOTES:

JUSTIFICATION:	A combination of high drywell pressure and a generator lockout (caused by the anti-motoring trip) will cause a auxiliary bus load shed which will trip the condensate pumps causing a loss of feedwater.		
DISTRACTER A:	Diesel starting will not effect the ECCS pump starts.		
DISTRACTER B:	No ECCS pumps should trip the fast transfer will still occur		
DISTRACTER C:	Feedwater pumps trip on loss of condensate and if pressure during the LOCA is low enough HPCI injection will be insufficient.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	2
K/A TEXT:	AA2.07 – Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP: Reactor water level		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	x	
10CFR55:	41(b).2, 41(b).7		
COMMENTS:			

(O) REFERENCES: EO-000-102, Step RC/L-8

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 2 SRO ~~3~~ 2

(A) SY017, L-5 Course (B) 2., 4. Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	Scram						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 35% power when a loss of main turbine lubricating oil system occurs. Which one of the following RPV pressure responses would occur over the **first five (5) minutes** of this event? **Assume all system operate as designed.**

RPV pressure will...

a. be controlled at approximately 955 psig.

b. be initially controlled at 1005 psig then lower to 915 psig.

c. rise to 1116 psig then lower and be maintained at 1106 psig.

d. initially rise to 1106 psig then cycle between 1070 psig and 1106 psig.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295006, AK3.03/ 3.8

(N) NOTES:

JUSTIFICATION:	Per section 6.62.6 of GO-100-002, EHC will be set to maintain RPV pressure at 955 psig when reactor power is 5-7% power. Following the turbine trip, on low oil pressure, and the reactor scram, caused by the turbine trip, decay heat will maintain an equivalent heat rate and EHC will maintain this pressure with the turbine bypass valves.		
DISTRACTER B:	This initial pressure is well above the steam flow produced for this decay heat load and pressure will remain above 915 psig.		
DISTRACTER C:	SRVs will not control pressure during this transient.		
DISTRACTER D:	SRVs will not control pressure during this transient.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	1
K/A TEXT:	AK3.03 – Knowledge of the reasons for the following responses as they apply to SCRAM: Reactor pressure response		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	x	
10CFR55:	41(b).5, 41(b).6, 41(b).7		
COMMENTS:			

(O) REFERENCES: GO-100-002, Section 6.62.2

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 3 SRO ~~5~~ 3

(A) SY017, A-8 Course (B) 7.c Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	Hi RPV Pressure	EHC					

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

The Unit 1 is operating at 100% power when a failure of the inservice EHC Pressure Regulator causes the controller output to lower to zero. Which one of the following will occur?

a. The MSIVs will isolate when reactor pressure lowers to 860 psig.

b. The reactor will scram on either high APRM power or high RPV pressure.

c. ~~Throttle pressure~~ will rise about 4 psig and be controlled by the standby regulator.

d. ~~Throttle pressure~~ will lower about 4 psig and be controlled by the standby regulator.

Pressure Averaging manifold pressure

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295007, AK2.01/ 3.5

(N) NOTES:

JUSTIFICATION:	As the operating pressure regulator fails lower it causes the control valves to throttle closed raising RPV pressure. The backup pressure regulator is set about 4 psi above the operating regulator and will take control as pressure rises.		
DISTRACTER A:	Pressure will rise and be controlled by the standby pressure regulator.		
DISTRACTER B:	Pressure will be controlled by the standby pressure regulator.		
DISTRACTER D:	Pressure will rise and be controlled by the standby pressure regulator.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	AK2.01 – Knowledge of the interrelations between HIGH REACTOR PRESSURE and the following: Reactor/turbine pressure regulating system		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	x	
10CFR55:	41(b).5, 41(b).6, 41(b).7		
COMMENTS:			

(O) REFERENCES: ON-193-001, Turbine EHC System Malfunction, Section 5.0

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 4

(A) SY017, J-2 (Course) (B) 2. (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
Operations [ ]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	EOP	EO-100-100	ON-154-004					

(F) Point Value: 1 (G) Answer Time: [ ] (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A LOCA has occurred on Unit 1 resulting in the following conditions:

- Reactor building elevation 749' temperatures are 231°F.
- Wide range level had been indicating <-150 inches and has now started to rise, it is currently indicating -145 inches and is rising.

Which one of the following RPV water level assessments can be made from wide range level indication?

RPV water level is...

a. **above TAF** but **NO** trend can be verified.

b. **undeterminable** and **NO** trend can be verified.

c. **below TAF** with actual RPV water level rising.

d. **undeterminable** but actual RPV water level is rising.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: RPV Control EO-100-102, Caution 1 included

(M) K&A NUMBER/RATING: 295009, AA2.01/ 4.2

(N) NOTES:

JUSTIFICATION:	With RB temperatures greater than 212°F wide range level indication cannot be used below –125 inches. Trends can be caused by other factors so the trends are not reliable.		
DISTRACTER A:	This level instrument cannot be used under these conditions.		
DISTRACTER C:	This level instrument cannot be used under these conditions.		
DISTRACTER D:	The trend may be caused by factors other than RPV water level recovering.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	AA2.01 – Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL: Reactor Water Level		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	x	
10CFR55:	41(b).2, 41(b).5, 41(b).7		
COMMENTS:			

(O) REFERENCES: EO-100-102, RPV Control, Caution 1. ON-145-004

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Chi

4
RO 5 SRO 7

OPERATIONS QUESTION AND ANSWER INPUT FORM

(A) PP002A,B,C Course (B) 2680 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	Hi DW Press	EOPs					

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A leak in the Unit 1 drywell has resulted in the following conditions:

- RPV pressure 705 psig and lowering slowly
- RPV water level -135 inches (Fuel Zone) and rising slowly
- Drywell pressure 11 psig rising slowly
- Drywell temperature 135°F
- Suppression Pool temperature 102°F
- Suppression Pool level 24.5 feet
- Suppression Chamber pressure 7 psig
- Main Steam Line Radiation 70 mrem

Which one of the following is required?

a. Perform a rapid depressurization.

b. Initiate suppression chamber spray.

c. Irrespective of cooldown rate open all BPVs.

d. Line up all available systems for RPV injection.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: RPV Control EO-100-102, PC Control EO-100-103

(M) K&A NUMBER/RATING: 295010, 2.4.14/ 3.0

(N) NOTES:

JUSTIFICATION:	EOP PC Control requires initiating suppression chamber sprays when SP pressure cannot be maintained <1.72 psig. The other actions are not required at this time.		
DISTRACTER A:	Neither RPV level or containment parameters require rapid depressurization.		
DISTRACTER C:	This is not required and the MSIVs would be shut at this RPV level.		
DISTRACTER D:	All available systems should NOT be lined up, pressure is too high to inject and suppression chamber sprays are required.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	2.4.14 - Knowledge of general guidelines for EOP flowchart use.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: EO-100-102, RPV Control, EO-100-103, PC Control

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 6 SRO ~~8~~ 5

(A) PP002A,B,C Course (B) 2598 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	High DW Pressure	Venting					

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% power when problems with the chilled water supply to the drywell ventilation system result in drywell pressure rising to 1.0 psig. Which one of the following is the method is used to lower drywell pressure and the reason why?

a. Vent the Drywell through Standby Gas Treatment to minimize any off-site release.

b. Place the operating Drywell Unit Coolers in high speed to lower drywell temperature.

c. Initiate RHR in suppression pool spray to draw drywell heat into the Suppression Chamber.

d. Vent the Suppression Chamber through Standby Gas Treatment to prevent de-inerting the Drywell.

(K) ANSWER: a.

(L) REQUIRED MATERIALS:

(M) K&A NUMBER/RATING: 295010, AK3.01/ 3.8

(N) NOTES:

JUSTIFICATION:	The drywell should be vented through SGTS to filter the release to minimize the off-site release.
DISTRACTER B:	During normal operations the drywell unit coolers are operated in high speed.
DISTRACTER C:	Initiating suppression pool sprays at these pressures will not lower drywell pressure or allow communication between the suppression chamber and the drywell because of downcomer submergence.
DISTRACTER D:	Venting the suppression chamber will not have any effect on drywell pressure because of downcomer submergence.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	1
K/A TEXT:	AK3.01 – Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Drywell venting		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b).10, 43(b).4
COMMENTS:	

(O) REFERENCES: OP-173-001, Section 3.3, SY017-L-3

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 7 SRO ~~4~~ 6

(A) _____ (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	EOP/ON	Reactivity Mngment	Neutron Monitoring					

(F) Point Value: [1] (G) Answer Time: [ ] (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
[ ] 1 Memory
[ ] 2 Comprehension
[X] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

Following a seven day outage a reactor startup was in progress. Criticality was achieved and a heatup rate established. A problem required halting the startup. During the delay reactor pressure lowered from 360 psig to 325 psig. When criticality was re-established the SRM period indication became positive and continued to shorten even after rod motion was stopped.

Which one of the following explains the SRM period response?

a. Void coefficient is lower at this pressure.

b. Xenon is decaying from previous operation.

c. Moderator temperature lower and is still lowering.

d. Control rod worth has raised due to the lower count rate.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295014, AA1.05/ 3.9

(N) NOTES:

JUSTIFICATION:	The lower temperature creates a more negative temperature coefficient and reactor power must be raised to the POAH after criticality is re-achieved for the nuclear fuel to make up for the ambient losses and raise moderator temperature.		
DISTRACTER A:	Void coefficient is not a consideration at this power.		
DISTRACTER B:	Xenon has decayed out after 7 days		
DISTRACTER D:	Control rod worth lowers with lowering flux.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	AA1.05 – Ability to operate and/or monitor the following as they apply to INADVERTENT REACTIVITY ADDITION: Neutron monitoring system		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).1, 41(b).5, 41(b).6, 43(b).6		
COMMENTS:	Question references 1999 scram on IRMs		

(O) REFERENCES: GO-100-102

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch.

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 8 SRO 7

(A) PP002A,B,C Course (B) 2680 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) **Bank**
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	EOP	EOXXXXX						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Following a spurious scram the following conditions exist:

- Control Rods — 22 rods are partially withdrawn
- Reactor power — Range 4 on the IRMs
- SRM period — + 100 second
- Reactor pressure — 800 psig
- Suppression Pool temperature — 89°F

A steam leak which **CANNOT** be isolated has developed in the Reactor Water Cleanup (RWCU) Pump Room. Temperature in the room rose to 145°F. Which one of the following actions should be taken to lower the leak rate?

a. Immediately commence a cooldown at less than 100°F hour.

b. Manually insert the control rods before initiating a normal reactor cooldown.

c. Open turbine bypass valves to depressurize the reactor regardless of cooldown rate.

d. Prevent uncontrolled injection and open Safety Relief Valves to lower pressure to < 600 psig.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: All EOPs

(M) K&A NUMBER/RATING: 295014, AK1.04/ 3.8

(N) NOTES:

JUSTIFICATION:	With an ATWS the reactor must be made subcritical before depressurizing.		
DISTRACTER A:	Rods have to be inserted prior to cooldown.		
DISTRACTER C:	Cooldown rate limits are in effect.		
DISTRACTER D:	There is no need to inject open SRVs and depressurizing is NOT allowed until the reactor is subcritical.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	1
K/A TEXT:	AK1.04 – Knowledge of the operational implications of the following concepts as they apply to INCOMPLETE SCRAM: Reactor pressure: Plant-Specific		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).1, 41(b).5, 41(b).6,41(b).10, 43(b).6		
COMMENTS:			

(O) REFERENCES: EO-100-113 Step LQ/P-8

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: _____

8
RO 9 SRO ~~17~~

OPERATIONS QUESTION AND ANSWER INPUT FORM

(A) _____ (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	Failure to scram	Reactor pressure					

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
[ ] 1 Memory
[X] 2 Comprehension
[ ] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

Which one of the following is the correct position for the "A" Emergency Diesel Generator (DG) Breaker with the indicated conditions?

- Assume the "A" DG is operating at rated speed and voltage.

	Unit 1 high drywell pressure, Unit 2 100% power	Loss of power to bus 1A, Unit 2 100% power	Unit 2 high drywell pressure, Unit 1 high drywell pressure	Loss of power to bus 2A, Unit 1 high drywell pressure
a.	CLOSED	CLOSED	CLOSED	CLOSED
b.	OPEN	OPEN	OPEN	OPEN
c.	CLOSED	OPEN	CLOSED	OPEN
d.	OPEN	CLOSED	OPEN	CLOSED

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295024, EK2.06/ 3.9

(N) NOTES:

JUSTIFICATION:	DG breaker will close in on loss of power to the bus, not on high drywell pressure unless the bus is also de-energized.		
DISTRACTER A:	Breakers will not close on just a high drywell pressure.		
DISTRACTER B:	Breakers will close on loss of power to the bus.		
DISTRACTER C:	Breakers will not close on just a high drywell pressure, breakers will close on loss of power to the bus.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	EK2.06 – Knowledge of the interrelations between HIGH DRYWELL PRESSURE and the following: Emergency generators		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).7, 41(b).8		
COMMENTS:			

(O) REFERENCES: OP-024-001, Sect. 3.8

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Chi

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OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 10 SRO 18

(A) SY017 M-9 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	ITS	Safety Limits						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(H) Cognitive Level: (Check one)
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(I) Review Date (YYMM):

(J) QUESTION:

Which one of the following is a Technical Specifications Safety Limit violation?

a. Peak transient RPV pressure reached 1385 psig.

b. Core flow is 12 Mlbm/hr with reactor power at 27.5%.

c. Thermal power at 22.5% with RPV pressure 650 psig.

d. Minimum Critical Power Ratio lowers to 1.17 on a transient.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295025, EK1.05/ 4.4

(N) NOTES:

JUSTIFICATION:	Safety limit is Reactor steam dome pressure shall be less than 1325 psig.		
DISTRACTER B:	Power shall not exceed 25% with <10 Mlbm/hr, since this flow is above 10 Mlbm/hr this power level does not exceed the safety limit.		
DISTRACTER C:	Power shall not exceed 25% with pressure less than 785 psig, this power level is below 25%		
DISTRACTER D:	The MCPR limits are 1.11 for two loop, 1.13 for single loop.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	EK1.05 – Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE: Exceeding safety limits.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).5, 43(b).2		
COMMENTS:			

(O) REFERENCES: Technical Specifications, Section 2.0

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 11 SRO ~~22~~ 10

(A) SY017, C-5 Course (B) 7.b, 9.k,11.c Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	RPV low level	RCIC					

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Following a **Unit 2** transient the following conditions exist:

- RPV pressure 1007 psig
- RPV level -37 inches
- Drywell pressure 0.8 psig
- RCIC Topaz Inverter DE-ENERGIZED

Which one of the following describes the Reactor Core Isolation Cooling (RCIC) system response and the reason for the response? **Assume NO operator action.**

a. RCIC fails to start because initiation logic is de-energized.

b. RCIC starts but trips on overspeed due to loss of speed control.

c. RCIC starts but, remains at minimum speed due to loss of signal to the governor valve.

d. RCIC is injecting because all necessary valves are lined up for injection with the system in standby.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295031, EA1.05/ 4.3

(N) NOTES:

JUSTIFICATION:	RCIC will overspeed because the governor valve fails open.		
DISTRACTER A:	RCIC logic is energized (125V DC), topaz inverter does NOT supply the logic.		
DISTRACTER C:	Governor valve fails open.		
DISTRACTER D:	RCIC will trip on overspeed.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	1
K/A TEXT:	EA1.05 – Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL: Reactor core isolation cooling		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).7		
COMMENTS:			

(O) REFERENCES: OP-250-001, Sect. 3.7

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 12 SRO ~~24~~ 11

(A) PP002A,B,C Course (B) 2630 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	EOP	EOXXXXX						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A high power ATWS with the turbine bypass valves available has occurred. The following conditions currently exist:

- Reactor power 6%
- RPV pressure 945 psig
- RPV water level -60 inches
- Suppression Pool water temperature 192°F
- Suppression Pool level 25 feet

Which one of the following can be done within the EOPs to raise the margin of safety?

a. Reduce RPV pressure.

b. Raise RPV water level.

c. Lower suppression pool level.

d. Lower suppression pool water temperature.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295037, 2.1.20/ 4.3

(N) NOTES:

JUSTIFICATION:	Suppression pool cooling is required and would raise the margin to safety by raising the heat capacity of the suppression pool.		
DISTRACTER A:	Pressure cannot be lowered until the reactor is subcritical.		
DISTRACTER B:	RPV water level cannot be raised until the reactor is subcritical.		
DISTRACTER C:	This will lower the heat capacity of the suppression pool and not raise the margin of safety.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	1
K/A TEXT:	2.1.20 – Ability to execute procedure steps.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).8. 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: EO-100-113, EO-100-103, Fig 2. HCTL.

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl.

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 13 SRO ~~26~~ 12

(A) PP002 Course (B) 18 (2598) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	EOP	PP002	EP-DS-004		C			

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Per EP-DS-004, Primary Containment and RPV Venting, which one of the following describes why it is PREFERRED to vent the containment from the suppression chamber?

a. To minimize cycling of the suppression chamber vacuum breakers.

b. To minimize the amount of radioactivity released from the containment.

c. To avoid a combustible gas mixture in excess of the combustible gas limits.

d. To achieve the desired containment pressure reduction more expeditiously.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 500000 / EK3.05 / 2.9 / 3.4

(N) NOTES:

JUSTIFICATION:	When venting from the suppression chamber, a scrubbing action of radioactive gases in the drywell occurs as the gasses from the drywell are introduced below the suppressioin chamber water level before reaching the suppression chamber air space. This scrubbing action reduces the radioactive release level and thus the amount of radioactivity released.
DISTRACTER A:	The vacuum breakers cycle when the drywell is vented, not the suppression chamber. This is not the reason per EP-DS-004.
DISTRACTER C:	Venting through the suppression chamber will allow the drywell and suppression chamber air volumes to mix with each other. Venting through the suppression chamber should be avoided if communication between the drywell and suppression chamber air volumes will produce a gas mixture which exceeds the combustible gas limits of 6% Hydrogen and 5% Oxygen.
DISTRACTER D:	This is achieved by using the larger vent lines with a vent path from the drywell, not by venting from the suppression chamber.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	1
K/A TEXT:	EK3.06 – Knowledge of the reasons for the following responses as they apply to HIGH CONTAINMENT HYDROGEN CONCENTRATIONS: Operation of wet well vent.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b)10, 43(b)5
COMMENTS:	

(O) REFERENCES:
EP-DS-004, Attachment A

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 14

(A) SY017, L-8 (Course) (B) 44 (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
	E/APE	P/F Map						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 was operating at 50% power when the "B" Reactor Recirculation Pump tripped. NO operator actions have been taken. The following indications exist:

- Indicated Total Core flow 22 Mlbm/hr
- "A" Recirculation Loop flow 32 Mlbm/hr
- "B" Recirculation Loop flow 10 Mlbm/hr

Using the attached Power to Flow Map determine which one of the following power levels is the **MAXIMUM** allowed for these conditions:

a. 41%

b. 43 %

c. 47 %

d. 49 %

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295001, 2.4.48/ 3.5

(N) NOTES:

JUSTIFICATION:	At loop flows less than 38 Mlbm/hr flow does not reverse through the idle loop, although the circuit subtracts the flow. The flows must be added for accurate core flow. This would make ACTUAL total core flow 42 Mlbm/hr and the maximum allowable power level would be 43%.		
DISTRACTER A:	This is NOT the maximum		
DISTRACTER C:	Too high		
DISTRACTER D:	Too high		
EXAM OUTLINE CROSS-REF: K/A TEXT:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	2.4.48 – Ability to interpret control room indications to verify the status of operation of system / and understand how operator actions and directives affect plant and system conditions.		
COMMENTS:			

(O) REFERENCES: ON-164-002, Sections 3.0 and 5.0

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 15 SRO ~~28~~ 13

(A) SY017 L-5 Course (B) 20 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	E/APE	Loss of Vacuum						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following is the bases for a reactor scram on a main turbine trip above 30% reactor power?

a. Provides a backup to the RPV pressure and APRM high scrams.

b. Ensures RPV water level remains above the dryer separator skirt.

c. Protects the reactor from the pressure effects of a loss of heat sink.

d. Anticipates a positive reactivity addition from a loss of feedwater heating.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295002, AK1.03/ 3.6

(N) NOTES:

JUSTIFICATION:	Scramming the reactor above 30% power prevents pressure transients caused by loss of the main condenser as the heat sink because turbine bypass capacity is limited. (Turbine trips on low vacuum, 21.7" Hg Vac, before MSIVs close or any other auto actions).
DISTRACTER A:	These scrams backup the turbine trip scram.
DISTRACTER B:	This is part of the bases for the low level scram.
DISTRACTER D:	This is a concern at all powers and is not the bases for this scram

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	2
K/A TEXT:	AK1.03 – Knowledge of the operational implications of the following concepts as they apply to LOSS OF CONDENSER VACUUM: loss of heat sink.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b).5, 43(b).2
COMMENTS:	

(O) REFERENCES: Technical Specifications Bases B 3.3.1.1.8

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 16 SRO 14

(A) SY017 G-2 Course (B) 1. Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	Total loss of AC						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

In accordance with EO-100-032 and EO-100-033, High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) Operating Guidelines During Station Blackout, which one of the following methods is used for maintaining RPV water level during a station blackout?

a. Use HPCI continuously for RPV level while minimizing RCIC use to save DC power.

b. Use HPCI initially then use RCIC operating it continuously to conserve battery power.

c. Allow HPCI to cycle level between its automatic initiation and high level shutdown to maximize injection.

d. Allow RCIC to cycle level between its automatic initiation and high level shutdown to minimize thermal cycles.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295003, AK2.06/ 3.4

(N) NOTES:

JUSTIFICATION:	HPCI is necessary for the initial injection after that it is used for pressure control while RCIC is run continuously for level control to conserve DC power.		
DISTRACTER A:	RCIC is run continuously.		
DISTRACTER C:	Cycling HPCI or RCIC would use to much DC power.		
DISTRACTER D:	Cycling HPCI or RCIC would use to much DC power.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	1
K/A TEXT:	Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF AC POWER and the following: DC electrical loads.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).5, 41(b).8, 41(b).10		
COMMENTS:			

(O) REFERENCES: EO-100-031, and EO-100-032, Section 4.0

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 17 SRO ~~29~~ 15

(A) SY017 G-3 (Course) (B) ?? (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	DC ELEC	SY017 G-3	ON-104-001					

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

With both units at 100% power, a loss of offsite power occurs. The "A" and "B" Diesel Generators failed to start and **CANNOT** be started.

Per ON-104-001, Unit 1 Response to Loss of Offsite Power, which one of the following describes when and why the Non Class 1E DC lube oil pumps are required to be de-energized?

a. Within 15 minutes to limit hydrogen production in the battery rooms.

b. Within 30 minutes to remain within the capacity of the 250 VDC station batteries.

c. Within 60 minutes to limit the hydrogen release to the Turbine Building.

d. Within 90 minutes to remain within the capacity of the 125 VDC station batteries.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295004 / AK3.01/ 2.6 / 3.1

(N) NOTES:

JUSTIFICATION:	If Diesel Generator A, B or C fail to start, PERFORM Attachment A approximately 30 minutes into LOOP EVENT to ensure 4 hour capacity of 250V DC batteries 1D650 and 1D660. FSAR 8.3.2.1.1.4 specifies each 250V battery has capacity without its charger to independently supply required loads for four (4) hours per FSAR Table 8.3-7. Table 8.3-7 shows various non-1E loads terminating at specified times to ensure four (4) hour capacity, however, plant design does not automatically shed these loads. This procedure sheds non-1E loads at 30 minutes to ensure a four (4) hour battery capacity, per design.		
DISTRACTER A:	Within 30 minutes. The concern is to preserve the battery capacity.		
DISTRACTER C:	Within 30 minutes. The concern is to preserve the battery capacity.		
DISTRACTER D:	Within 30 minutes. The concern is to preserve the battery capacity.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	2
K/A TEXT:	Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF DC POWER: Load shedding: Plant Specific		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)5 41(b)8 41(b)10		
COMMENTS:			

(O) REFERENCES:
ON-104-001, 3.3, 5.0

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 18 SRO ~~21~~ 16

(A) SY017 J-2 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	OPS	ONXXXXX						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

After completing a refueling outage RPV water level is being lowered in preparation for startup. The following level indications exist:

- Wide Range +60 inches
- Narrow Range +50 inches
- Shutdown Range +40 inches
- Upset Range +30 inches

In accordance with Attachment A of ON-145-004, RPV Water Level Anomaly, which one of the following is the actual RPV water level?

a. +60 inches

b. +50 inches

c. +35 inches

d. +25 inches

(K) ANSWER: c.

OPERATIONS QUESTION AND ANSWER INPUT FORM

(L) REQUIRED MATERIALS: Attachment A of ON-145-004, RPV Water Level Anomaly

(M) K&A NUMBER/RATING: 295008, AA2.01/3.4

(N) NOTES:

JUSTIFICATION:	Using the curves for determining water level with RPV pressure <200 psig compare the readings given with the curves for the instruments and +35" is the actual level, Wide Range should not be used at this pressure/temperature.		
DISTRACTER A:			
DISTRACTER B:			
DISTRACTER D:			
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	2
K/A TEXT:	Ability to determine and/or interpret the following as they apply HIGH REACTOR WATER LEVEL: Reactor water level.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).5, 41(b).8, 41(b).10		
COMMENTS:			

(O) REFERENCES: ON-145-004, Sect. 3.4 and Attachment A

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 19 SRO ~~22~~ 17

(A) SY017 E-6 Course (B) 4., 14. Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	High RPV level						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 has scrammed on High Drywell Pressure after a small steam break occurred in the drywell. The following conditions exist:

- RPV water level +40 inches and steady
- RPV pressure 810 psig and slowly lowering
- Containment Radiation Monitors 20 R/HR
- Drywell pressure 2.1 psig and slowly rising
- Drywell temperature 161°F and slowly rising

Which one of the following actions is required?

a. Initiate suppression chamber sprays to start lowering drywell temperature.

b. Initiate a drywell purge to lower containment pressure and allow a restart of the drywell cooling fans.

c. Override the trip of the drywell cooling fans and start them in low speed to mix and cool the drywell.

d. Bypass the trip and isolation of drywell cooling and re-establish cooling in high speed to lower drywell pressure.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295012, AK3.01/3.5

(N) NOTES:

JUSTIFICATION:	Drywell cooling fan trip may be overridden to restart the fans in slow speed
DISTRACTER A:	Suppression pool sprays will not have any effect on drywell temperature or pressure because there is insufficient d/p between the suppression pool and the drywell
DISTRACTER B:	Radiation levels are too high to purge the containment and these valves are isolated.
DISTRACTER D:	Radiation levels are too high and a LOCA has occurred, procedure does not allow bypassing.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	2
K/A TEXT:	Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL TEMPERATURE: Increased drywell cooling.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b).7, 41(b).10, 43(b).5
COMMENTS:	Recent EOP change moved re-starting the fans from ES-134-001 to OP-160-001

(O) REFERENCES: EO-100-103, ES-134-001, OP-160-001, Sect. 3.4

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

18
RO 20 SRO ~~8~~

(A) PP002A,B,C — Course
(B) 2461 — Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
	EOP	EOXXXXX						

(F) Point Value: 1
(G) Answer Time: (Minutes)
(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 has tripped and the following conditions exist:

- SRVs are being used to control reactor pressure.
- The A loop of RHR is in suppression chamber spray.
- The B loop of RHR is OOS but should be returned to service very shortly.

- RPV water level is -30 inches.
- RPV pressure is 835 psig.
- Suppression Pool Temperature is 106°F.
- Suppression Pool Level has risen to 24 feet.
- Suppression Chamber pressure is 10.0 psig.
- Drywell pressure is 13.0 psig.

When it is returned to service, which one of the following is the correct use for the B loop of RHR?

Start the B loop of RHR ...

a. and Spray the Drywell.

b. and Spray the Suppression Chamber.

c. in the Suppression Pool Cooling mode.

d. in RHR Suppression Pool cooling letdown.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295013, 2.4.6/3.1

(N) NOTES:

JUSTIFICATION:	Step SP/T-2 requires maximizing Supp Pool cooling unless RHR pumps are needed for adequate core cooling, in this case adequate core cooling exists.		
DISTRACTER A:	Drywell sprays are not required and suppression pool cooling must be lined up first		
DISTRACTER B:	Supp Pool sprays are in progress on the A loop of RHR.		
DISTRACTER D:	Supp Pool cooling must be lined up first.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	2	1
K/A TEXT:	2.4.6 – Knowledge of symptom based EOP mitigation strategies.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: EO-100-103, steps SP/T-1 and SP/T-2

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 21 & SRO ~~18~~ 19

(A) SY017 J-2 Course (B) 14 (1489) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
	RPV INST	SY017 J-2	ON-100-109					

(F) Point Value: 1 (G) Answer Time: [ ] (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A Unit 1 Control Room evacuation is required and ALL immediate actions are taken. Per ON-100-009, "Control Room Evacuation," which one of the following describes how to determine reactor power after leaving the Control Room?

a. Temporary instrument connected in the lower relay room.

b. PICSY Laptop Computer connected in the upper relay room.

c. Post accident-monitoring recorder at the Remote Shutdown Panel.

d. PICSY Laptop Computer connected at the Remote Shutdown Panel.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: NONE.

(M) K&A NUMBER/RATING: 216000 / AA2.01 / 4.1 / 4.1

(N) NOTES:

JUSTIFICATION:	A PICSY Laptop Computer is installed at the Remote Shutdown Panel and all information that was available in the control room via computer displays will be available at the Remote Shutdown Panel using the PICSY laptop computer.		
DISTRACTER A:	A temporary indicator is not installed to monitor reactor power. The PICSY Laptop computer is used at the RSP. This is plausible since a temporary level indicator is installed at rack 1C005 if the PICSY computer is not available.		
DISTRACTER B:	PICSY Laptop Computer is used however it is connected at the RSP and not in the relay room.		
DISTRACTER C:	There is no reactor power instrumentation installed at the RSP. The PICSY LAPTOP Computer must be connected and used.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	2	1
K/A TEXT:	AA2.01 – Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT: reactor power.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(10)		
COMMENTS:			

(O) REFERENCES:
ON-100-109, 4.3.5 NOTE

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R. E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 22 SRO 20/4

(A) SY017, B-2 Course (B) 11 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	High Off-Site Release						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 75% power when the following indications are received:

- OFF-GAS HI RADIATION alarm AR-106-001, F03
- OFF-GAS HI HI RADIATION alarm AR-106-001, G03

The alarm conditions have been verified as actual. Which one of the following is required to maintain or lower the release rate?

a. Lower power in accordance with GO-100-004, Shutdown to Minimum Power.

b. Isolate the Off-Gas system and enter ON-172-001, Off-Gas System Isolation Shutdown.

c. Place the standby Off-Gas Recombiner in service using OP-172-001, SJAE and Off-Gas system.

d. Verify proper Off-Gas system operation and enter ON-143-001, Loss of Main Condenser Vacuum.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295017, AA1.02/3.5

(N) NOTES:

JUSTIFICATION:	The only method to maintain or lower readings at this monitor are to lower power.		
DISTRACTER B:	This would result in a loss of vacuum and is not required.		
DISTRACTER C:	This wouldn't do anything to lower rad levels at this monitor		
DISTRACTER D:	Always good to check proper operation, but there is no entry conditions for ON-143-001, loss of vacuum.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	1
K/A TEXT:	Ability to operate and/or monitor the following as they apply to HIGH OFF-SITE RELEASE RATE: Off-gas system.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: AR-106-001, F03

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 23 SRO ~~23~~ 21

(A) SY017 M-1 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	OPS	ONXXXXXX						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 2 is shutdown with the following conditions:

- "2A" RBCCW and "2A" TBCCW are aligned to ESW.
- Loop "A" of ESW is isolated from the Diesel Generators (DGs).

A loss of off-site power occurs

- DG output breaker 1A20404 fails to close.
- "B" ESW Pump fails to start

Assuming NO operator actions, which one of the following is required?

a. Trip ALL the DGs in four and one half (4.5) minutes.

b. Trip DG "B" and DG "D" in four and one half (4.5) minutes

c. Trip DGs "A", "B" and "C" in four and one half (4.5) minutes and DG "D" in eight (8) minutes.

d. Trip DGs "A" and "C" in four and one half (4.5) minutes and DGs "B" and "D" in eight (8) minutes.

(K) ANSWER: ~~c~~ a b is also correct

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295018, AK3.01/3.5

(N) NOTES:

JUSTIFICATION:	On a loss of cooling water the diesels must be tripped in 4.5 minutes if loaded and 8 minutes if unloaded. DG D does not load (its output breaker does not close. So the all the DGs are without cooling water, but D is unloaded. So A,B,C are tripped in 4.5 min. and D must be tripped in 8 min.		
DISTRACTER A:	DG D is running unloaded.		
DISTRACTER B:	A and C must be tripped and D may run 8 minutes.		
DISTRACTER D:	B must be tripped in 4.5 minutes.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	2	2
K/A TEXT:	AK1.01 – Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF CCW: Effects on component/system operation.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: EO-100-030, Caution on pages 2

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 24 SRO ~~24~~ 22

(A) SY017 L-14 (Course) (B) _____ (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	E/APE	Loss of I.A.						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% power when a slow gradual loss of instrument air occurs. Which one of the following describes how and why reactor feedwater control is effected?

Feedwater control will automatically...

a. raise feedwater pump speed to compensate for minimum flow valves failing open.

b. lower feedwater pump speed to compensate for the condensate reject valve failing closed.

c. lower feedwater pump speed to compensate for feedwater heater dump valves failing closed.

d. raise feedwater pump speed to compensate for the low load and low load bypass valves failing open.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295019, AK2.03/3.2

(N) NOTES:

JUSTIFICATION:	As a portion of the feedwater pump discharge is allowed to return to the condenser through the failed open minimum flow valves feedwater pump speed must be raised.
DISTRACTER B:	The failure of the condensate reject valve closed would have no effect on feedwater flow.
DISTRACTER C:	Heater dump valves fail closed, feedwater heating may rise requiring an increase in feedpump speed
DISTRACTER D:	The low load and low load bypass valves fail closed would not have any effect on feedwater flow.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	2	2
K/A TEXT:	AK2.03 – Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Reactor Feedwater.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X
10CFR55:	41(b).7, 41(b).10, 43(b).5	
COMMENTS:		

(O) REFERENCES: ON-118-001, Pg. 7

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 25 SRO ~~25~~ 23

(A) SY017, L-1 Course (B) 14 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	Containment Isolations						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 has scrammed following a loss of feedwater. When RPV water level lowered below Level 2 operators stabilized level by maximizing Control Rod Drive (CRD) flow and initiating Standby Liquid Control (SLC).

Which one of the following is the status of the Reactor Water Cleanup (RWCU) system?

The RWCU Pumps tripped on...

a. low flow caused by closure of the outboard isolation valve (F004) on RPV level 2.

b. low flow caused by closure of the inboard isolation valve (F001) on SLC initiation.

c. the isolation of the inboard and outboard isolation valves (F001 and F004) on RPV level 2.

d. level 2 and the inboard and outboard (F001 and F004) isolation valves isolated on SLC initiation.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295020, AK2.04/3.1

(N) NOTES:

JUSTIFICATION:	RPV level 2 isolates F001 and F004 and trips the RWCU pumps.		
DISTRACTER A:	Both valves isolate on level 2 and the pumps trip immediately on the isolation.		
DISTRACTER B:	SLC would NOT have been started until RPV level was below level 2.		
DISTRACTER D:	Level 2 causes an isolation which trips the RWCU pumps.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	2	2
K/A TEXT:	AK2.04 – Knowledge of the interrelations between INADVERTENT CONTAINMENT ISOLATION and the following: RWCU system.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: OP-161-001, OP-153-001, Attachment B of ON-159-002

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 26 SRO ~~20~~ 24

(A) SY017 E-9 Course (B) 15 (344) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	PRI CONT INST	SY017 E-9	TS					

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is at 80% power with SO-152-002, HPCI Quarterly Flow Verification Test in progress.

- At 2200, HPCI was started
- At 2230, Suppression Pool average water temperature reached 90°F and is rising slowly
- At 2245, HPCI was tripped as directed in the test procedure and heat addition terminated.
- At 2300, the flow verification test is complete
- At 2300, Suppression Pool average water temperature is 92°F.

In accordance with SO-152-002 and Technical Specifications which one of the following describes when Suppression Pool average water temperature must be below 90°F and why?

Suppression Pool average water temperature must be below 90°F by...

a. 2230 on the next day to comply with the flow test procedural requirements.

b. 2300 on the next day to comply with the flow test procedural requirements.

c. 2230 on the next day to comply with a Technical Specification required action.

d. 2245 on the next day to comply with a Technical Specification required action.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: TS 3.6.2.1 for suppression pool average water temperature.
SO-152-002, HPCI Quarterly Flow Verification Test

(M) K&A NUMBER/RATING: 295026 / 2.1.12 / 2.9 / 4.0

(N) NOTES:

JUSTIFICATION:	TS require restoring suppression pool average water temperature to meet the LCO statement within 24 hours. The TS action is not required to be entered until the heat addition to the suppression pool is terminated which is when HPIC is tripped per the test procedure (2245). The TS action is not required to be entered when 90°F is exceeded because the TS LCO statement is still met because it can rise to 105°F during testing that adds heat to the suppression pool.
DISTRACTER A:	This is a TS requirement not a test procedure requirement when the heat addition to the suppression pool is terminated (2245).
DISTRACTER B:	This is a TS requirement not a test procedure requirement when the heat addition to the suppression pool is terminated (2245).
DISTRACTER C:	The TS action is not required to be entered until the heat addition to the suppression pool is terminated which is when HPIC is tripped per the test procedure (2245). The TS action is not required to be entered when 90°F is exceeded because the TS LCO statement is still met because it can rise to 105°F during testing that adds heat to the suppression pool.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	2	1
K/A TEXT:	2.1.12 –Ability to apply Technical Specifications for a system.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b)(7) 41(b)(10)
COMMENTS:	

(O) REFERENCES:
TS for suppression pool average water temperature.
TS LCO 3.0.2

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 27 SRO ~~27~~ 25

(A) SY017 J-2 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	E/APE	High Drwell Tempreature						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level: (Check one)
[ ] 1 Memory
[ ] 2 Comprehension
[X] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

Which one of the following describes the effects of high drywell temperature on the RPV water level instrument reference legs?

Density of the fluid in the reference leg...

a. rises causing RPV water level to indicate lower than actual.

b. rises causing RPV water level to indicate higher than actual.

c. lowers causing RPV water level to indicate lower than actual.

d. lowers causing RPV water level to indicate higher than actual.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295028, EK1.01/3.5

(N) NOTES:

JUSTIFICATION:	As density in the reference leg lowers the density in the variable leg remains the same which makes water level appear higher than it actually is.		
DISTRACTER A:	Reference leg density lowers		
DISTRACTER B:	Reference leg density lowers		
DISTRACTER C:	RPV water level will indicate higher than actual level.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	2
K/A TEXT:	EK1.01 – Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL TEMPERATURE: Reactor water level measurement.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: SY017 J-2, pg. 17

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 28 SRO ~~28~~ 26

(A) SY017 C-6 (Course) (B) _____ (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	E/APE	High Drywell Temperature						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Following a trip of Unit 1, RPV water level is being maintained by the Reactor Core Isolation Cooling (RCIC) system while the High Pressure Coolant Injection (HPCI) system has been transferred from an injection to a RPV pressure control lineup. The following conditions exist:

- Condensate Storage Tank (CST) level 67%
- Suppression Pool (SP) level 23 feet 8 inches

As CST level continues to lower and Suppression Pool level continues to rise which one of the following will occur?

The HPCI lineup will...

a. automatically swap from the CST to the SP.

b. transfer the suction source from the SP to the CST.

c. remain as is until the CST level reaches its low level setpoint.

d. shift to an injection lineup with HPCI taking a suction from the SP.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295029, EK2.02/3.4

(N) NOTES:

JUSTIFICATION:	When HPCI Inj Valve 155-F006 is closed (it is closed when shifting from an injection to a pressure control lineup) the HPCI suction swap on high SP level is defeated. Therefor nothing happens when SP level reaches and exceeds 23'9". When CST level reaches 11% HPCI suction will swap to the SP and HPCI test line isolation valves close.		
DISTRACTER A:	No swap takes place with F006 closed.		
DISTRACTER B:	In this lineup suction is from the CST.		
DISTRACTER D:	This does not occur with F006 closed.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	1	2
K/A TEXT:	EK2.02 – Knowledge of the interrelations between HIGH SUPPRESSION POOL WATER LEVEL and the following: HPCI: Plant specific.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: OP-152-001, Section 3.3.16, See the Note above the step.

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 29

(A) PP002A,B,C — Course
(B) 2697 — Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	EOP	EOXXXXXX						

(F) Point Value: 1
(G) Answer Time: (Minutes)
(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 98% power with the following conditions:

- CORE SPRAY (CS) LOOP A IN LEAKAGE-HIGH PRESSURE has alarmed.
- Core Spray (CS) Pump Room A temperature is 140°F.
- Reactor Building (RB) Sump Room temperature is 140°F.
- Reactor Building (RB) Sump Room ARM has reached its upscale setpoint (the high alarm is in).

Which one of the following is required?

Attempt to isolate Core Spray Loop A and immediately...

a. commence a normal plant shutdown.

b. scram and rapidly depressurize the reactor.

c. scram the reactor and initiate a normal cooldown.

d. commence a normal plant shutdown and isolate the RB.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295033, 2.3.10/2.9

(N) NOTES:

JUSTIFICATION:	A primary break has occurred (from CS) one area temp is above max safe (RB Sump Rm) the other (CS Pump Rm) is below max safe, one other area has a high ARM. This requires entering EO-100-102 (inserting a scram) and initiating a cooldown.		
DISTRACTER A:	Entry into 102 requires a scram		
DISTRACTER B:	Rapid depressurization is not required.		
DISTRACTER D:	A scram is required and until conditions warrant RB and CS room ventilation should be operated.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	2.3.10 Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: EO-100-104

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 30 SRO ~~41~~ 27

(A) SY017 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	E/APE	High RB HVAC Rad Levels						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
[ ] 1 Memory
[X] 2 Comprehension
[ ] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

An alarm condition exits on the Unit 1 Reactor Building Stack Monitor on 0C630. You are directed to go to panel 1C600 and determine the source of the high radiation condition. ~~Which one of the following process monitors are an input to this alarm condition?~~ Discharges from which one of the following will cause the alarm condition?

a. Zone 3, Railroad Access Shaft.

b. Main Steam Line Radiation Monitors.

c. Radwaste Building Ventilation System.

d. Standby Gas Treatment Ventilation Exhaust.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295034, EA2.01/3.8

(N) NOTES:

JUSTIFICATION:	The Unit 1 Reactor Building Stack Monitor on 1C216B monitors the RB Ventilation system exhaust. Input to this exhaust include the Zone 3, Railroad Access Shaft Exhaust.		
DISTRACTER B:	This monitor is checked for a high radiation on the Turbine Building Stack. Any steam leakage would appear in the Turbine Building.		
DISTRACTER C:	Radwaste ventilation exhausts through the Turbine Building Stack.		
DISTRACTER D:	SGTS has its own stack.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	2	2
K/A TEXT:	EA2.01 – Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT VENTILATION HIGH RADIATION: Ventilation radiation levels.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: ON-070-001, Section 3.3

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 31 SRO ~~25~~ 28

(A) SY017 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	E/APE	High Off-Site Release						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following radiation monitoring systems will automatically terminate a release when it detects high radiation?

a. Offgas pretreatment radiation monitoring.

b. Liquid Radwaste effluent radiaition monitoring.

c. Standby Gas Treatment exhaust radiation monitoring.

d. Residual Heat Removal Service Water radiation monitoring.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295038, EK3.02/3.9

(N) NOTES:

JUSTIFICATION:	Liquid radwaste effluent is the only monitor which isolates the discharge it monitors.		
DISTRACTER A:	Liquid radwaste effluent is the only monitor which isolates the discharge it monitors.		
DISTRACTER C:	Liquid radwaste effluent is the only monitor which isolates the discharge it monitors.		
DISTRACTER D:	Liquid radwaste effluent is the only monitor which isolates the discharge it monitors.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	EK3.02 – Knowledge of the reasons for the following responses as they apply to HIGH OFFISTE RELEASE RATE: System isolations.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: ON-069-001

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

RO 32

(A) SY017 L-11 Course (B) 5 (1959) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords : (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	CS HVAC	SY017 L-11	TS 3.7.3 OP-030-002		C	2 (1956)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 and Unit 2 are at 100% power. The Control Structure HVAC Smoke Removal System (SRS) is placed into service to exhaust odors resulting from a small fire.

Which one of the following describes the required operator action if a design basis LOCA occurs and why the action is necessary?

a. The SRS must be secured to maintain the control room pressure at a positive pressure.

b. One of the two CREOASS trains must be secured to maintain the control room at a positive pressure.

c. The SRS damper alignment must be altered to maintain the control room radiation monitoring capability.

d. The CREOASS must be manually started and aligned to maintain the control room radiation monitoring capability.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 600000 / AA1.05 / 3.0

(N) NOTES:

JUSTIFICATION:	If a LOCA conditions occurs, the CREOASS will automatically align however the SRS will continue to operate which can cause the control room positive pressure to degrade beyond the capability of the CREOASS. The SRS fans will not trip on a LOCA signal and this is the concern. The SRS fans must be manually secured to maintain the control room positive pressure in the accident condition.
DISTRACTER B:	The SRS fans must be secured, not the CROEASS train.
DISTRACTER C:	The radiation monitoring capability is not the concern, control room positive pressure is. The SRS must be secured rather than just changing the alignment, to maintain the control room pressure positive in the accident condition.
DISTRACTER D:	The CREOASS will automatically start and align on a LOCA signal. The SRS fans will not trip on a LOCA signal and this is the concern. The radiation monitoring capability is not the concern, control room positive pressure is.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	1	-
	GROUP:	2	-
K/A TEXT:	AA1.05 - Ability to operate and/or monitor the following as they apply to PLANT FIRE ON SITE: Plant and control room ventilation systems.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b)(7)
COMMENTS:	

(O) REFERENCES:
OP-030-002, 3.7.2.a
LER 2000-10

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 33 SRO ~~36~~ 29

(A) AD045 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
	OPS	ONXXXXXX						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Plant conditions are as follows:

- Reactor has been in Cold Shutdown for 2 days following power operation.
- Reactor water level is +87 inches.
- Both reactor recirc pumps are tagged out of service.
- Shutdown cooling has isolated and the shutdown cooling suction valves cannot be opened.

Which one of the following operator actions will reverse or prevent reactor vessel stratification AND provide alternate decay heat removal?

a. Place Reactor Water Cleanup in service in recirculation.

b. Insert a manual scram to maximize Control Rod Drive flow to the RPV.

c. Start a second Control Rod Drive pump and maximize cooling water D/P.

d. Begin rejecting water with Reactor Water Cleanup while injecting with CRD.

(K) ANSWER: a. Accept d also.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295021, AK2.02/3.2

(N) NOTES:

JUSTIFICATION:	By recirculating water from the bottom vessel drain and discharging into the feed system the RWCU system will help circulate water in the RPV and cool by discharging heat to the Non-Regen HX.		
DISTRACTER B:	Although this will add cool water it will add to stratification.		
DISTRACTER C:	Although this will add cool water it will add to stratification.		
DISTRACTER D:	This will remove water and inject cooler water but will not provide circulation and is NOT a method of cooling specified in Attachment B of ON-149-001.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	3	2
K/A TEXT:	AK2.02 – Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: Reactor water cleanup.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: ON-149-001, Sect. 3.4 and App. B

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 34 SRO ~~16~~ 30

(A) SY017 L-3 Course (B) 6 (1953) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords : (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	ON	SY017 L-3	ON-081-001			14 (1989)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is in a refueling outage. Unit 2 is at 100% power. A refueling accident has occurred on 818' level resulting in the following annunciators alarming on Unit 1:

- REFUEL FLOOR WALL EXH HI RADIATION
- REFUEL FLOOR WALL EXH HI-HI RADIATION

SGTS is in its normal standby lineup in accordance with OP-070-001, Section 3.1.

Which one of the following describes the Standby Gas Treatment (SGTS) system response to the event?

a. Both SGTS trains start and they align to Zone I.

b. Both SGTS trains start and they align to Zone III.

c. Only one SGTS train starts and it aligns to Zone I.

d. Only one SGTS train starts and it aligns to ZONE III.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295023 / AA1.07 / 3.6 / 3.6

(N) NOTES:

JUSTIFICATION:	Both trains start on all initiation signals (This is a change from previous operating procedures because with only one fan in lead, only one started, SGTS could NOT meet draw-down requirements.) Both SGTS Trains align to Zone III (refueling floor). Zone I is the Unit 1 Reactor Building.		
DISTRACTER A:	SGTS starts and it aligns to Zone III.		
DISTRACTER C:	Both trains start and they align to Zone III.		
DISTRACTER D:	Both trains start		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	3	2
K/A TEXT:	AA1.07 - Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS: Standby gas treatment.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(7)		
COMMENTS:			

(O) REFERENCES:
ON-081-001, 2.1, 2.3

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R. E. Chi

RO 35 SRO ~~39~~ 31

(A) SY017 C-6 (Course) (B) 12 (2038) (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) **Bank**
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
(≤9 characters)	ECCS	HPCI						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 2 was at 100% power when a plant trip results in the following:

- HPCI is being used for pressure control
- RCIC is being used for level control
- HPCI EQUIPMENT AREA temperature rises to the isolation setpoint

Assuming NO other areas are affected, which one of the following is the effect on the **Unit 2** HPCI and RCIC systems?

a. HPCI and RCIC isolate immediately.

b. HPCI and RCIC isolate if a 15-minute timer times out.

c. HPCI isolates immediately. RCIC continues to operate.

d. HPCI isolates if a 15-minute timer times out. RCIC continues to operate.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: 295032 / 2.2.4 / 2.8 / 3.0

(N) NOTES:

JUSTIFICATION:	On Unit 2, HPCI and RCIC rooms share a common Blowout Tunnel. Steam from the HPCI leak can enter the RCIC Equipment Room. Analysis has shown that even with communication temperatures in the RCIC Room are not significantly effected. For Unit 1, there are separate blowout tunnels for each area so communication during a break is not a concern.		
DISTRACTER A:	RCIC is not significantly effected by the HPCI leak and does not isolate immediately.		
DISTRACTER B:	There are no timers on the equipment room high temperature isolations the timers are on the piping area high temperatures.		
DISTRACTER D:	There are no timers on the equipment room high temperature isolations the timers are on the piping area high temperatures.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	1	1
	GROUP:	3	2
K/A TEXT:	2.2.4 – Ability to explain the variations in control board layouts / systems / instrumentation and procedural actions between units at the facility.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(7)		
COMMENTS:			

(O) REFERENCES: EO-000-104, SC/T-4

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R.E. Ch

RO 36

(A) SY017 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) **Bank**
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	E/APE	Sec. Cont. High Level						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is in startup when the following occur:

- Suppression Pool low level alarm
- High water level alarm in the A RHR Pump Room.
- The Crew enters EO-100-104, Secondary Containment Control

Which one of the following methods will determine when the A RHR Pump Room water level reaches the Max Safe Water Level?

a. When the Reactor Bldg Sump Level Hi-Hi alarm energizes.

b. Room flooded alarm is indication until confirmed otherwise.

c. Computer calculated value based on loss of water from the suppression pool.

d. An operator visually determines that the water level in the room is at 48 inches.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295036, EA2.02/3.1

(N) NOTES:

JUSTIFICATION:	Per EO-000104, SC/L-1, A room flooded alarm will mean MAX SAFE is reached until confirmed otherwise.		
DISTRACTER A:	This is not an indication for max safe in the A RHR Room it is a separate area and another concern		
DISTRACTER C:	There is no computer verification.		
DISTRACTER D:	This level is below the max safe water level for the A RHR Room.		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	RO	-
	TIER:	1	-
	GROUP:	1	-
K/A TEXT:	EA2.02– Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL: Water level in the affected area.		
QUESTION SOURCE:	**BANK:**		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: EO-000-104, SC/L-1

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES **(R)** Reviewed by: _____

RO 37

(A) SY017 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	Systems	CRD						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at full power with a control rod at position 28 when its scram outlet valve opens. Which one of the following can occur including the required action if the occurrence is observed?

a. The rod remains at position 28 and level rises in the scram discharge volume. Enter ON-100-001, Reactor Scram.

b. The rod inserts into the core and a scram discharge volume high level rod block occurs. Enter ON-100-001, Reactor Scram.

c. The rod remains at position 28 and leakage into the reactor building drain sump rises. Enter ON-155-001, Control Rod Problems.

d. The rod inserts into the core and leakage into the reactor building drain sump rises. Enter ON-155-001, Control Rod Problems.

(K) ANSWER: d.

(L) **REQUIRED MATERIALS:** None

(M) **K&A NUMBER/RATING:** 201001, A2.11/2.6/2.7

(N) **NOTES:**

JUSTIFICATION:	The scram outlet valve leaking allows reactor pressure to insert the control rod. The water flowing through the CRDM flow into the scram discharge volume but then flows through the open SDV drains into the reactor building drain sump. ON-155-001 is entered.		
DISTRACTER A:	The SDV drains are open so SDV level does not rise. A reactor scram is not required.		
DISTRACTER B:	The rod inserts and SDV drains are open so SDV level does not rise and no alarm occurs. A reactor scram is not required.		
DISTRACTER C:	The rod drifts into the core.		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	RO	-
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	A2.11 – Ability to (a) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Valve openings.		
QUESTION SOURCE:	**BANK:**		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).6		
COMMENTS:			

(O) **REFERENCES:** SY017, K-2 or K-3

(P) **POSITIONS:** (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: _____

RO 38

(A) SY017 K-7 Course (B) 1a, 11 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
	RC	RMC						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

An ATWS has occurred on Unit 2 and reactor power is approximately 19%. The operator attempts to fully insert control rod 32-27 with the CONTINUOUS-IN switch and the rod fails to move. The operator then notes the following conditions:

- Drive Water D/P — 240 psig ~~d~~
- Reactor Mode Switch — Shutdown
- CRD Flow — 120 gpm
- CRD Flow Control Valves — Closed
- CRD pump — 2A and 2B Running
- RWM — Normal

Control Rod 32-27 will not move because the...

a. RWM is enforcing an insert block.

b. Reactor Mode Switch is enforcing a rod block.

c. Drive Water D/P is much lower when rod movement is attempted.

d. CRD flow control valves are closed shutting off CRD flow to the HCUs.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 201002, K3.01, 3.4

(N) NOTES:

JUSTIFICATION:	The RWM must be bypassed to permit the RMCS to be operated. The RWM is the only thing that bypasses the Emergency In Button.		
DISTRACTER B:	The Emergency In Button bypasses all the RMCS Rod Blocks except the RWM.		
DISTRACTER C:	Drive water D/P will not lower when the rod is moved because the stabilizing valves are still operable.		
DISTRACTER D:	The Flow Control Valves always pass a minimum amount of flow.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	K3.01 – Knowledge of the effect that a loss or malfunction of the REACTOR MANUAL CONTROL SYSTEM will have on the following: Ability to move control rods.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).6, 41(b).7		
COMMENTS:			

(O) REFERENCES: SY017 K-6

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 39 SRO 32 44

(A) SY017 L-8 (Course) (B) _____ (Objective)

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) **Bank**

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	Systems	Recirc						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level: (Check one)

	1	Memory
	2	Comprehension
X	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

After a trip of the "1B" Recirculation Pump recirculation flow was lowered to 20 Mlbm/hr on the "1A" Recirculation Pump. The "1B" Recirculation Pump is started in accordance with procedures. Which one of the following flow changes will occur?

a. Loop A jet pump flow rises, loop B jet pump flow rises.

b. Loop A jet pump flow lowers, loop B jet pump flow rises.

c. Loop A jet pump flow rises, loop B jet pump flow lowers.

d. Loop A jet pump flow lowers, loop B jet pump flow lowers.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 202002, A1.07/3.1

(N) NOTES:

JUSTIFICATION:	Flow in the jet pump loop being started (B) will rise, flow in the operating loop will lowers as its jet pumps must discharge against an increased head.		
DISTRACTER A:	Loop A jet pump flow lowers.		
DISTRACTER C:	Loop A jet pump flow lowers.		
DISTRACTER D:	Loop B jet pump flow rises.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	A1.07 – Ability to predict and/or monitor changes in parameters associated with operating the RECIRCULATION FLOW CONTROL SYSTEM controls including: Recirculation loop flow.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: ON-164-001, OP-164-002

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

RO 40

(A) SY017 L-9 Course (B) 18 (2583) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords : (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	RECIRC FLOW CONTROL	SY017 L-9	AR-102-001		C	14 (2579)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

With Unit 1 at 100% power the following annunciator is received:

- RECIRC MG A CONTROL POWER FAILURE (AR-102-001 A02)

Which one of the following describes the effect of this malfunction?

a. Single loop operations must be entered because of the "A" recirc pump tripped.

b. The "A" recirc pump speed must be changed locally because its scoop tube is locked.

c. The "B" recirc pump speed must be lowered because the "A" recirc pump ran back to 45% speed.

d. Thermal power must be reduced to below 100% because the "A" recirc pump speed raised to maximum.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 202002 / 2.4.10 / 3.0

(N) NOTES:

JUSTIFICATION:	If change in Recirc MG Set A speed is required while scoop tube locked, MANUALLY POSITION scoop tube in accordance with OP-164-001 Reactor Recirculation System.		
DISTRACTER A:	The "A" pump scoop tube locks. The pump does not trip.		
DISTRACTER C:	The "A" pump scoop tube locks. The pump does not runback.		
DISTRACTER D:	The "A" pump scoop tube locks. The pump speed does not rise to maximum.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	2.4.10 – Knowledge of annunciator response procedures.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(10)		
COMMENTS:			

(O) REFERENCES:
AR-102-001 (A02), 2.3

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R. E. Ch

RO 41 SRO ~~45~~ 33

(A) SY017 C-1 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	ECCS	RHR						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% power with the following conditions:

- SO-149-002, Quarterly RHR System Flow Verification, in progress.
- "A" RHR Pump discharging 12,200 gpm through HV-151-F024A, Test Return Valve.

During the test a valid LPCI initiation signal and loss of **250 VDC** Power occurs. Which one of the following is the response of the RHR system when RPV pressure lowers to ~~436~~ 410 psig.

	F015A, LPCI Injection Valve	F024A, Test Return Valve	F007A, Min Flow Valve	"A" RHR Pump
a.	REMAINS CLOSED	CLOSES	OPENS	TRIPS
b.	OPENS	CLOSES	OPENS	REMAINS RUNNING
c.	REMAINS CLOSED	REMAINS OPEN	REMAINS CLOSED	REMAINS RUNNING
d.	OPENS	REMAINS OPEN	REMAINS CLOSED	TRIPS

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 203000, K6.02/2.8

(N) NOTES:

JUSTIFICATION:	RHR Pump Breakers and logic is NOT effected by a loss of 250 VDC, only valves powered from 250 VDC. In this case none of these valves are effected. RHR will shift to LPCI mode and the necessary valves will align. The minimum flow valve will open until RPV pressure is low enough to inject.		
DISTRACTER A:	F015A opens, the RHR pump remains operating		
DISTRACTER C:	F015A opens, F024A will close and F007A will open.		
DISTRACTER D:	F024A will close and the RHR pump remains operating		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K6.08 - Knowledge of the effect that a loss or malfunction of the following will have on RHR/LPCI: INJECTION MODE: DC electrical power		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7		
COMMENTS:			

(O) REFERENCES: OP-149-001, SY017, C-1

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

RO 42 SRO ~~46~~ 34

(A) SY017 C-6 Course (B) 6d, 7d, 7g Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	HPCI						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 was operating at full power when the plant tripped and the MSIVs isolated following a loss of Main Condenser vacuum. After completing their initial actions operators lined up HPCI in the CST-CST mode for RPV pressure control.

HPCI was operating with it's flow controller in MANUAL with the following conditions.

- RPV pressure 865 stable
- HPCI discharge pressure 1035 psig
- HPCI speed 3500 rpm stable
- HPCI flow 2000 gpm stable

At this point, the operator throttles open HPCI TEST LINE TO THE CST ISO HV-155-F008, to lower HPCI discharge pressure.

Assuming NO other factors effect reactor pressure.

Which of the following will describes how this valve manipulation effects RPV pressure and why?

RPV pressure will...

a. rise because HPCI flow will rise.

b. lower because HPCI flow will lower.

c. remain the same because HPCI speed remains the same.

d. remain the same because HPCI turbine steam flow remains the same.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 206000, K3.02/3.8

(N) NOTES:

JUSTIFICATION:	With the flow controller in MANUAL the controller manually positions the steam admission valve. Changing the system flow will NOT change the steam admission valve position.		
DISTRACTER A:	HPCI flow will rise because its discharge head is lower, but the steam flow does not change.		
DISTRACTER B:	HPCI flow will rise as pump speed rises, but stream flow remains the same.		
DISTRACTER C:	HPCI speed will rise as flow rises and discharge pressure lowers.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K3.02 – Knowledge of the effect that a loss or malfunction of the HIGH PRESSURE COOLANT INJECTION SYSTEM will have on the following: Reactor pressure control.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).4, 41(b).5, 41(b).7		
COMMENTS:			

(O) REFERENCES: SY017 C-6 and OP-152-001, Sect. 3.5.3.o

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

35
RO 43 SRO 47

(A) SY017 C-2 Course (B) 4b, 7b Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	LPCS						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

With a LOCA signal present you are directed to CLOSE Core Spray "A" Inboard Injection Valve, HV-152F005A. When you attempt to close F005A the valve power supply breaker trips. Which one of the following is necessary to close HV-152F004A, Core Spray "A" Outboard Injection Valve?

To close F004 you must...

a. reset the LOCA signal.

b. close the breaker for F005A.

c. bypass the low pressure switch.

d. place its control switch to close.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 209001, A3.01/3.6

(N) NOTES:

JUSTIFICATION:	The LPCS initiation logic sends an OPEN signal to F004 that cannot be bypassed or overridden. The initiation logic must be reset.
DISTRACTER B:	This would have no effect on F004A.
DISTRACTER C:	There is no bypass switch for F004A, and it would only be of use if pressure was greater than 420 psig, which we can assume it is NOT because F005A has opened.
DISTRACTER D:	This would have no effect F004A cannot be overridden with the control switch (F005A can) once an initiation signal is received.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	A3.01 – Ability to monitor automatic operation of the LOW PRESSURE CORE SPRAY SYSTEM including: valve operation.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X
10CFR55:	41(b).7	
COMMENTS:		

(O) REFERENCES: SY017, C-2

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

RO 44 SRO ~~48~~ 36

(A) SY017 C-3 (B) _____
Course Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	SLC						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following indications does NOT require the Standby Liquid Control (SLC) system penetration at the RPV bottom vessel head?

a. Core Plate D/P.

b. CRD drive water flow.

c. CRD Cooling water D/P.

d. Total jet pump developed head.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 211000, K1.06/3.7

(N) NOTES:

JUSTIFICATION:	This penetration is required for A, C and D. CRD Flow is measured by flow elements in the CRD line.		
DISTRACTER A:	High pressure tap off of SLC penetration		
DISTRACTER C:	Low pressure tap off of SLC penetration		
DISTRACTER D:	Necessary for jet pump flows.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	K1.06 - Knowledge of the physical connections and/cause-effect relations between STANDBY LIQUID CONTROLSYSTEM and the following: Reactor vessel.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).7		
COMMENTS:			

(O) REFERENCES: SY017, C-3 SLC, P&ID M-148

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

Space
Space

RO 45 SRO ~~49~~ 37

(A) SY017 C-3 Course (B) 9a, 10a Objective

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
(≤9 characters)	RC	SBLC						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)

	1	Memory
X	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

Following a failure to scram on Unit 1 Standby Liquid Control has been initiated. The "B" Standby Liquid Control (SBLC) Pump breaker has tripped and the "A" Squib Valve did NOT fire. Which one of the following is current status of SBLC and what actions are required.

SBLC is...

a. NOT injecting, initiate alternate boron injection using RCIC.

b. injecting, to raise the injection rate fire the "A" Squib Valve.

c. NOT injecting, restart the "B" SBLC Pump or fire the "A" Squib Valve.

d. injecting, to raise the injection rate reset and start the "B" SBLC Pump.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 211000, K6.03/3.2

(N) NOTES:

JUSTIFICATION:	The A pump will discharge through the B squib valve. To raise the injection rate the breaker must be reset to start the B pump.		
DISTRACTER A:	Alternate boron injection is not needed SBLC is injecting.		
DISTRACTER B:	Firing the second squib valve will not raise the injection rate.		
DISTRACTER C:	SBLC is injecting.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K6.03 – Knowledge of the effect that a loss or malfunction of the following will have on the STANDBY LIQUID CONTROL SYSTEM: A.C. Power.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).4, 41(b).5, 41(b).6, 41(b).7		
COMMENTS:			

(O) REFERENCES: SY017 C-3

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

RO 46

(A) SY017 L-5 Course (B) 4 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	RC	RPS						

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A valid reactor scram signal is received and the PCO performs the immediate actions IAW ON-100-101, Reactor Scram and reports "All rods are NOT in". The PCO observes the scram air header low pressure alarm has activated and that the scram discharge volume vent and drain valves are closed. Which one of the following actions must be taken to attempt control rod insertion?

a. Reset and re-initiate ARI.

b. Reset and insert another scram.

c. Place the mode switch in SHUTDOWN.

d. Manually de-energize the scram solenoids

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 212000, 2.4.21/3.7

(N) NOTES:

JUSTIFICATION:	Scram air pressure has already been vented from the scram valves, this indicates a hydraulic ATWS, the only method given in the question to insert the control rods is to reset the scram.....which will drain the scram discharge volume, then initiate another scram.
DISTRACTER A:	This would also vent the air from the scram air header which has been done.
DISTRACTER C:	This would not do any good unless the SDV was drained first, which requires resetting the scram.
DISTRACTER D:	This would also vent the air from the scram air header which has been done.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	2.4.21 – Knowledge of the parameters and logic used to assess the status of safety functions including: (1) reactivity control, (2) core cooling and heat removal, (3) reactor coolant system integrity, (4) containment conditions, (5) radioactivity release control.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b).5, 41(b).6, 41(b).7
COMMENTS:	

(O) REFERENCES: ON-100-001, EO-100-113, SH 2

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

RO 47 SRO ~~72~~ 38

(A) SY017 I-2 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	IRM						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level: (Check one)
[ ] 1 Memory
[ ] 2 Comprehension
[X] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

During a Unit 1 startup the following Source Range Monitoring (SRM) and Intermediate Range Monitoring (IRM) readings were noted.

- All SRMs rise with NO control rod movement.
- "A" IRM rises from 50/125 on range 2 to 16/40 on range 3.
- "C" IRM rises from 75/125 on range 2 to 18/40 on range 3.
- "E" IRM rises from 40/125 on range 2 to 13/40 on range 3.
- "H" IRM rises from 35/125 on range 2 to 11/40 on range 3.

Which one of the following IRMs has failed to demonstrate SRM/IRM overlap?

a. "A"

b. "C"

c. "E"

d. "H"

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 215003, K5.01/2.8

(N) NOTES:

JUSTIFICATION:	SRM/IRM overlap is demonstrated by observing SRM's increasing while IRM's increase from a point on one range to the same point on the next highest range. IRM C should have gone from 75/125 on range 2 to 24/40 on range 3		
DISTRACTER A:	50/125 = 16/40		
DISTRACTER C:	40/126 = 13/40		
DISTRACTER D:	35/125 = 11/40		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	2
K/A TEXT:	K5.01 - Knowledge of the operational implications of the following concepts as they apply to INTERMEDIATE RANGE MONITORING (IRM) SYSTEM: Detector operation.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).10		
COMMENTS:			

(O) REFERENCES: GO-100-002, Sect. 6.40

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

RO 48 SRO ~~51~~ 39

(A) SY017 I-1 Course (B) 8.a,b, 14.a,b Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	SRM						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following describes the electrical power supplies to the Startup Range Monitors on Unit 1?

a. SRM channels from 24V DC, detector drives from 24V DC.

b. SRM channels from 24V DC, detector drives from 208/120V Instrument AC.

c. SRM channels from 125V DC, detector drives from 208/120V Instrument AC.

d. SRM channels from 208/120V Instrument AC, detector drives from 125V DC.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 215004, K2.01/2.6

(N) NOTES:

JUSTIFICATION:	SRMs are powered from the 24V DC System, Div I from 1D672, Div II from 1D682, the detector drives are powered from 1(2)Y218		
DISTRACTER A:	See justification above.		
DISTRACTER C:	See justification above.		
DISTRACTER D:	See justification above.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K2.01 – Knowledge of the electrical power supplies to the following: SRM channels/detectors.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).6, 41(b).7		
COMMENTS:			

(O) REFERENCES: SY017 I-1

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

40
RO 49 SRO ~~52~~

(A) SY017 I-4 Course (B) 1 (376) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	NMS	APRM	AR-103-001 TS 3.3.1.1		C	2 (377)		

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A Unit 1 is at 100% power. LPRM 1D 40-57 which inputs APRM "C" had failed. When the LPRM was bypassed the following alarms were received:

- RPS CHANNEL A1/A2 AUTO SCRAM (AR-103-001, A01)
- NEUTRON MON CHAN A SYSTEM TRIP (AR-103-001, A04)
- APRM CHAN A,C, E, UPSCALE OR INOP TRIP (AR-103-001, A05)

Which one of the following caused this condition?

The LPRM bypassed was the...

a. eighth detector bypassed in APRM "C".

b. seventh detector bypassed in APRM "C".

c. third D level detector bypassed in APRM "C".

d. second D level detector bypassed in APRM "C".

(K) ANSWER: a.

(L) REQUIRED MATERIALS: T.S. 3.3.1.1, Table 3.3.1.1-1

(M) K&A NUMBER/RATING: 215005 / A3.04 / 3.2 / 3.2

(N) NOTES:

JUSTIFICATION:	APRM C has 21 LPRMs assigned. When less than 14 LPRM inputs exist the count circuit will cause the APRM to go inop causing a 1/2 scram on the affected channel ("A" RPS).		
DISTRACTER B:	This would still leave 14 LPRM inputs and the APRM would remain operable.		
DISTRACTER C:	There are no trips on number of LPRM per level bypassed.		
DISTRACTER D:	There are no trips on number of LPRM per level bypassed.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	A3.04 - Ability to monitor automatic operations of the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM including: Annunciators and alarm signals.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)10		
COMMENTS:			

(O) REFERENCES:
AR-103-001, A05, SY017, I-4

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Ed Bowles

(R) Reviewed by: R.E. Ch

RO 50

(A) SY017 E-9 (B) 8 (337)

Course Objective

(C) Question Type (check one)

- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	PCS	PCSINST						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):

- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 65% power while a surveillance test is being performed on the recirculation drive flow instruments. During the surveillance the Mode Switch for the A Flow Unit is placed in zero (0) without first bypassing the flow unit. Which one of the following will occur and what action is required?

a. Several control room annunciators alarm and a rod block occurs, NO half scrams occur, bypass the A Flow Unit.

b. Several control room annunciators alarm and a full scram occurs, enter ON-100-101, SCRAM and take the immediate actions.

c. Several control room annunciators alarm and a rod block and half scram occur, bypass the A Flow Unit and reset the half scram.

d. Control room annunciator APRM/RBM FLOW REFERENCE OFF NORMAL activates, NO rod block or trips occur, bypass the A Flow Unit.

(K) ANSWER: ~~d.~~ a

(L) REQUIRED MATERIALS:

(M) K&A NUMBER/RATING: 216000 / A2.05 / 2.8

(N) NOTES:

JUSTIFICATION:	During the surveillance test the mode switch for the flow unit is placed in zero (0) to simulate a high flow condition, which causes the auctioneering circuit to shift to the other flow instrument, which in this condition is un-affected. No blocks or trips occur. (This same mode switch manipulation is an operator action on a flow unit failure.)		
DISTRACTER A:	No trips or blocks occur.		
DISTRACTER B:	No trips or blocks occur.		
DISTRACTER C:	No trips or blocks occur.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	A2.05 – Ability to (a) predict the impacts of the following on the NUCLEAR BOILER INSTRUMENTATION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Surveillance testing.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)10		
COMMENTS:			

(O) REFERENCES: ON-164-001, Sect. 3.0 and 5.0

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Ch

RO 51

(A) SY017 D-3 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	STM	FDW						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is at 100% power with the following feedwater RPV Level channel control indications.

- "B" RPV level channel is selected
- Green indicating light above SELECT LVL A, HS-C32-1S01 switch illuminated.
- Green indicating light above SELECT LVL B, HS-C32-1S01 switch extinguished.

Which one of the following is indicated by the conditions above?

The "B" RPV level channel...

a. has failed, the "A" RPV level channel is in service.

b. has failed, the "A" RPV level channel must be selected.

c. is in service, the "A" RPV level channel is NOT available.

d. is in service, the "A" RPV level channel is available but NOT selected.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 216000, A4.02/3.3

(N) NOTES:

JUSTIFICATION:	If a green indicating light above SELECT LVL A OR B HS-C32-1S01 push buttons is illuminated, loss of availability of that channel is indicated. Channel "B" is selected and in service the "A" Channel is NOT available.		
DISTRACTER A:	"B" is in service the "A" channel is NOT available.		
DISTRACTER B:	"B" is in service the "A" channel is NOT available.		
DISTRACTER D:	"A" is NOT available.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	A4.02 - Ability to manually operate and/or monitor in the control room: Channel select controls.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).7		
COMMENTS:			

(O) REFERENCES: ON-145-001, Sect. 5.0

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 52 SRO 41

(A) SY017 C-5 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	Systems	RCIC						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 was at 30% power when a reactor scram occurred on a loss of vacuum after circulating water was lost. After the initial scram actions were taken the following occurred:

- Reactor Core Isolation Cooling (RCIC) was placed in pressure control mode per OP-150-001.
- Workers in the Reactor Building bump Instrument Rack 1C004 causing a Division 1 Low RPV Level Trip (-30 inches).

Which one of the following is the effect on RCIC and the reasons for that effect?

a. No effects because RCIC will NOT realign after being manually placed in this line-up.

b. No effects, RCIC remains in pressure control mode, because only one division is effected.

c. RCIC automatically aligns for RPV injection because only one division is required for system initiation.

d. RCIC automatically aligns for RPV injection after RPV level lowers to actuate the Division 2 RPV Level Trip.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 217000, K1.02/3.5

(N) NOTES:

JUSTIFICATION:	Tripping one division of RCIC initiation will cause RCIC to automatically shift from pressure control mode to injection mode.		
DISTRACTER A:	RCIC will inject.		
DISTRACTER B:	RCIC will inject.		
DISTRACTER D:	RCIC does NOT have to wait for the second initiation signal it will inject with only one division actuated.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K1.02 - Knowledge of the physical connections and/or cause-effect relationships between REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM and the following: Nuclear boiler system.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).7		
COMMENTS:			

(O) REFERENCES: ON-150-001, Sect. 3.2 and SY017, C-5

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 53 SRO ~~55~~ 42

(A) SY017 C-4 Course (B) 3, 6 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords: (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	ECCS	ADS						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 was at 100% power when a LOCA occurred. The following events take place at the indicated times after the LOCA:

- Time = 2 seconds, High Drywell Pressure setpoint reached, ECCS pumps started and operate on minimum flow.
- Time = 20 seconds, RPV water level lowers to -129 inches.
- Time = 48 seconds, RPV water level recovers to -90 inches.
- Time = 60 seconds, RPV water level lowers to -129 inches.

Which one of the following is **the time remaining** before ADS initiates? The time remaining from T=60 secs

a. 42 seconds

b. 44 seconds

c. 82 seconds

d. 102 seconds

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 218000, K1.06/3.9

(N) NOTES:

JUSTIFICATION:	ADS will initiate automatically after 102 seconds from high drywell pressure with low vessel water level 1 and RHR pump or Core Spray loop running. The level 1 resets and does NOT seal in. Since this second signal occurs at Time = 60 seconds, there is 102 seconds from that time before the SRVs are opened.		
DISTRACTER A:	Based on time from LOCA		
DISTRACTER B:	Based on time from Hi Drywell Pressure		
DISTRACTER C:	Based on time from first level 1		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K1.02 - Knowledge of the physical connections and/or cause-effect relationships between AUTOMATIC DEPRESSURIZATION SYSTEM and the following: Safety/relief valves.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).7, 41(b).8		
COMMENTS:			

(O) REFERENCES: OP-183-001, Sect. 3.7

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

43
RO 54 SRO ~~56~~

(A) SY017 E-6 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	PCS	ATMOSCTL						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

With Unit 1 at 85% power when a load reject and loss of off-site power occur. The diesel generators start and power their associated buses.

Which one of the following describes the effect on Drywell Cooling?

The operating drywell unit coolers trip, then...

a. remain shutdown until manually started.

b. restart when the diesels start and are cooled by RBCW.

c. restart when the diesels start and are cooled by RBCCW.

d. restart when the diesels start and run without cooling water.

(K) ANSWER: ~~d.~~ c

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 223001 / K2.09 / 2.7 / 2.9

(N) NOTES:

JUSTIFICATION:	The power supplies to the drywell unit coolers trip but the fans restart and after cooling water is verified available cooling can be restored to the drywell.		
DISTRACTER A:	The fans trip and restart.		
DISTRACTER B:	The fans trip and restart.		
DISTRACTER C:	"B" is in service the "A" channel is NOT available.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K2.09 – Knowledge of the electrical power supplies to the following: Drywell Cooling Fans.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(7)		
COMMENTS:			

(O) REFERENCES: ON-104-001

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 55 SRO ~~5~~ 44

(A) SY017 H-2 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) **Bank**
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	MSIVs						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 has scrammed and the MSIVs isolated. The cause of the isolation has been corrected and the MSIV isolation logic reset. With RPV pressure greater than 600 psig which one of the following is required to re-open the MSIVs?

a. Drain the steam lines, bypass the MSIVs with the steam drains, lower the D/P to less than 200 psid then open the inboard then the outboard MSIVs.

b. Open the inboard MSIVs, drain the steam lines, bypass the outboard valves with the steam drains, lower the D/P to less than 50 psid then open the outboard MSIVs.

c. Drain the steam lines, open the outboard MSIVs, bypass the inboard valves with the steam drains, lower the D/P to less than 200 psid then open the inboard MSIVs.

d. Open the outboard MSIVs, drain the steam lines, bypass the inboard valves with the steam drains, lower the D/P to less than 50 psid then open the inboard MSIVs.

(K) ANSWER: d. Accept b also

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 223002, A4.03/3.6

(N) NOTES:

JUSTIFICATION:	Per procedure and system knowledge the outboard MSIVs are opened first, then the lines must be drained, then the D/P lowered to <50 psid then the inboards opened.		
DISTRACTER A:	The lines are drained after the outboard valves are opened to allow steam drains downstream to drain the lines, once drained the steam line drains are used to bypass the inboard MSIVs. The D/P must be lowered to <50 psid.		
DISTRACTER B:	The outboard MSIVs are opened first to allow steam line drains to drain the lines downstream of the inboard MSIVs.		
DISTRACTER C:	The lines are drained after the outboard valves are opened to allow steam drains downstream to drain the lines. The D/P must be lowered to <50 psid.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	A4.03 - Ability to manually operate and/or monitor in the control room: Reset system isolations.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).7, 41(b).10		
COMMENTS:			

(O) REFERENCES: OP-184-001, Sect. 3.2

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 56 SRO ~~59~~ 45

(A) SY017 C-4 Course (B) 8 (2101) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords :	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
(≤9 characters)	SRV	SY017 C-4			C	4 (2092) 5 (2096) 6 (2098)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following describes the response of a SRV that supports the ADS function if its Control Switch on Panel 1C601 is placed to OPEN after the ADS function is inhibited?

a. The valve remains closed because the ability to energize its solenoid valve is defeated.

b. The valve remains closed because pneumatic pressure to operate the valve is isolated.

c. The solenoid valve energizes and admits CIG to the pneumatic operator to open the valve.

d. The solenoid valve energizes and aligns gas bottles to the pneumatic operator to open the valve.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 239002 / K4.09 / 3.7 / 3.6

(N) NOTES:

JUSTIFICATION:	Inhibiting ADS does not affect the ability to manually operate the SRVs assigned to the ADS function. When the control switch is placed in OPEN, the Solenoid Valve for overpressure relief is energized, causing SRV opening. When the solenoid energizes, CIG is directed to the pneumatic operator, and the Valve opens. When the control switch is placed to close, it will de-energize the solenoid. The Solenoid Valve will reposition to block CIG to the pneumatic operator and vent it then spring tension will reseat (close) the valve.		
DISTRACTER A:	The valve will open. Inhibiting ADS does not affect the ability to manually operate the SRVs assigned to the ADS function.		
DISTRACTER B:	The valve will open. Inhibiting ADS does not affect the ability to manually operate the SRVs assigned to the ADS function.		
DISTRACTER D:	CIG pressure is aligned to the pneumatic operator to open the valve in the relief fucntion. The gas bottles are not aligned to open the valve unless in the ADS function. This is a function that occurs based on reactor operating conditions because of the piping and valve arrangement.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K4.09 – Knowledge of RELIEF/SAFETY VALVE design feature(s) and/or interlocks which provide for the following: Manual opening of the SRV.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(7)		
COMMENTS:			

(O) REFERENCES:
SY017 C-4, Figure 4c
EO-000-113, LQ/P-3

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 57 SRO ~~60~~ 46

(A) SY017 A-1, A-3 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	TUR/GEN	TURB						

(F) Point Value: [1] (G) Answer Time: [ ] (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
[X] 1 Memory
[ ] 2 Comprehension
[ ] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

Which one of the following describes the main turbine valve response to depressing the Turbine Trip Pushbutton on the Unit 1 Operating Benchboard, 1C651, at 100% power?

	Turbine Stop Valves SV-1,2,3 & 4	Turbine Control Valves CV-1,2,3 & 4	Main Turbine Intermediate Valves CIV-1,2,3,4,5 & 6	Turbine Bypass Valves BPV-1,2,3,4 & 5
a.	CLOSE	CLOSE	CLOSE	CLOSE
b.	OPEN	OPEN	OPEN	CLOSE
c.	CLOSE	CLOSE	CLOSE	THROTTLE
d.	CLOSE	OPEN	THROTTLE	THROTTLE

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 241000, A4.14/3.8

(N) NOTES:

JUSTIFICATION:	A turbine trip closes the TSVs, TCVs, CIVs and the TBV throttle to control RPV pressure.		
DISTRACTER A:	TBVs throttle		
DISTRACTER B:	TCVs, CIVs and the TBV throttle to control RPV		
DISTRACTER D:	TCVs, CIVs and the TBV throttle to control RPV		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	A4.14 – Ability to manually operate and/or monitor in the control room: Turbine trip.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).10		
COMMENTS:			

(O) REFERENCES: ON-193-002, Section 2.0

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

RO 58

(A) SY017 D-3 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	STM	FDW						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 50% power when a failure of the "A" Reactor Feedwater Pump (RFP) Controller. SIC-C32-1R601A occurs. The Shift Supervisor directs the "A" RFP placed on the Hydraulic Jack. After this evolution is conducted the power is raised to 75%. The following conditions exist:

- RPV water level is +35 inches
- Red light is ON at HYD JACK A HS-12772A
- Green light is ON at RFPT A Control Failure Signal Reset, HS-C32-1S05A
- All Feedpump flows have been balanced at 75% power.

The HYD JACK A HS-12772A OFF pushbutton is inadvertently depressed.

Which one of the following will occur?

The "A" RFP speed and flow will...

a. rise, "B" and "C" RFPs speed and flow lower and RPV water level remains at + 35 inches.

b. lower, "B" and "C" RFPs speed and flow rise and maintain RPV water level at + 35 inches.

c. rise, "B" and "C" RFPs speed remains the same and RPV water level rises causing HI Level trip.

d. lower, "B" and "C" RFPs speed remains the same and RPV water level lowers until a recirculation pump runback occurs.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 259001, A1.05/2.8

(N) NOTES:

JUSTIFICATION:	When the Hydraulic Jack pushbutton is pressed the Controller will take control of the "A" RFP and will lower its speed (control valve position) to the 50% power flow equivalent. This position will require feedwater control to raise "B" and "C" pumps speed and flow.
DISTRACTER A:	"B" and "C" RFP speed must rise to make up for the reduction in "A" RFP flow.
DISTRACTER C:	"B" and "C" RFP speed must rise to make up for the reduction in "A" RFP flow level is maintained at + 35 inches.
DISTRACTER D:	"B" and "C" RFP speed must rise to make up for the reduction in "A" RFP flow level is maintained at + 35 inches.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	A1.05 – Ability to predict and/or monitor changes in parameters associated with operating the REACTOR FEEDWATER SYSTEM controls including: RFP turbine control valve position.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b).7
COMMENTS:	

(O) REFERENCES: ON-145-001, Section 3.16 and note from 3.3.2, ON-145-001, Sect. 3.8

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

47
RO 59 SRO ~~61~~

(A) SY017 D-3 Course (B) 8.c Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	FWLCS						

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% power with all control systems operating normally. Which one of the following would occur if the total steam flow input to the Feedwater Control system lowered to zero flow?

RPV water level will...

a. lower until the reactor scrams on low level.

b. lower and be automatically maintained between 22 to 25 inches.

c. rise to between 42 to 45 inches where feedwater control will lock as-is.

d. rise until the main turbine and reactor feedwater pumps trip.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 259002, A3.03/3.2

(N) NOTES:

JUSTIFICATION:	Total loss of steam flow at 100% power will cause RPV level to lower until the reactor scrams on low level.		
DISTRACTER B:	Reactor scrams on low level.		
DISTRACTER C:	Reactor scrams on low level.		
DISTRACTER D:	Reactor scrams on low level.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	A3.03 - Ability to monitor automatic operations of the REACTOR WATER LEVEL CONTROL SYTEM including: Changes in main steam flow.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).7		
COMMENTS:			

(O) REFERENCES: SY017, D-3, Attachment 5

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

RO 60

(A) SY017 D-3 Course (B) 2 (1816) Objective

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	RWLC	SY017 D-3			C	9 (1835)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):

	1	Memory
X	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

The following conditions occurred on Unit 1 following a reactor scram from 95% power:

- RPV water level lowered to zero (0) inches before rising.
- Reactor Water Level Control System remains in AUTOMATIC.
- NO operator actions have been taken for the Reactor Water Level Control System.
- With RPV water level at +5 inches the PCO depresses ~~and holds~~ the SETPOINT SETDOWN reset pushbutton (HS-C32-1S08) ~~for five (5) seconds~~ and then releases it

Which one of the following describes where RPV water level will stabilize and why?

a. +5 inches because it can't be reset.

b. +13 inches because level hasn't recovered.

c. Stabilize at +18 inches because it can't be reset until level is ~~+18~~ +14 inches. or higher.

d. Stabilize at +35 inches because level will reset and return to the normal setpoint.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 259002 / 2.2.2 / 4.0

(N) NOTES:

JUSTIFICATION:	At +13 inches level setdown automatically initiates to control RPV water level at +18 inches. When level is at + 18 inches reset the level setdown will clear and the RFP will accelerate to raise and maintain RPV water level at +35 inches. Per OP-145-001, following the reactor scram: - OPEN STARTUP ISO VLV HV-10651A(B)(C) for Reactor Feed Pump 1P101A(B)(C) in service. (HC) - TRANSFER FW LO LOAD DEMAND SIGNAL TO LV-10641 LIC-C32-1R602 to AUTO with tapeset at 35". (HC) - RESET automatic level setdown when water level reaches 18". (HC) - ENSURE FW LO LOAD DEMAND SIGNAL TO LV-10641 LIC-C32-1R602 controlling Vessel level at ~ 35" in AUTO. (HC)		
DISTRACTER A:	See justification above.		
DISTRACTER B:	See justification above.		
DISTRACTER D:	See justification above.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	2.2.2 - Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).7		
COMMENTS:			

(O) REFERENCES:
OP-145-001, 3.17

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 61 SRO 48 82

(A) SY017 L-3 Course (B) 4, 13, 21 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	PCS	SBGT						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A fire in the "B" Standby Gas Treatment (SGTS) system has caused a high high temperature condition (410°F) on the SGTS unit. Which one of the following is the effect of this condition during a valid SGTS auto initiation?

a. Both SGT units will start.

b. Only the "A" SGT unit will start.

c. Only the "B" SGT unit will start.

d. Both SGT units will remain shutdown.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 261000, K4.01/3.7

(N) NOTES:

JUSTIFICATION:	Normally both trains would start but in this case the hi-hi temp on the "B" SGT prevents it from starting.		
DISTRACTER A:	The "B" SGT is blocked from starting by the hi-hi temp.		
DISTRACTER C:	The "B" SGT is blocked from starting by the hi-hi temp, the "A" SGT will start.		
DISTRACTER D:	The "A" SGT will start on an initiation.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	K4.01 – Knowledge of STANDBY GAS TREATMENT SYSTEM design features and/or interlocks which provide for the following: Automatic system initiation.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).13		
COMMENTS:			

(O) REFERENCES: SY017, L-3, OP-070-001, Section 3.2.8

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 62

(A) SY017 L-3 Course (B) 4.c Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	PCS	SBGT						

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% power when a leak in the drywell causes a drywell high pressure trip. All systems respond as designed.

Several minutes later the Zone I differential pressure degrades to -0.23 inches wg.

Which one of the following is the Standby Gas Treatment (SGT) system INITIAL response to be verified at Panel OC681 in response to the Zone I differential pressure degradation?

a. Outside Air Dampers, FD07551A2 and FD07551B2, modulate OPEN.

b. Outside Air Dampers, FD07551A2 and FD07551B2, modulate CLOSED.

c. Recirc/Plenum Dampers, PDD07554A and PDD07554B, modulate OPEN.

d. Recirc/Plenum Dampers, PDD07554A and PDD07554B, modulate CLOSED.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 261000, A2.12/3.0

(N) NOTES:

JUSTIFICATION:	The controllers for SGT control the Rx Bldg suction dampers (Recirc/Plenum Dampers, PDD07554A and PDD07554B) to maintain a minimum of –0.25 inches wg in the tripped zone. Since this (-0.23 inches wg) is above this value the dampers must OPEN to draw more air from the Zone. The correct response must be verified at Panel OC681 to ensure SGT is responding correctly.		
DISTRACTER A:	The outside air dampers maintain the d/p between the SGT suction plenum and the outside air, they may eventually reposition in response to this event but they will respond to the d/p between outside air and the SGT suction NOT the Rx Bldg. Pressure.		
DISTRACTER B:	The outside air dampers maintain the d/p between the SGT suction plenum and the outside air, they may eventually reposition in response to this event but they will respond to the d/p between outside air and the SGT suction NOT the Rx Bldg. Pressure.		
DISTRACTER D:	The Rx Bldg. suction dampers must open to draw more air from the Rx Bllg. Closing would allow pressure to rise.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	1	-
K/A TEXT:	A2.12 - Ability to predict the impacts of following on the STANDBY GAS TREATMENT SYSTEM and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: High system pressure.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).7		
COMMENTS:			

(O) REFERENCES: SY017, L-3, OP-070-001

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: _____

RO 63 SRO ~~64~~ 49

(A) SY017 G-1 (B) _____
Course Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	ELE	DG						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following will cause a Diesel Generator to trip following an automatic initiation?

a. Generator differential relay trips.

b. Turbo lube oil pressure lowers to 5 psig.

c. Jacket water temperature reaches 228°F.

d. Generator bearing temperature reaches 260°F.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 261000, K4.02/4.0

4(N) NOTES:

JUSTIFICATION:	A generator fault, overspeed and low lube oil pressure are the only conditions which will trip a diesel generator after an automatic start.		
DISTRACTER B:	This trip is bypassed by the auto start.		
DISTRACTER C:	This trip is bypassed by the auto start.		
DISTRACTER D:	This trip is bypassed by the auto start.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	K4.02 - Knowledge of EMERGENCY DIESEL GENERATOR design feature(s) and/or interlocks which provide for the following : Emergency diesel generator trips: (emergency/LOCA)		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).7, 41(b).8		
COMMENTS:			

(O) REFERENCES: SY017, G-1, OP-024-001

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

~~85~~ 50

RO 64 SRO

(A) SY017 G-1 (Course) (B) _____ (Objective)

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	DG	SY107 G-1	ON-024-001		C			

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):

X	1	Memory
	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

Diesel Generator "A" is being shutdown from Panel OC653 following a start because of an inadvertent LOCA signal. The diesel engine is currently coasting down.

Per OP-024-001, "Diesel Generators," which one of the following describes the consequence if the annunciator reset pushbutton at Panel OC521A is depressed during the coast down?

a. Fuel is injected restarting the diesel engine.

b. Governor causes engine to accelerate to 675 rpm.

c. Control Room Hi Priority Trouble alarm is bypassed.

d. Jacket water cooling pumps trip affecting engine cool down.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 264000 / 2.4.31 / 3.3 / 3.4

4(N) NOTES:

JUSTIFICATION:	Precautions: Annunciators should not be reset on Diesel Control Panel OC521A(B)(C)(D)(E) while the diesel generator is coasting to stop. Pressing the Reset pushbutton (Switch for DG E) causes the diesel fuel racks to cycle, injecting fuel into cylinder, causing diesel to fire and possibly causing damage.		
DISTRACTER B:	A governor failure could cause the engine to accelerate but is not a result of resetting the local annunciators. The concern is the fuel racks cycling.		
DISTRACTER C:	Control Room alarms are not bypassed. The concern is the fuel racks cycling.		
DISTRACTER D:	The jacket cooling water pumps will not trip. The concern is the fuel racks cycling.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	1	1
K/A TEXT:	2.4.31 – Knowledge of annunciators, alarms, and indications / and use of the response instructions.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b)(7) 41(b)(8)		
COMMENTS:	The question was modified to ask the consequence if the local annunciators are reset while the diesel engine is coasting down. The correct answer has changed to the consequence, which is the injection of fuel and engine restart. The previous correct answer was that the fuel racks will cycle. One distracter was changed and the correct answer was changed.		

(O) REFERENCES:
OP-024-001, 3.4.2

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

RO 65

(A) SY017 K-2 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	RC	CRDHYD						

(F) Point Value: 1

(G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

During a plant startup RPV pressure has reached 950 psig when a breaker fault causes the "A" Control Rod Drive (CRD) pump to trip. The "B" CRD pump is out of service for maintenance. With this CRD status which one of the following is correct?

An individual control rod...

a. **CANNOT** be moved using rod controls.
Scram times will exceed technical specification limits.

b. **can** be moved using rod controls.
Scram times will exceed technical specification limits.

c. **CANNOT** be moved using rod controls.
Scram times will be within technical specification limits.

d. **can** be moved using rod controls.
Scram times will be within technical specification limits.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 201003, K6.02/3.0

4(N) NOTES:

JUSTIFICATION:	Normal drive flow is lost because the drive water D/P is zero, the control rod can NOT be moved using normal methods. The CRD accumulators are still operable so scram times will be within T.S. limits.		
DISTRACTER A:	The CRD accumulators are still operable so scram times will be within T.S. limits.		
DISTRACTER B:	Normal drive flow is lost because the drive water D/P is zero, the control rod can NOT be moved using normal methods.		
DISTRACTER D:	Normal drive flow is lost because the drive water D/P is zero, the control rod can NOT be moved using normal methods.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	2	-
K/A TEXT:	K6.02 - Knowledge of the effect that a loss or malfunction of the following will have on the CONTROL ROD DRIVE MECHANISM: Reactor pressure.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).2, 41(b).5, 41(b).6		
COMMENTS:			

(O) REFERENCES: ON-155-007, sect. 5

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

5/
RO 66 SRO ~~68~~

(A) SY017 K-6 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) **Bank**
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	RWM						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Control rods are being withdrawn during a plant startup. The following conditions exist:

- The Rod Worth Minimizer (RWM) is in operation
- Control rods are being withdrawn in group 4
- Only one control rod remains to be withdrawn in group 4
- The operator attempts to select and withdraw a control rod in group 5

Which one of the following describes the response of the control rod in group 5, the response of the RWM, and the required action?

The control rod...

a. will **NOT** withdraw, a control rod withdraw block will be applied to this rod.
Select the correct control rod in group 4.

b. will **NOT** withdraw, a select block will be applied to the control rod in group 5.
Bypass the RWM then select the correct control rod in group 4.

c. will withdraw to its withdraw limit, the last rod in group 4 will be identified as an insert error.
Promptly insert the control rod in group 5 to position 00.

d. will withdraw only one notch, then control rod withdrawal blocks will be applied to all other control rods.
Position the control rod in group 5 to its intended position.

(K) ANSWER: d. Question deleted

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 201006, A2.05/3.1

4(N) NOTES:

JUSTIFICATION:	A rod block will not be applied until the rod moves out of its current position, then blocks will be applied to all rods. This control rod is considered unintended rod motion because an incorrect control rod is selected and moved one notch. The correct action is to move the control rod back to its intended position.
DISTRACTER A:	Blocks will be applied after the rod moves out of its current position.
DISTRACTER B:	A select block will not be applied
DISTRACTER C:	This rod cannot be withdrawn to its withdraw limit, rod blocks will be applied after it leaves its initial position. If a control rod is mispositioned, the correct action is to promptly insert the control rod to position 00. This control rod is considered unintended rod motion because an incorrect control rod is selected and moved one notch.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	2	-
K/A TEXT:	A2.05 - Ability to predict the impacts of following on ROD WORTH MINIMIZER and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Out of sequence rod movement.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b).6, 41(b).7
COMMENTS:	

(O) REFERENCES: Op-131-001, SY017, K-6

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: _____

Question deleted

RO 67

(A) SY017 L-9 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	RC	RECCONT						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 80% power with 76 Mlbm/hr core flow when a spurious feedwater flow signal causes a recirculation flow control runback. After the runback the following conditions exist:

- APRMs oscillating between 44% and 48% power
- Core flow is 42 Mlbm/hr
- Green lights are illuminated above RX RECIRC LIMITER 1 RUNBK RESET pushbutton.
- One (1) center region C-level LPRM upscale alarm is sealed in.
- Two (2) peripheral A-level LPRM downscale alarms are sealed in.

In accordance with ON-164-002, Recirc Drive Flow Instrument Failure, and the Power/Flow Map, which one of the following actions is required?

a. Raise core flow to at least 44 Mlbm/hr.

b. Place the reactor mode switch in SHUTDOWN.

c. Monitor for power instabilities and wait for RE instructions.

d. Insert control rods in accordance with the cram array to less than 40% power.

(K) ANSWER: a. Accept d 9/50

(L) REQUIRED MATERIALS: Power to Flow Map (NDAP-0338)

(M) K&A NUMBER/RATING: 202001, A3.04/ 3.2

4(N) NOTES:

JUSTIFICATION:	The Green lights are illuminated above RX RECIRC LIMITER 1 RUNBK RESET pushbutton, indicating that the runback (caused by the spurious feedwater flow signal) can be reset, allowing flow to be raised.		
DISTRACTER B:	The plant is in the immediate exit region, an immediate shutdown is NOT required.		
DISTRACTER C:	You can't wait for RE.		
DISTRACTER D:	The procedure's first step is to raise recirc flow so flow should be done first and cram arrays are no longer used.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	2	-
K/A TEXT:	A3.02 – Ability to monitor automatic operations of the RECIRCULATION SYSTEM including: Lights and alarms.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).5, 41(b).6, 43(b).5		
COMMENTS:			

(O) REFERENCES: ON-164-002, Sect. 3.4, NDAP-QA-0338-10

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 68 SRO ~~69~~ 52

(A) SY017 L-1 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	MECH	RWCU						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A reactor startup and heatup has just begun on Unit 1.

- Reactor water temperature is 312°F and rising.
- RWCU Blowdown Flow Regulating Valve, HV-144-F033 is throttled to maintain RPV water level between 30 inches and 40 inches.

Instrument Air is inadvertently isolated to HV-144-F033. How is RPV water level effected?

RPV water level will...

a. lower if the heatup rate is stopped.

b. rise if the heatup rate is maintained.

c. remain the same if the heatup rate is stopped.

d. remain the same if the heatup rate is maintained.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 204000, K3.02/ 3.1
4(N) NOTES:

JUSTIFICATION:	Maintaining the heatup rate will continue to raise the volume of water in the RPV. The blowdown valve fails closed on loss of air so RPV level will rise.
DISTRACTER A:	Level will rise, because the blowdown valve closes and CRD is still injecting into the RPV with no method other than steam drains to remove the water, additionally recirculation pumps will continue to add heat.
DISTRACTER C:	Level will rise because the CRD system is injecting into the RPV more than current steam rejection rate at this temperature.
DISTRACTER D:	Level will rise, because the blowdown valve closes.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	K3.02 – Knowledge of the effect that a loss of the REACTOR WATER CLEANUP SYSTEM will have on the following: Reactor water level.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b).7, 41(b).10
COMMENTS:	

(O) REFERENCES: GO-100-002, OP-161-001, ON-118-001, Att A.

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

53
RO 69 SRO ~~70~~

(A) SY017 C-1 Course (B) ?? Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	RHR SDC	SY-017 C-1			C			

(F) Point Value: 1 (G) Answer Time: [ ] (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A shutdown and cooldown is in progress on Unit 1. Per OP-149-002, RHR Shutdown Cooling, the required level band is established then Shutdown Cooling (SDC) is placed into service with one Reactor Recirculation (RR) loop shutdown.

One (1) hour after establishing SDC, the operating RR pump trips. Which one of the following describes the action to be taken for reactor water level?

Adjust reactor water level...

a. to a new band of +35 to +50 inches.

b. to a new band of +90 to +100 inches.

c. maintaining level within the band established before the event.

d. maintaining level above the band established before the event.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 205000 / K6.03 / 3.1 / 3.2

4(N) NOTES:

JUSTIFICATION:	A level of +90 to +100 inches is established before starting SDC and is maintained throughout SDC operations – with RR flow and without RR flow.
DISTRACTER A:	+90 to +100 inches is established.
DISTRACTER B:	Once +90 to +100 inches is established before starting SDC, this level is maintained throughout SDC operations – with RR flow and without RR flow.
DISTRACTER D:	+90 to +100 inches is established before establishing SDC and is maintained throughout SDC operations.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
	K6.03 - Knowledge of the effect that a loss or malfunction of the following will have on the SHUTDOWN COOLING SYSTEM: Recirculation System.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	X
	NEW:	

10CFR55:	41(b)(10)
COMMENTS:	The original question asked for the required reactor water level to secure all RR flow and why. The question was changed to the action to be taken for reactor water level if the operating RR pump trips once the conditions of OP-149-002 are established. The answer and all distracters changed.

(O) REFERENCES:
OP-149-002, 3.1.1, 3.1.2

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Chi

54
RO 70 SRO A

(A) SY017 K-4, K-6 (Course) (B) _____ (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	RC	RSCS						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is at 8% power during a plant startup. The following conditions exist:

- A control rod is to be withdrawn from 12 to 24.
- The control rod has failed reed switches at position 18 and 20.

Which one of the following is required to withdraw the control rod?

The control rod must...

a. be bypassed in the RSCS and the RWM bypassed.

b. be bypassed in the Rod Drive Control Cabinet (RDCC).

c. have substitute rod positions entered in the RWM and the RSCS.

d. have substitute positions entered in the RSCS and be bypassed in the RDCC.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 214000, K5.01/2.7

4(N) NOTES:

JUSTIFICATION:	The control rod must be bypassed in the RSCS and the RWM must be bypassed.		
DISTRACTER B:	This will not allow withdrawal of the rod.		
DISTRACTER C:	Substitute rod positions can only be added for one position in the RSCS.		
DISTRACTER D:	Should not be bypassed in the RDCC and only one position can be bypassed in the RSCS.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	K5.01 - Knowledge of the operational implications of the following concepts as they apply to ROD POSITION INFORMATION SYSTEM: Reed switches.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).6, 41(b).7		
COMMENTS:	Question is based on system knowledge.		

(O) REFERENCES: ON-155-004

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

RO 71

(A) SY017 K-5 Course (B) 5 (1554) Objective

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	NMS	RBM						

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)

	1	Memory
X	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

Given the following conditions:

- Unit 2 is at 35% power with control rod withdrawal in progress
- The "A" Rod Block Monitor (RBM) Gain Change Circuit malfunctions such that there are NO gain adjustments to the LPRM input signals

Which one of the following describes how the movement of a low power control rod is affected?

a. During control rod withdrawal the Backup Trip Unit controls the local power rise.

b. The low trip setpoint is selected and a control rod withdrawal block is generated.

c. The alternate reference APRM is selected allowing continued control rod withdrawal.

d. During control rod withdrawal its local power is higher before protective actions occur.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 215002 / K1.02 / 3.2

4(N) NOTES:

JUSTIFICATION:	It is possible for a local power measurement to differ from the average power of the core as a whole. The RBM functions to aid the operator in preventing local fuel damage due to control rod withdrawal. The Gain Change Unit is basically an amplifier circuit. In the Gain Change Unit, the averaged value of local power is compared to an APRM reference power signal. If local power is below the APRM power, the Gain Change Unit raises the circuit gain to artificially raise the value of local power, thus bringing it closer to a Rod Block Limit. The amount of added gain is determined by the difference between averaged local power and the APRM reference power. Selected rods, which may have significantly lower local power below the Core average, offer the potential for high rod worth. The gain is increased to restrict the rate of power rise. The Gain Change Unit amplifies the averaged local power value until it is equal in magnitude to the APRM reference, thus bringing the two signals into "balance."		
DISTRACTER A:	The criteria to switch to the backup trip unit are not satisfied.		
DISTRACTER B:	The trip setpoints are selected by the operator using SETUP. This is not an automatic feature. Rod block will not occur until a control rod is being moved assuming that the trip setpoint is exceeded.		
DISTRACTER C:	The criteria to select the alternate reference APRM are not satisfied. Control rod withdrawal is permissible but this is not why.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	2	-
	GROUP:	2	-
K/A TEXT:	K1.02 – Knowledge of the physical connections and/or cause-effect relationships between ROD BLOCK MONITOR SYSTEM and the following: LPRM.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b)7		
COMMENTS:			

(O) REFERENCES:

SY017 K-5, IV.B.3

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R-E. Cl

RO 72

(A) SY017 C-1 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords: (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	ECCS	RHR						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Following a steam line break in the drywell the following conditions present.

- RPV Pressure 456 psig and lowering
- RPV water level -112 inches and steady
- Drywell Pressure 17 psig and rising
- All four (4) RHR Pumps Running with minimum flow valves open.
- RHR Inj Valve, F017A/B Open

To open the Drywell Spray Outboard Isolation Valve (F016A/B) you must...

a. wait 45 seconds and close the Injection valve (F017A/B).

b. wait until RPV water level has been raised to +13 inches.

c. place the LOCA Isolation manual override switch in override.

d. verify the Inboard Drywell Isolation Valve (F021A/B) is closed.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 226001, A2.13/ 2.8

4(N) NOTES:

JUSTIFICATION:	A LOCA condition gives an isolation signal to F016A/B, to bypass this signal the LOCA Isolation Manual Override switch must be place in OVERRIDE.		
DISTRACTER A:	Although this valve is closed before spraying the drywell, the logic does NOT require it.		
DISTRACTER B:	There is no requirement or interlock associated with RPV water level.		
DISTRACTER D:	F021A/B is opened before F016A/B is opened and under these conditions both valves will be opened.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	2	-
K/A TEXT:	A2.13 – Ability to (a) predict the impacts of the following on RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Valve logic failure.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).8		
COMMENTS:			

(O) REFERENCES: OP-149-004, Sect. 3

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch-

RO 73 SRO73

(A) SY017 C-1 (Course) (B) _____ (Objective)

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Obis.	Quiz Only	Retired
	Systems	RHR						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):

	1	Memory
	2	Comprehension
X	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

A loss of off-site power has occurred with the following conditions:

- "A" and "C" Diesel Generators have tripped.
- "B" and "D" Diesel Generators have been started and their output breakers closed.
- Unit 1 Suppression Pool temperature is 89°F
- Unit 2 Suppression Pool temperature is 111°F

Which one of the following actions is required?

a. Place 1B RHR pump in Suppression Pool Cooling.

b. Place 2B RHR pump in Suppression Pool Cooling.

c. Place 1B and 2B RHR pump in Suppression Pool Cooling.

d. Place 2B and 2D RHR pump in Suppression Pool Cooling.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 219000, K2.02/3.1

4(N) NOTES:

JUSTIFICATION:	Cooling that containment is the top priority Unit 2 has an EOP entry on SP temp, so the Unit 2 containment should be place in Suppression Pool Cooling first. Two RHR pumps would overload the bus. RHR pump D cannot be operated because pump cooling is not available.		
DISTRACTER A:	Unit 2 requires Suppression Pool Cooling		
DISTRACTER C:	Both RHR pumps on DG B cannot be started for containment cooling.		
DISTRACTER D:	Pump D is not available.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	K2.02 - Knowledge of the electrical power supplies to the following: Pumps.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).5, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: EO-000-031

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

RO 74

(A) SY017 H-2 Course (B) 3 (1644) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	MAIN STEAM	SY017 H-2	ON-184-001		C	16 (1666)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

With Unit 1 at 40% power, the following temperatures are observed for the Reactor Building Steam Tunnel:

- TE-B21-1N014A = 178°F
- TE-B21-1N014B = 188°F
- TE-B21-1N014C = 165°F
- TE-B21-1N014D = 168°F

Which one of the following describes the FINAL STATE of the Main Steam Lines (MSL)?

a. All MSLs are open.

b. All MSLs are isolated.

c. "B" MSL is isolated. "A", "C", and "D" MSLs are open.

d. "A" and "B" MSLs are isolated. "C" and "D" MSLs are open.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 239001 / K4.01 / 3.8

4(N) NOTES:

JUSTIFICATION:	High temperature alarm occurs at 157°F. High temperature isolation occurs at 177°F. The isolation logic for a full isolation is "A" or "C" and "B" or "D". Since the "A" and "B" main steam line temperatures are above the isolation setpoint, the isolation logic is initiated to close all MSIVs (full isolation).		
DISTRACTER A:	A full isolation signal is received and all MSIVs close.		
DISTRACTER C:	A full isolation signal is received and all MSIVs close.		
DISTRACTER D:	Since the "A" and "B" main steam lines are above the isolation setpoint, a full isolation signal is received and all MSIVs close not the "A" and "B" valves.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	2	-
	GROUP:	2	-
K/A TEXT:	K4.01 – Knowledge of the MAIN AND REHEAT STEAM SYSTEM design feature(s) and/or interlocks which provide for the following: Automatic isolation of main steam lines.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)5, 41(b)10		
COMMENTS:			

(O) REFERENCES:

AR-111-B2, B3

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Chi

RO 75

(A) SY017 A-2 Course (B) Objective

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords:	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	Systems	Turbine L.O.						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)

	1	Memory
X	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

Unit 1 is at 100% power when the main turbine, Main Shaft Oil Pump (MSOP) discharge pressure begins to lower. Assuming all automatic actions occur, which one of the following will occur **first** as oil pressure lowers and what is the **final** status of the main turbine?

a. Motor suction pump starts, main turbine trips.

b. Turning gear oil pump starts, main turbine trips.

c. Motor suction pump starts, main turbine continues to operate.

d. Turning gear oil pump starts, main turbine continues to operate.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 245000, A4.08/2.7

4(N) NOTES:

JUSTIFICATION:	Turning Gear Oil Pump starts first (190 psig or bearing header pressure of 15 psig). Main turbine oil pressure will continue to lower and at 105 psig with turbine speed greater than 1300 rpm a turbine trip will occur.		
DISTRACTER A:	Turning gear oil pump starts first.		
DISTRACTER C:	Main turbine trips		
DISTRACTER D:	Main turbine trips		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	2	-
K/A TEXT:	A4.08 - Ability to manually operate and/or monitor in the control room: Turbine oil pressure.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).4, 41(b).7		
COMMENTS:			

(O) REFERENCES: ON-193-002

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 76 SRO ~~63~~ 56

(A) SY017 G-5B (Course) (B) 2.o, 3.d, 5.d (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords: (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	13.8 KV Electrical						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 Reactor Mode Switch is in STARTUP. Auxiliary Buses are being supplied by Startup Bus 10 when degraded system voltages lower the Auxiliary Bus voltage to 10,350 volts for 30 seconds. Which one of the following occurs?

a. Startup Bus 10 initiates load shedding.

b. The Auxiliary Buses initiate load shedding.

c. The Startup Bus feeder breaker, 0A10301, trips open.

d. The Tie Bus to Auxiliary Bus feeder breakers, 0A10104 and 0A10204, trip open.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 262001, A1.03/2.9

(N) NOTES:

JUSTIFICATION:	When Aux Bus voltage drops below 81% (11,100 volts) for 10 seconds a load shed is initiated to strip the large loads off the Aux Bus.
DISTRACTER A:	Startup bus does NOT shed load the breakers to the Aux Buses remain closed
DISTRACTER C:	The startup feeder breaker remains closed.
DISTRACTER D:	Loss of supply voltage does not trip bus supply breakers1A10101and 1A10104.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	1
K/A TEXT:	A1.03 – Ability to predict and monitor changes in parameters associated with operating the ELECTRICAL DISTRIBUTION controls including: Bus voltage.		

QUESTION SOURCE:	BANK:	X
	MODIFIED:	
	NEW:	
10CFR55:	41(b).7	
COMMENTS:		

(O) REFERENCES: ON-103-003, Sect. 2.4

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

RO 77

(A) SY017 G-5E (Course) (B) _____ (Objective)

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords:	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	ELE	AC						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level: (Check one)

	1	Memory
	2	Comprehension
X	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% power when the following annunciator alarms:

INSTRUMENT AC UPS 1D130/PNL 1Y128 TROUBLE/ABNORMAL

Upon investigation at the UPS annunciator panel the NPO reports that the "LO BAT" alarm is lit and the AC input to the UPS is tripped. Per ON-117-001 you direct the NPO to transfer the power supply to Bypass Power.

When completed, which one of the following will be the 1Y128 power source and flowpath?

a. Directly from a 480 VAC MCC.

b. 125 VDC through the UPS inverter.

c. Directly from the 125 VDC battery bus.

d. A 480 VAC MCC through the UPS static switch.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 262002, 2.4.50/3.3

(N) NOTES:

JUSTIFICATION:	Bypass power supplies the loads directly bypassing UPS 1D130, Bypass power is from 480 VAC MCC 1B226.		
DISTRACTER B:	Power supply is 480 VAC, bypassing the UPS.		
DISTRACTER C:	Power supply is 480 VAC.		
DISTRACTER D:	The bypass supply, bypasses the UPS (including the static switch).		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	
	TIER:	2	
	GROUP:	2	
K/A TEXT:	2.4.50 – Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).7, 41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: ON-117-001, SY017, G-5E

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

57
RO 78 SRO ~~75~~

(A) SY017 G-3 Course (B) ?? Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	DC DIST	SY017 G-3	ON-102-640					

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

With Unit 1 shutdown (MODE 3), a loss of 125 VDC Bus ID644 occurs.
Which one of the following is an effect of this power loss?

a. 1B Reactor Recirc pump trips.

b. Control power is lost to 4KV Bus 1C.

c. A RHR and A CS automatic start is disabled.

d. DG D automatic and manual start is prohibited.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 263000 / A4.01 / 3.3 / 3.5

(N) NOTES:

JUSTIFICATION:	Breakers at 4KV Bus 1D lose control power, Automatic and manual DG start is defeated upon a loss of 1D644.		
DISTRACTER A:	Reactor Recirc pump trips are defeated upon a loss of 1D610. The Reactor Recirc pump will not trip. This is the wrong DC power loss.		
DISTRACTER B:	1C bus is effected by a loss of 1D630.		
DISTRACTER C:	Automatic start features are defeated upon a loss of 1D610, 1D620, 1D630, and 1D640. A RHR and CS are control power is from 1D610. For 1D640, the D RHR and D CS pumps are affected.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	A4.01 – Ability to manually operate and/or monitor in the control room: Major breakers and control power fuses.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b)(7) 41(b)(10)		
COMMENTS:			

(O) REFERENCES:
ON-102-640, Attachment A.

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

58

RO 79 SRO 76

(A) SY017 F-3 (Course) (B) _____ (Objective)

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	STM	OFFGAS						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):

X	1	Memory
	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

For Unit 1 which one of the following are the OFFGAS PRE-TREATMENT and OFFGAS POST-TREATMENT PROCESS RADIATION MONITOR sample point locations?

The Pre-Treatment ~~Monitor~~ Sampling takes a sample from...
The Post-Treatment ~~Monitor~~ takes a sample from...

a. The inlet to the Steam Jet Air Ejectors.
The inlet to the Offgas HEPA Filter.

b. The inlet to the Offgas Recombiners.
The outlet from the Charcoal Adsorbers.

c. The outlet from the Offgas Recombiners.
The outlet from the Offgas HEPA Filter.

d. The outlet from the Steam Jet Air Ejectors.
The inlet to the Charcoal Adsorbers.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 271000, K1.02/ 3.1

4(N) NOTES:

JUSTIFICATION:	The pre-treatment monitor takes a suction from the outlet of the Motive Steam Jet Air Ejector, using the D/P back to the Main Condenser to take the sample. The post-treatment monitor uses a CAM monitor connected to the outlet of the Offgas HEPA Filter.		
DISTRACTER A:	The SLAE inlet pressure is lower then the outlet, this vacuum draws a sample from the outlet which is at atmospheric pressure.		
DISTRACTER B:	The recombiners are downstream from the SJAE and off-gas preheaters, the charcoal adsorbers and HEPA filters are upstream of the post-treatment monitors.		
DISTRACTER D:	The recombiners are downstream from the SJAE and off-gas preheaters, the charcoal adsorbers and HEPA filters are upstream of the post-treatment monitors.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	K1.02 – Knowledge of the physical connections and/or cause-effect relationships between OFFGAS and the following: Process radiation monitoring system.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).10, 41(b).11, 43(b).5		
COMMENTS:			

(O) REFERENCES: OP-179-002, Sect. 3.8 and 3.9, P&ID M107

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 80 SRO 59

(A) SY017 N-2 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	MSC	FP						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
[ ] 1 Memory
[ ] 2 Comprehension
[X] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

Following maintenance on the Diesel Fire Pump batteries a technician failed to re-connect the battery leads. How will the Diesel Fire Pump respond to an automatic start signal?

The Diesel Fire Pump will...

a. start and operate normally.

b. start but only operate at idle speed.

c. NOT start and CANNOT be manually started.

d. NOT start remotely, but can be manually started locally.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 286000, K2.02/ 2.9

4(N) NOTES:

JUSTIFICATION:	The batteries at the diesel fire pump provide all the available starting power.		
DISTRACTER A:	The diesel cannot be started.		
DISTRACTER B:	The diesel cannot be started.		
DISTRACTER D:	The diesel cannot be started.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	K2.02 – Knowledge of electrical power supplies to the following: Pumps		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).8		
COMMENTS:			

(O) REFERENCES: OP-013-001, Sect. 3.1.5 NOTE (1)

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

60
RO 81 SRO ~~66~~

(A) SY017 E-2 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords:	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	PCS	SECCONT						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
[ ] 1 Memory
[ ] 2 Comprehension
[X] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

A LOCA on Unit 1 with high airborne radiation has caused a Reactor Building HVAC Zone 1 isolation. The Standby Gas Treatment (SGTS) receives an automatic start signal but the SGTS Suction Dampers (07552A/B) fail to open. Which one of the following is the radioactive release path?

a. A filtered SGTS discharge through the Reactor Building Stack.

b. An unfiltered ground level release from Reactor Building leakage.

c. An unfiltered SGTS discharge through the Reactor Building Stack.

d. A filtered Reactor Building HVAC discharge through the Reactor Building Stack

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 290001, K3.01/ 4.0

4(N) NOTES:

JUSTIFICATION:	Failure of the SGTS Suction Dampers (07552A/B) to open will cause the SGTS fans to trip on low flow, this will result in a loss of ventilation in the reactor building allowing a release through reactor building leakage.		
DISTRACTER A:	Failure of the SGTS Suction Dampers (07552A/B) to open will cause the SGTS fans to trip on low flow.		
DISTRACTER C:	Failure of the SGTS Suction Dampers (07552A/B) to open will cause the SGTS fans to trip on low flow		
DISTRACTER D:	RB HVAC trips on an auto initiation of SGTS.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	-
	GROUP:	2	-
K/A TEXT:	K3.01 – Knowledge of the effect that a loss or malfunction of the SECONDARY CONTAINMENT will have on the following: Offsite radioactive release rates		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).7, 41(b).9, 55.43(b).4		
COMMENTS:			

(O) REFERENCES: OP-070-001, OB-159-002, App E.

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

61
RO 82 SRO ~~78~~

(A) SY017 L-11 Course (B) 1358 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	PCS	CSHVAC						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A fire in the Main Control Room has resulted in damage to the Control Structure HVAC wiring HVAC Panel 0C681. Control Room Evacuation was required. Which one of the following is used to re-establish Control Structure HVAC?

a. Place the "A" train of CS HVAC in service at panel 0C879, Area 21-783' in the Control Structure.

b. Transfer Instrument Set 1 to EMERG position at the Unit 1 Remote Shutdown Panel, then proceed with local breaker operations.

c. Direct Electrical Maintanance to Jumper the start relays at the Local Panel 0C877A (B) for the train that was not in service.

d. Place both trains of CS HVAC in service by tripping the CREOASS Process Radiation Monitor in the Lower Relay Room.

(K) ANSWER: a.

OPERATIONS QUESTION AND ANSWER INPUT FORM

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 290003, 2.1.28/3.2

4(N) NOTES:

JUSTIFICATION:	As directed by procedure ON-013-001.		
DISTRACTER B:	Instrument Set 1 does not provide input to CS HVAC.		
DISTRACTER C:	No direction is given for this action.		
DISTRACTER D:	This is not directed, and also would not re-establish CS HVAC		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	?
	GROUP:	2	?
K/A TEXT:	2.1.28 – Knowledge of the purpose and function of major system components and controls.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).8, 55.43(b).5		
COMMENTS:			

(O) REFERENCES: SY017 L-11, ON-013-001

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 83

(A) SY017 L-17 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords : (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	Systems	TBCCW						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following statements describes the impact, on Unit 1, if the Turbine Building Closed Cooling Water (TBCCW) system is unable to perform its intended function?

a. The main generator overheats requiring a load reduction to below 30%.

b. Condensate pumps overheat requiring a power reduction and reactor scram.

c. Turbine lube oil temperature rises requiring a load reduction and tripping the main turbine.

d. Reactor Feedpump oil temperatures will rise requiring a power reduction and reactor scram.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 400000, A2.01/3.3

(N) NOTES:

JUSTIFICATION:	On a loss of TBCCW system the ON requires the operators to monitor the condensate pump temperatures so they can be shut down as there temperatures rise. This will require a power reduction and an eventual scram as condensate pumps are lost.		
DISTRACTER A:	Generator cooling is not a problem it's cooled by service water.		
DISTRACTER C:	Turbine lube oil is not effected it's cooled by service water.		
DISTRACTER D:	A loss of TBCCW will not cause a loss of cooling to the RFPs.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	A2.01 – Ability to (a) predict the impacts of the following on: COMPONENT COOLING WATER SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of CCW pump.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).4, 41(b).10		
COMMENTS:	Used the term, unable to perform its intended function, instead of tripping a pump and not recovering the other pump, because the procedure uses unable to perform its intended function.		

(O) REFERENCES: ON-115-001, Sect. 3.2.4

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 84 SRO ~~80~~ 62

(A) SY017 I-5 Course (B) 6 (2315) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	TIP	SY017 I-5				8 (2317)		

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

With Unit 1 at 100% power, the following indications are observed on the Traversing In-core Probe (TIP) Valve Control Monitor Panel for Channel 1:

- Ball Valve Closed light: ON
- Ball Valve Open light: OFF
- Shear Valve Monitor Light: ON
- Squib Monitor Light: OFF

Which one of the following describes the operability of the Channel 1 TIP valves and the primary containment integrity?

a. Ball Valve is inoperable. Primary containment integrity is met.

b. Ball Valve is inoperable. Primary containment integrity is NOT met.

c. Shear Valve is inoperable. Primary containment integrity is met.

d. Shear Valve is inoperable. Primary containment integrity is NOT met.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 215001 / K4.01 / 3.4 / 3.5

(N) NOTES:

JUSTIFICATION:	Squib Monitor light when extinguished indicates circuit continuity lost (valve may not function on demand or may have fired). Shear Valve Monitor when lit indicates Shear Valve has actuated. The Shear Valve is still open so the squib has lost continuity but has not fired. Ball Valve closed light indicates the valve is closed. Since one the two valves is closed containment integrity is intact (met).		
DISTRACTER A:	Ball valve is operable and containment integrity is met. The Shear valve is inoperable.		
DISTRACTER B:	Ball valve is operable. The Shear valve is inoperable.		
DISTRACTER D:	Containment integrity is met because the Ball valve is closed.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	3	3
K/A TEXT:	K4.01 – Knowledge of TRAVERSING IN-CORE PROBE design feature(s) and/or interlocks which provide for the following: Primary containment isolation.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b)(7), 41(b)(9)		
COMMENTS:			

(O) REFERENCES:
OP-178-001, 3.1.2.c

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 85 SRO ~~81~~ 63

(A) SY017 L-2 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	MSC	FPC						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% power with the Fuel Pool Cooling (FPC) system in an operating lineup. Which one of the following will result in the **maximum** loss of fuel pool level?

Assume NO makeup sources are available.

a. A break in the RHR suction from the FPC system.

b. A loss of pneumatic supply to the fuel pool gate seals.

c. A drain valve is inadvertently opened on a FPC demineralizer.

d. A leak on the outlet line from the fuel pool cooling skimmer surge tank.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 233000, K3.02/ 3.1
4(N) NOTES:

JUSTIFICATION:	Instrument air supplies the inflatable seals on the refueling gates between the fuel pool and the reactor cavity. If the seals deflated water would leak from the fuel pool and level could lower to the bottom of the refueling gates ~793' 11".		
DISTRACTER A:	The cross-connect to RHR is from the outlet line from the skimmer surge tank and could only drain the fuel pool down to the bottom of the overflow weir ~ 816'.		
DISTRACTER C:	The demineralizers are on the discharge of the fuel pool cooling and cleanup pumps. Since the pumps take a suction on the skimmer surge tank this leak could only drain the fuel pool down to the bottom of the overflow weir.		
DISTRACTER D:	A leak on the outlet of the skimmer surge tank could only drain the fuel pool down to the bottom of the overflow weir.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	K3.02 – Knowledge of the effect that a loss or malfunction of the FUEL POOL COOLING AND CLEANUP will have on the following: Fuel pool water level.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).4, 41(b).7, 43(b).4		
COMMENTS:			

(O) REFERENCES: M-153, SY017 L-2

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 86 SRO ~~82~~ 64

(A) SY017 E-2 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	PCS	SECCONT						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
[ ] 1 Memory
[X] 2 Comprehension
[ ] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

Both units are operating at 100% power when a Unit 1 Railroad Access Shaft Radiation Monitor reaches 6 mr/hr. Which one of the following is the Reactor Building HVAC response?

	~~Zone 1 HVAC Fans~~ Recirc. Fans	Zone 3 HVAC Fans	SBGT	CREOASS
a.	STOP AND ISOLATE	NO CHANGE	STARTS	NO CHANGE
b.	RECIRC INITIATES	STOP AND ISOLATE	NO CHANGE	STARTS
c.	STOP AND ISOLATE	NO CHANGE	NO CHANGE ✔	NO CHANGE
d.	RECIRC INITIATES	STOP AND ISOLATE	STARTS	STARTS

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 288000, A3.01/ 3.8

4(N) NOTES:

JUSTIFICATION:	A rad level of 5 mr or greater at the Railroad Access Shaft will initiate a containment isolation and start CREOASS and SGTS.		
DISTRACTER A:	Zone 1 recirculation initiates, Zone 3 isolates, CREOASS starts		
DISTRACTER B:	SGTS starts		
DISTRACTER C:	Zone 1 recirculation initiates, Zone 3 isolates, CREOASS starts		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	2	2
K/A TEXT:	A3.08 – Ability to monitor automatic operations of the PLANT VENTILATION SYSTEMS including: Isolation/Initiation signals.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).4, 41(b).7		
COMMENTS:			

(O) REFERENCES: ON-070-001, section 3.3.2

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

65
RO 87 SRO ~~83~~

(A) SY017 C-2 Course (B) 17.c Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords:	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
(≤9 characters)	Systems	RPV						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

During operation at full power the following annunciator is received:

AR-109-EO2, CORE SPRAY LOOP A HDR BREAK DETECT HI DIFF PRESS

NO other annunciators alarm. An NPO sent to the d/p indicating switch reports that the d/p is 4.0 psid.

Which one of the following states the significance of this alarm and d/p indication on core spray flow during a subsequent Core Spray initiation?

Core spray flow will...

a flood the Drywell through the broken pipe.

b flow inside the core shroud and out the broken pipe.

c. flood the secondary containment because of a broken pipe.

d enter the annulus region of the reactor through the broken pipe.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 290002 K6.09/3.2

(N) NOTES:

JUSTIFICATION:	The alarm and d/p reading indicate the break is outside the shroud but inside the reactor. The normal 100% power d/p is –3.5 psid, if a break occurs between the RPV wall and the shroud the d/p across the dryer/separator are added to the core d/p raising the d/p above the 0.5 psid setpoint. The 4 psid reading indicates this raised d/p.		
DISTRACTER A:	The indicated d/p would be pegged high (+1000 psig).		
DISTRACTER B:	The indicated d/p would be low –3.5 psig (normal reading)		
DISTRACTER C:	The instrument measures d/p downstream of the check valve inside the primary containment.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	2	2
	GROUP:	3	3
K/A TEXT:	K6.09 – Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR VESSEL AND INTERNALS: LPCS.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).3, 41(b).5, 41(B).7		
COMMENTS:			

(O) REFERENCES: AR-109-EO2, SY017, Fact Sheet

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

66
RO 88 SRO ~~84~~

(A) AD044B (Course) (B) ?? (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords: (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
	ADMIN	AD044B			C			

(F) Point Value: 1 (G) Answer Time: [ ] (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A reactor operator (RO) left shift work on 6/30/2001. The RO worked all scheduled days this year until leaving shift. Since leaving shift, the RO has performed the following shifts as the PCOM:

- 7/19/2001 – 12 hours
- 8/18/2001 – 12 hours
- 8/30/2001 – 12 hours
- 9/10/2001 – 12 hours

Which one of the following describes the operator's license status on 9/11/2001?

a. The operator's license became inactive on 7/31/2001.

b. The operator's license became inactive on 8/31/2001.

c. The operator's license is active but a 12-hour shift must be stood before 10/1/2001 to maintain it active.

d. The operator's license is active but a 12-hour shift must be stood before 11/1/2001 to maintain it active.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: Generic / 2.1.2 / 3.0 / 4.0

(N) NOTES:

JUSTIFICATION:	To maintain a license active an operator must stand at least five (5) 12-hour watches each quarter. 6/30/2001 was the end of the second quarter. The third quarter ends on 9/30/2001. The operator must stand one more 12-hour shift before the end of September (before 10/1/2001) to maintain the license active.
DISTRACTER A:	Although only four shifts have been stood this quarter, the operator's license is still active and remains active until the end of the month of September even if no other shifts are stood.
DISTRACTER B:	Although only four shifts have been stood this quarter, the operator's license is still active and remains active until the end of the month of September even if no other shifts are stood.
DISTRACTER D:	The operator must stand one more 12-hour shift before the end of September (before 10/1/2001) to maintain the license active.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	3	3
	GROUP:	-	-
K/A TEXT:	2.1.2 – Knowledge of operator responsibilities during all modes of operation.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	41(b)(10)
COMMENTS:	

(O) REFERENCES:
10CFR55.53(e)

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Ch

RO 89

(A) AD044B — Course
(B) 4493 — Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) **Bank**
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords:	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	TS	AD044B	TS 3.0.3		C			

(F) Point Value: 1
(G) Answer Time: (Minutes)
(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is at 30% power. It has been determined that multiple ECCS equipment malfunctions have resulted in NON-COMPLIANCE with the LCO statements that are applicable in Modes 1, 2 and 3. There are NO action statements (conditions) associated with the current combinations of inoperable equipment.

Per Technical Specifications, which one of the following actions is required?

a. Within 1 hour initiate actions to place the plant in Cold Shutdown.

b. Within 12 hours initiate actions to place the mode switch in Startup.

c. Immediately verify operability of alternate ECCS equipment and obtain a Technical Specification interpretation with 12 hours.

d. Within 1 hour verify operability of alternate ECCS equipment and continue operation until a valid Technical Specification LCO exists.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: Generic / 2.1.11 / 3.0

(N) NOTES:

JUSTIFICATION:	When there are No applicable LCOs and the existing LCOs are NOT met action must be taken within 1 hour to place the plant in a non-applicable mode, which in this case is mode 4, Cold Shutdown.		
DISTRACTER B:	Only one hour is allowed to initiate action and the mode switch must be in Startup within 8 hours.		
DISTRACTER C:	Operation may not continue without the plant meeting existing LCOs		
DISTRACTER D:	Operation may not continue without the plant meeting existing LCOs		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	3	-
	GROUP:	-	-
K/A TEXT:	2.1.11 – Knowledge of less than one hour technical specification action statements for systems.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(5) 43(b)(2)		
COMMENTS:	No technical specifications should be necessary for the question this is the definition for a 3.0.3 shutdown which is required within 1 hour.		

(O) REFERENCES:
TS LCO 3.0.3 and associated Bases.

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Ed Bowles

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

67
RO 90 SRO ~~88~~

(A) SY017 L-1 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords: (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	MECH	RWCU						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

The following conductivity data is from the daily chemistry report for Unit 1:

	Current Reading	Normal Reading
Reactor Water	0.170 µmho	0.135 µmho
Condensate Demin Inlet	0.071 µmho	0.065 µmho
Condensate Demin Effluent	0.058 µmho	0.059 µmho
FW HDR	0.075 µmho	0.070 µmho

Which one of the following is the cause of the current readings?

a. Condenser air inleakage.

b. Iron injection rate too low.

c. RWCU F/D out-of-service.

d. Condensate demineralizer depletion.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 4(N) NOTES: 2.1.25/2.8

JUSTIFICATION:	Reactor acts as concentrator.		
DISTRACTER A:	No effect on chemistry.		
DISTRACTER B:	Will not effect conductivity.		
DISTRACTER D:	.058 nearly pure water.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	3	3
	GROUP:	-	-
K/A TEXT:	2.1.25 – Ability to obtain and interpret station reference materials such as graphs / monographs / and tables which contain performance data.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	55.41(b).4, 55.41(b).5		
COMMENTS:			

(O) REFERENCES: SY017 L-1, ON-100-0012

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cla

RO 91

(A) AD044B — Course
(B) _____ — Objective

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	ADMIN	AD044B	OP-AD-001		C			

(F) Point Value: 1
(G) Answer Time: _____ (Minutes)
(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one)

X	1	Memory
	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

While conducting a valve lineup on a safety-related system, which one of the following methods is used to verify the position of a valve that is closed and has an intact lock-wire installed?

a. The lock-wire must be removed and the valve position *independently* verified, then a new lock-wire is installed.

b. The lock-wire must be removed, valve position checked, and a new lock-wire installed using *concurrent* verification.

c. It is not necessary to check the position of the valve. It is acceptable to just *concurrently* verify the lock-wire intact.

d. It is not necessary to check the position of the valve. It is acceptable to just *independently* verify the lock-wire intact.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: Generic / 2.1.29 / 3.4

(N) NOTES:

JUSTIFICATION:	Valve lineups on safety-related systems require independent verification. The lock-wire is checked intact. It is not necessary to check the valve position.		
DISTRACTER A:	It is not necessary to remove the lock-wire and check valve position.		
DISTRACTER B:	It is not necessary to remove the lock-wire and check valve position.		
DISTRACTER C:	Valve lineups on safety-related systems require independent verification. The lock-wire is checked intact independently, not concurrently.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	3	-
	GROUP:	-	-
K/A TEXT:	2.1.29 – Knowledge of how to conduct and verify valve lineups.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b)10		
COMMENTS:			

(O) REFERENCES:
OP-AD-001

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

68
RO 92 SRO ~~89~~

(A) SY017 J-1 Course (B) 10.e Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	RPV						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

During a reactor heatup the following temperature readings are recorded on Attachment A of SO-100-011, Reactor Vessel Temperature and Pressure Recording:

- 0800 - 242°F
- 0815 - 263°F
- 0817 - Startup was temporarily halted
- 0830 - 239°F
- 0845 - 268°F
- 0900 - 311°F

Per GO-100-002, which one of the following is the maximum allowable temperature at 0915?

a 329°F

b 339°F

c. 353°F

d 363°F

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: PWG, 2.1.32/3.4

(N) NOTES:

JUSTIFICATION:	Temperature cannot raise more than 90°F per hour. Because heatup rate was allowed to lower (0830) and temperature to lower to 239°F the temperature cannot exceed 329°F during the next hour.		
DISTRACTER B:	This would exceed 90°F/hr from 0830.		
DISTRACTER C:	This would exceed 90°F/hr from 0830.		
DISTRACTER D:	This would exceed 90°F/hr from 0830.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	3	3
	GROUP:	-	-
K/A TEXT:	2.1.32 – Ability to explain and apply system limits and precautions.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES: GO-100-002, Sect 6.42 and SO-100-011; pg. 6

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Cli

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 93 SRO ~~90~~ 69

(A) SY017 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords: (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	Systems	DC Distrubution						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
[X] 1 Memory
[ ] 2 Comprehension
[ ] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

Which one of the following is a difference between the Unit 1 and Unit 2 Station Blackout coping strategies?

a. Unit 2 relies on Unit 1 for ESW cooling.

b. Unit 1 will supply the majority of the common loads.

c. Unit 2 has an additional battery which extends battery life.

d. Unit 1 magenta colored instrumentation is powered from the Blue Max.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: PWG, 2.2.4/2.8

(N) NOTES:

JUSTIFICATION:	Unit 1 has a separate non-vital battery bank which extends the life of its 250VDC batteries. Therefore it doesn't have to shed loads to maintain the battery life.		
DISTRACTER A:	During a station blackout without any diesels, both units do not have ESW.		
DISTRACTER B:	This has no effect on coping strategies during a station blackout.		
DISTRACTER D:	The blue max also supplies Unit 2 magenta colored instrumentation.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	3	3
	GROUP:	-	-
K/A TEXT:	2.2.4 – Ability to explain the variations in control board layouts / systems / instrumentation and procedural actions between units at a facility.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	41(b).8		
COMMENTS:			

(O) REFERENCES: EO-100-030, Sect. 4.0

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

RO 94

(A) SY017 E-2 Course (B) 1284 (21) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	SEC CONT	NDAP-QA-0722	SO-134-001			1277 (14)		

(F) Point Value: 1 (G) Answer Time: 2 (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

The plant is at 100% power. During the performance of SO-134-001, Quarterly Zone I Isolation Damper Timing, the closing times are recorded as follows:

- First damper tested (HD-17576A) is recorded at 7 seconds.
- Second damper tested (HD-17576B) is recorded at 11 seconds.
- Remaining dampers (HD-17524A, HD-17524B, HD-17586A, HD-17586B) have NOT been tested yet.

With the acceptable closure stroke times for all valves established at ≤ 10 seconds, which one of the following describes the required action per NDAP-QA-0722, Surveillance Testing program?

a. Document that the second damper (HD-17576B) is inoperable and continue the test.

b. Inform the Unit Supervisor that the second damper (HD-17576B) is inoperable and place the test on hold.

c. Re-stroke the second damper (HD-17576B) and if the time is acceptable then continue the test.

d. Re-stroke the second damper (HD-17576B) and if the time is above 10 seconds then place the test on hold.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 2.2.12 / 3.0

(N) NOTES:

JUSTIFICATION:	Per SO-134-001 and NDAP-QA-0722, if the stroke time is above the acceptance criteria immediately notify shift management. The test will be placed on hold until an investigation can be performed for the affected damper.		
DISTRACTER A:	The test must be stopped and placed on hold until an investigation can be performed for the affected damper.		
DISTRACTER C:	Re-stroke of the valve is not permitted for these isolation dampers.		
DISTRACTER D:	Re-stroke of the valve is not permitted for these isolation dampers.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	3	-
	GROUP:	-	-
K/A TEXT:	Knowledge of surveillance procedures.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(B)10		
COMMENTS:			

(O) REFERENCES:
NDAP-QA-0722, 9.2.13
SO-134-001, Attachment 1 Note

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R.E.Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

70
RO 95 SRO ~~93~~

(A) AD045 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	OPS	ONXXXXXX						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 95% power when the High Pressure Coolant Injection (HPCI) system initiates on a spurious high drywell pressure signal. Which one of the following sets of parameters would result from this transient?

	APRM Power	Total Core Flow	Generator MWe	Feedwater Flow
a.	RISE	NO CHANGE	LOWER	LOWER
b.	NO CHANGE	LOWER	RISE	NO CHANGE
c.	RISE	NO CHANGE	RISE	LOWER
d.	NO CHANGE	LOWER	LOWER	NO CHANGE

(K) ANSWER: c. Accept a also

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 4(N) NOTES: 2.2.34/2.8

JUSTIFICATION:	An inadvertent HPCI injection will cause a rise in power from the cooler feedwater, a reduction in feedwater flow to maintain RPV water level with the additional HPCI flow, increased main generator output from the rise in power, and no change in core flow.		
DISTRACTER A:	Generator output will rise because of the rise in power.		
DISTRACTER B:	Reactor power will rise, core flow will not lower and feedwate flow will lower		
DISTRACTER D:	Reactor power will rise, core flow will not lower generator output will rise and feedwate flow will lower		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	3	3
	GROUP:	-	-
K/A TEXT:	2.2.34 – Knowledge of the process of for determining the internal and external effects on core reactivity.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	55.41(b).1, 55.41(b).5		
COMMENTS:	Used on 12/91 NRC Exam		

(O) REFERENCES: Chapter 13, FSAR

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

71
RO 96 SRO ~~94~~

(A) AD044A/AD044B (B) _____
Course Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) **Bank**
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	ADM	NDAP0323			c			

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

During an outage it is necessary to isolate and red tag a valve in the Unit 1 Reactor Water Cleanup (RWCU) Backwash Receiving Tank Room (Room 1-509).

Per NDAP-QA-0323, Standard Blocking Practices, which one of the following actions is required BEFORE entering the room to comply with the ALARA BLOCKING principle?

a. Backwash the RWCU filters, then drain the tanks and maintain the tanks empty.

b. Flush, then drain the Backwash Receiving Tanks and maintain the tanks empty.

c. Flush and drain, then fill the Backwash Receiving Tanks and maintain the tanks full.

d. Backwash the RWCU filters, then fill the tanks and maintain the tanks full.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: PWG, 2.3.2 2.5// 2.9

(N) NOTES:

JUSTIFICATION:	NDAP-QA-0323, Standard Blocking Practices requires the tanks be flushed drained and filled before entry into the rooms.		
DISTRACTER A:	This would not help the radiation levels in the Backwash Receiving Tank Rooms and may make it worse since the filters are backwashed to the room.		
DISTRACTER B:	The tanks must also be filled with water to act as shielding.		
DISTRACTER D:	This would not help the radiation levels in the Backwash Receiving Tank Rooms and may make it worse since the filters are backwashed to the room.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	3	
	GROUP:	-	
K/A TEXT:	2.3.2 – Knowledge of Facility ALARA program		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b).9, 43(b).4		
COMMENTS:			

(O) REFERENCES: NDAP-QA-0323, Sect. 6.6.4

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by ED BOWLES

(R) Reviewed by: Rich Chin

RO 97

(A) AD045 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	OPS	ONXXXXXX						

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

In accordance with ON-070-001 (ABNORMAL GASEOUS RADIATION RELEASE/CAM ALARMS), which one of the following describes why it is desirable to close the roll-up door on 676' if an abnormal gaseous radiation release is in progress?

a. To permit a restart of the Turbine Building HVAC System.

b. To prevent contamination of the other unit's Turbine Building.

c. To eliminate a path for an unmonitored release to the site environment.

d. To stop personnel from entering airborne contamination areas of the Turbine Building.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 4(N) NOTES: 2.3.11/2.7

JUSTIFICATION:	IAW ON-070-001		
DISTRACTER A:	This door would have no effect on starting TB HVAC.		
DISTRACTER B:	Would not prevent contamination of the other unit.		
DISTRACTER D:	Would not prevent personnel from entering airborne contamination areas of the Turbine Building.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	3	?
	GROUP:	-	?
K/A TEXT:	2.3.11 – Ability to control radiation releases.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	55.41(b).4, 55.41(b).5		
COMMENTS:			

(O) REFERENCES: ON-070-001

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

RO 98

(A) PP002A, B, C (Course) (B) _____ (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	EOP	EOXXXXXX						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following can specifically direct overriding an automatic initiation of an ECCS system?

a. Misoperation confirmed using a single indication.

b. When required by Emergency Operating Procedures.

c. Specific recommendation from the Shift Technical Advisor.

d. Presence of any indication that adequate core cooling is assured.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 4(N) **NOTES:** 2.4.17/3.1

JUSTIFICATION:	EOPs provide guidance to override ECCS systems is various situations.		
DISTRACTER A:	Mis-operation is automatic must be confirmed by at least two independent indications before overriding an ECCS system.		
DISTRACTER C:	STA cannot direct licensed operators		
DISTRACTER D:	Multiple indications are required to override an ECCS system to confirm mis-operation.		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	RO	SRO
	TIER:	3	3
	GROUP:	-	-
K/A TEXT:	2.4.17 – Knowledge of EOP terms and conditions.		
QUESTION SOURCE:	**BANK:**		
	MODIFIED:	X	
	NEW:		
10CFR55:	55.41(b).10, 55.43(b).5		
COMMENTS:			

(O) REFERENCES: OP-AD-001, Section 8.1

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: _____

RO 99

(A) SY017 N-2 Course (B) 14 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
(≤9 characters)	Systems	Fire Protection						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% power with the Fire Protection system in the following conditions:

- The motor driven fire pump has been removed from service for maintenance.
- Back-up fire protection is NOT cross-tied (OPI-127 is closed).
- All other fire protection equipment is normal.

A fire in the Unit 1 turbine building initiates that areas deluge system. Which one of the following describes the fire protection systems response?

a. Jockey Pump will operate continuously, the Diesel Fire Pump will cycle as necessary to maintain fire system pressure between 85 and 105 psig.

b. Jockey Pump will operate continuously, the Diesel Fire Pump will start when fire system pressure lowers to 95 psig and must be manually shutdown.

c. Jockey Pump will start before fire system pressure lowers to 105 psig, the Diesel Fire Pump will start when fire system pressure lowers to 85 psig and must be manually shutdown.

d. Jockey Pump will start when fire system pressure lowers to 118 psig, the Diesel Fire Pump will start when fire system pressure lowers to 95 psig, pressure will continue to lower until the fire protection cross-tie OPI27 is opened.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: PWG, 2.4.27/3.0

(N) NOTES:

JUSTIFICATION:	Jockey Pump starts at 105 psig, Motor driven pump at 95 psig, Diesel at 85 psig, the Jockey pump will cycle if there is no significant flow out of the system, which with a deluge valve tripped, there will be, so the Jockey pump will continue to operate. The Motor (electric) pump is not available so pressure must lower to 85 psig before the Diesel pump starts. The Diesel pump will supply the deluge system until it is manually shutdown.		
DISTRACTER A:	The diesel fire pump will not cycle on pressure, it must be manually shutdown.		
DISTRACTER B:	The jockey pump will start when pressure lowers, The diesel fire pump starts at 85 psig.		
DISTRACTER D:	The diesel fire pump can supply the deluge system, the cross-tie does not need to be opened.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	3	3
	GROUP:	-	-
K/A TEXT:	2.4.27 – Knowledge of fire in the plant procedure.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b).4, 41(b).10		
COMMENTS:			

(O) REFERENCES: OP-013-001

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

RO 100 SRO ~~99~~ 72

(A) EP-PSs, EP005 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords:	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	EOP	Eplan			C	??		

(F) Point Value: [1] (G) Answer Time: [ ] (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
[X] 1 Memory
[ ] 2 Comprehension
[ ] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

Following the declaration of an ALERT on Unit 1, you are directed to report to the Operations Support Center (OSC) Coordinator. Which one of the following describes WHOM you report to in the OSC?

a. Shift Supervisor.

b. Emergency Director.

c. Assistant Unit Supervisor.

d. Emergency Communicator.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: Generic / 2.4.29 / 2.6

(N) NOTES:

JUSTIFICATION:	The Auxiliary Unit Supervisor assumes the role as OSC Coordinator.		
DISTRACTER A:	The SS assumes the role of the Emergency Director (ED) until relieved by the ED in the TSC. The SS remains in the control room.		
DISTRACTER B:	The Emergency Director is initially the SS in the control room. When the TSC is staffed, the ED responsibilities are turned over to the TSC ED.		
DISTRACTER D:	The Emergency Communicator is the extra PCO on the unaffected unit who remains in the control room. If the emergency communicator duties are turned over, they will NOT be assumed by personnel in the OSC.		
EXAM OUTLINE CROSS-REF:	LEVEL:	RO	-
	TIER:	3	-
	GROUP:	generic	-
K/A TEXT:	2.4.29 – Knowledge of the emergency plan.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(10)		
COMMENTS:			

(O) REFERENCES:
EP-PS-100-C, STEP 3

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Ch

SRO WRITTEN

U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination

Applicant Information

Name:	Region: I
Date: August 10, 2001	Facility/Unit: Susquehanna Steam Electric Station / Units 1 & 2
License Level: SRO	Reactor Type: GE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results

Examination Value	99 ~~100~~ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Points

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO # 73

(A) SY017 G-5B (Course) (B) 28 (1512) (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
	AC DIST	SY017 G-5B	TS 3.8.1		C			

(F) Point Value: 1

(G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is at 50% power when the T-20 TO SUB 20 OA10401 feeder breaker trips and is declared inoperable at 0800. Per Technical Specifications, which one of the following actions must be complete by 0900 the same day?

a. Initiate a power reduction to conform to the requirements of LCO 3.0.3.

b. Verify correct breaker alignment and power availability for the T-10 line.

c. Declare ECCS loads without a normal power source available inoperable.

d. Determine the T-10 line is unaffected by possible common cause failures.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: TS 3.8.1

(M) K&A NUMBER/RATING: 295003 / AA2.04 / 3.7

(N) NOTES:

JUSTIFICATION:	Per TS 3.8.1, SR 3.8.1.1 must be performed within 1 hour (by 0900). SR 3.8.1.1 is the verification of the alignment and indicated function of the OPERABLE required offsite circuit (T10 line).		
DISTRACTER A:	LCO 3.0.3 is not applicable at this time. TS 3.8.1 required action A.2 requires that equipment with the T 20 line as its normal source be declared inoperable if its redundant component powered from the T10 line is inoperable which in most cases requires entry into LCO 3.0.3 because of a loss of safety function. However, there is no inoperable equipment indicated for the T10 line. Additionally, if this were the case, 24 hours are permitted to declare the redundant feature inoperable.		
DISTRACTER C:	This is not a requirement since the definition of OPERABLE requires that either the normal or emergency power source be available to be operable, not both.		
DISTRACTER D:	Verification that a common cause failure does not exist for the operable component is a TS required action when a DG becomes inoperable, not when an offsite circuit becomes inoperable.		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	AA2.04 – Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF AC POWER: System lineups.		
QUESTION SOURCE:	**BANK:**		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(b)(2)		
COMMENTS:			

(O) REFERENCES:
TS 3.8.1
TS 1.3

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by PHIL BALLARD **(R)** Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 74

(A) ?? Course (B) ?? Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs	7 Quiz Only	8 Retired
	ADMIN	OP-AD-327						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 automatically scrammed during the performance of a surveillance test at 80% power.

Per OP-AD-327, Post Reactor Transient/Scram/Shutdown Evaluation, which one of the following describes the ROLE of the Shift Supervisor in determining the cause of the reactor scram?

a. Responsible for resolving items identified in the post event critiques.

b. Responsible for post event data and preliminary evaluations of plant performance.

c. Responsible for coordination and implementation of the post scram review process.

d. Responsible for required notifications and interviewing personnel involved in the event.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: 295006 / AA2.06 / 3.8

(N) NOTES:

JUSTIFICATION:	- SS if responsible for making required notifications and interviewing personnel involved in the event. - Operations Supervisor – Nuclear is responsible for overall coordination and implementation of the post scram review process. - STA is responsible for providing post event data and preliminary evaluations of plant and equipment performance. - Operations Manager is responsible for resolving items identified in the post event critiques.		
DISTRACTER A:	Operations Manager.		
DISTRACTER B:	STA responsibility.		
DISTRACTER C:	Operations Supervisor – Nuclear responsibility.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	AA2.06 – Ability to determine and/or interpret the following as they apply to SCRAM: Cause of reactor scram.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	41(b)(10)		
COMMENTS:			

(O) REFERENCES:
OP-AD-327, 4.5, 6.1.2

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by PHIL BALLARD **(R)** Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO # 75

(A) PP002 Course (B) 4 (2621) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords : (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	EOP	PP002	EO-100-102 EO-000-102		C	7 (2625) 27 (2639)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is at 100% power with the HPCI system out of service. A loss of offsite power occurs and plant conditions are:

- Reactor scram and all rods in
- RCIC tripped and CANNOT be reset
- RPV level is –130" (actual) and lowering at 2" per minute
- RPV pressure is being maintained 965 to 1087 psig using SRVs
- Suppression pool average water temperature is 112°F and rising slowly
- Drywell average temperature is 148°F and rising slowly
- Drywell pressure is 1.3 psig and rising slowly
- Suppression pool level is 23 feet

Which one of the following actions is required to be performed FIRST?

a. Line up and start both loops of LPCI and CS.

b. Place both loops of RHR in suppression pool cooling.

c. Use SRVs with straight tailpipe runs to reduce RPV pressure to below 600 psig.

d. Reset the main generator lockout and start a cooldown at less than or equal to 100°F/hr.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: EO-100-102, EO-100-103

(M) K&A NUMBER/RATING: 295009 / AA2.01 / 3.7

(N) NOTES:

JUSTIFICATION:	Per EO-100-102, step RC/L-10, lineup Table 3 systems for injection, start the pumps, and maximize injection. CS and LPCI are Table 3 systems. This takes priority since TAF is going to be challenged. The containment parameters are a lower priority since no containment limitations are being or will be challenged for the conditions stated.		
DISTRACTER B:	This is a correct action if adequate core cooling is not challenged. For the conditions stated, adequate core cooling is being challenged and the lowering RPV water level and associated actions if the priority task at this time.		
DISTRACTER C:	RPV pressure control and the cooldown suggested conflict with the required EOP actions for the lowering level. Adequate core cooling is being challenged and the lowering RPV water level and associated actions if the priority task at this time.		
DISTRACTER D:	This action is appropriate if RPV water level can be maintained		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	AA2.04 – Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL: Reactor water level.		
QUESTION SOURCE:	BANK:	x	
	MODIFIED:		
	NEW:		
10CFR55:	43(b)(5)		
COMMENTS:			

(O) REFERENCES:
EO-100-102, RC/L-6, 9, 10, AND TABLE 3

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R.E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 76

(A) PP002 Course (B) 2647 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	EOP	PP002		EO-100-003				

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

The plant is at 50% power with the following conditions:

- RHR A in suppression pool cooling
- RCIC is operating in the TEST MODE per SO-150-002, Quarterly RCIC Flow Verification, for the 92 day test
- During the surveillance, suppression pool average temperature exceeds 90°F

Which one of the following describes the requirements for entry into and execution of EO-100-103, Primary Containment Control, at this time?

a. Must be entered and then may be exited since actual emergency conditions are absent.

b. Must be entered and the actions must be performed until temperature is 89°F or lower.

c. Not entered since TS modify the EOP entry condition during the performance of the test.

d. Not entered since TS defer EOP entry during the test and for up to 24 hours after test completion.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: EOP-100-103

(M) K&A NUMBER/RATING: 295013 / AA2.01 / 4.0

(N) NOTES:

JUSTIFICATION:	When the EO-100-103 entry condition for high suppression pool temperature (90°F) is exceeded, entry into the EOP is required. If no emergency condition actually exists, the EOP can be exited.
DISTRACTER B:	If no emergency condition actually exists, the EOP can be exited.
DISTRACTER C:	Technical specifications do not change the entry condition for EO-100-103 for suppression pool average temperature. The technical specification LCO statement for TS 3.6.2.1 is changed to 105°F for testing that adds heat to the suppression pool.
DISTRACTER D:	Technical specifications do not defer entry into EO-100-103 for suppression pool average temperature. The technical specification LCO statement for TS 3.6.2.1 is changed to 105°F for testing that adds heat to the suppression pool. Upon completion of the testing and if suppression pool average temperature is still above 90°F, then the LCO statement is declared not met and the ACTIONS are entered allowing 24 hours to restore suppression pool average temperature to ≤ 90F.

EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	Knowledge of surveillance procedures.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	43(b)(2) 43(b)(5)
COMMENTS:	

(O) REFERENCES:
SO-150-002
TECH SPEC 3.6.2.1

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 15 77

(A) PP002 Course (B) 4 (2621) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	EOP	PP002	EO-100-105 EO-100-102 EO-000-105 EO-000-102		C	10 (2680)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

An unisolable steam leak with fuel damage has occurred in the Turbine Building. The blowout panels opened and OSCAR is evaluating the release. Conditions are:

- All control rods are fully inserted
- RPV level is +40 inches and stable
- RCIC is injecting

- The "A" Main Steam Line CANNOT be isolated
- Combined Noble Gas SPING data is calculated at 9.2 E6 μCi/min

Which one of the following describes the required reactor pressure reduction and how it is reduced while the Offsite Dose is being calculated?

a. Rapidly depressurize using the ADS Valves.

b. Cooldown at <100°F/hr using the SRVs and HPCI.

c. Rapidly depressurize using the Main Turbine BPVs.

d. Depressurize at <100°F/hr using the Main Turbine BPVs.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: EOPs

(M) K&A NUMBER/RATING: 295017 / 2.1.6 / 4.3

(N) NOTES:

JUSTIFICATION:	Although permitted rapid depressurization should NOT be anticipated since the reactor is already shutdown and all rods are fully inserted. "Anticipated" implies an expectation that a rapid depressurization requirement cannot be averted by actions prescribed in the EOPs and will soon be reached. Per EO-100-105 (RAD REL), go to EO-100-102 (RPV CONT). Per EO-100-102 depressurize at <100°F/hr.		
DISTRACTER A:	Not required until the Offsite Dose Calculation (EPB projected dose or dose rate) is at the General Emergency event declaration level.		
DISTRACTER C:	Although permitted rapid depressurization should NOT be anticipated since the reactor is already shutdown and all rods are fully inserted. "Anticipated" implies an expectation that a rapid depressurization requirement cannot be averted by actions prescribed in the EOPs and will soon be reached. If rapid depressurization is anticipated, then all BPVs are opened irrespective of cooldown rate.		
DISTRACTER D:	BPVs are not used for the pressure reduction because of the fuel failure.		
EXAM OUTLINE CROSS-REF:	LEVEL:	- /	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	2.1.6 – Ability to supervise and assume a management role during transients and upset conditions.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	43(b)(5)		
COMMENTS:			

(O) REFERENCES:
EO-100-105, RR-5, RR-6
EO-000-105, RR-5, RR-6
EO-100-102, RC/P-3, RC/P-6, RC/P-7
EO-000-102, RC/P-3, RC/P-6, RC/P-7

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R. E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~19~~ 78

(A) PP002 (B) _____
Course Objective

(C) Question Type (check one)
[X] Multiple Choice
[ ] Matching
[ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	EOP	EO000102	EO100102		C			

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level: (Check one)
[ ] 1 Memory
[ ] 2 Comprehension
[X] 3 Application
[ ] 4 Analysis
[ ] 5 Problem Solving

(J) QUESTION:

EO-100-102, RPV Control, and EO-100-103, PC Control, were entered following a transient on Unit 1. RPV pressure, suppression pool temperature, and suppression pool level **CANNOT** be maintained below Figure 2, HCTL.

Which one of the following EOP actions is required?

a. Enter EO-100-112, at step RD-1, and emergency depressurize.

b. Enter EO-100-102, at step RC/P-3 and open all turbine bypass valves.

c. Trip and isolate the HPCI and RCIC systems per EO-100-103 step SP/T-6.

d. Stop and wait until HCTL is exceeded then exit EO-100-103 and enter EO-100-112.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295025, 2.4.14/3.9

(N) NOTES:

JUSTIFICATION:	If it has been determined that HCTL will be exceeded the STOP condition is met and the action (enter EO-100-112, emergency depressurization) must be performed. Prior to exceeding HCTL step SP/T-6 authorizes the use of the turbine bypass valves to anticipate the need for emergency depressurization.
DISTRACTER B:	The option to perform this step is lost when the conditional requirement, determining that HCTL will be exceeded, is met, entry into EO-100-112 is required.
DISTRACTER C:	If HPCI and/or RCIC are required to be tripped it is because of high LO temperture not HCTL considerations.
DISTRACTER D:	There is no need to wait to enter EO-100-112. Rapid depress is required when it is determined that HCTL will be exceeded. EO-100-103 should not be exited when EO-100-112 is entered.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	2.4.14 – Knowledge of general guidelines for EOP flowchart use.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	43(b).5
COMMENTS:	

(O) REFERENCES: EO-100-102, PC/P-1 EO-000-102, RC/P-1 – RC/P-4

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by ED BOWLES **(R)** Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 79

(A) PP002 Course (B) 2597 Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	EOP	PP002	EO-100-003			2598		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 has scrammed and the Main Steam Isolation Valves (MSIVs) have isolated. The following conditions exist:

- Suppression pool average temperature is 125°F and rising slowly
- HPCI is controlling RPV water level at –35 inches and rising slowly
- Suppression pool level is 17.2 feet and lowering slowly
- RPV pressure is 930 psig and lowering slowly

What is the consequence of continued HPCI operation and what procedure discusses this consequence?

a. Per EO-000-100, Cautions, RPV pressure will start to rise.

b. Per EO-000-103, PC Control, drywell pressure will start to rise.

c. Per EO-000-100, Cautions, RPV water level begins to lower rapidly.

d. Per EO-000-103, PC Control, Suppression Pool water temperature begins to rise rapidly.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: ALL EOPs

(M) K&A NUMBER/RATING: 295030 / 2.4.20 / 4.0

(N) NOTES:

JUSTIFICATION:	The HPCI exhaust line is uncovered at 17 feet and the HPCI exhaust will enter the suppression chamber (SC) free air space and pressurize the SC. When SC area pressure rises above the SC to Drywell Vacuum breaker setpoint the vacuum breakers will open and the Drywell will pressurize. The discussion is described in the bases for EO-100-103.		
DISTRACTER A:	There are no HPCI trips for this occurrence so RPV pressure should continue on its current trend.		
DISTRACTER C:	There are no HPCI trips for this occurrence so RPV level should continue on its current trend.		
DISTRACTER D:	RPV pressure is under control so no SRVs should activate and HPCI exhaust will now enter the air space so water temperature will not rise significantly.		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	2.4.20 – Knowledge of operational implications of EOP warnings / cautions / and notes		
QUESTION SOURCE:	**BANK:**		
	MODIFIED:		
	NEW:	x	
10CFR55:	41(b).10, 43(b).5		
COMMENTS:			

(O) REFERENCES:
EO-100-103

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~23~~ 80

(A) PP002 Course (B) 10 (2680) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	EOP	EO-100-113						

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

An ATWS is in progress. Following the actions to terminate and prevent injection the following conditions exist:

- Reactor water level is – 80 inches
- Reactor power is 5%
- Reactor pressure is 1000 psig and lowering slowly

- Suppression pool average temperature is 120°F and rising slowly
- Suppression pool level is 23.2 feet and steady
- 2 SRVs are open

- Control rod insertion has NOT been established
- SLC failed to inject and CANNOT be started
- NO alternate boron injection system is injecting

When RPV water level is –80 inches (5% power), RPV injection is re-established. One (1) minute later RPV water level is –40 inches. Which one of the following describes the effects of this change in RPV water level and the required operator actions?

a. Terminate and prevent injection because the feedwater spargers are covered.

b. Lower level to between –60 and –110 inches to suppress the reactor power rise.

c. Perform a rapid depressurization because the Heat Capacity Temperature Limit is exceeded.

d. Assign a new level band from -40 to -80 inches using alternate ATWS systems for improved control.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: ALL EOPs

(M) K&A NUMBER/RATING: 2295037 / EA2.02 / 4.2

(N) NOTES:

JUSTIFICATION:	The rise in reactor water level will cause a power excursion and reactor power will rise above 6% and higher (uncontrolled). The requirement to terminate and prevent will be satisfied as directed by step LQ/L-15.		
DISTRACTER A:	Reactor power will rise and be uncontrolled requiring that RPV level be lowered to the target band. The feedwater spargers are still uncovered as desired at –40 inches. They become uncovered when RPV level lowers to –24 inches.		
DISTRACTER C:	HCTL is within the limit for this torus temperature. A rapid depressurization is not required.		
DISTRACTER D:	Reactor power will rise and be uncontrolled requiring that injection be terminated and prevented. EO-100-113 also requires that level be maintained between -60 and -161 inches until rods are inserted or boron is injected.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	EA2.02– Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Reactor water level.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	x	
10CFR55:	43(b)(5)		
COMMENTS:			

(O) REFERENCES:
EO-100-113

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R-E-C

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 81

(A) AD045 Course (B) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords : (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	OPS	ON178001	ON164002					

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 was at 100% power. Both Reactor Recirculation Pumps were in master manual control. A spurious runback to the #1 speed limiter has occurred on the "A" RRP. The following conditions exist:

- Total core flow indicates 51 Mlbm/hr.
- Reactor power lowered to 57% then recovered to 68% and is STABLE.
- "A" reactor recirculation loop jet pump flow indicates 3.6 Mlbm/hr.
- "B" reactor recirculation loop jet pump flow indicates 47.4 Mlbm/hr.
- The runback on the "A" RRP is active and CANNOT be reset.

In accordance with the Power/Flow Map which one of the following is required?

a. Immediately scram the reactor.

b. Lower "B" RRP speed to less than 80%.

c. Manually runback "B" RRP to match "A" RRP.

d. Promptly insert control rods IAW RE instructions.

(K) ANSWER: d.

OPERATIONS QUESTION AND ANSWER INPUT FORM

(L) REQUIRED MATERIALS: Unit 1 Power / Flow Map

(M) K&A NUMBER/RATING: 295001 / 2.4.48 / 3.8

(N) NOTES:

JUSTIFICATION:	Region II of the P/F Map has been entered, ON-178-002 requires promptly exiting by inserting CRs or raising RRP speed. RRP cannot be raised.		
DISTRACTER A:	There are no requirements for a scram, Region I has NOT been entered and power is STABLE.		
DISTRACTER B:	RRP speed should not be lowered (see cautions in ON-164-002) this would place the reactor in Region I. This action required by T.S. may be delayed up to 12 hours.		
DISTRACTER C:	RRP speed should not be lowered (see cautions in ON-164-002) this would place the reactor in Region I.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	2.4.48 – Ability to interpret control room indications to verify the status of operation of system / and understand how operator actions and directives affect plant and system conditions.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(b).2, 43(b).5		
COMMENTS:	Operators are to be given a current copy of the Unit 1 Power/Flow Map		

(O) REFERENCES: ON-164-002, ON-178-002

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Cl

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 40 B2

(A) SY017 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	EOP	EO-100-104						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 was at 100% power when a transient occurred that resulted in fuel damage. The following conditions exist:

- Reactor scrammed and all control rods inserted
- RPV pressure is 810 psig
- HPCI is maintaining RPV water level at +24 inches
- Main Steam Line (MSL) high radiation has closed the MSIVs
- RCIC equipment area temperature is 240°F
- RCIC Steam Isolation Valves F007 and F008 failed to isolate
- HPCI Equipment Area Temperature is 106°F
- RCIC Equipment Area Radiation monitor indicates 9 R/hr
- HPCI Equipment Area Radiation monitor indicates 11 R/hr
- CRD North and South Area Radiation Monitors indicate 4.2 R/hr

Which one of the following actions is required?

a. Commence a reactor cooldown at less than 100°F/hr.

b. Initiate actions to rapidly depressurize per EO-100-112.

c. Isolate HPCI and initiate RPV injection using alternate subsystems.

d. Verify MSL radiation clear and re-establish the main condenser as a heat sink.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: All EOPs

(M) K&A NUMBER/RATING: 295033 / 2.3.10 / 3.3

(N) NOTES:

JUSTIFICATION:	Entry into EO-100-102 directs the operators to depressurize at <100°F (RC/P-7)		
DISTRACTER B:	Although two areas have exceeded Max Safe, they are there for different reasons, so rapid depressurization is NOT required.		
DISTRACTER C:	Although HPCI may be adding to the rad levels in the HPCI room, RCIC is the discharging system, there are NO requirements to isolate HPCI.		
DISTRACTER D:	There is NO procedural guidance to override or reset the Group 1 isolation.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	2.3.10 – Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	43(b)(2)		
COMMENTS:			

(O) REFERENCES: EO-100-102, EEO-100-104

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by Ed Bowles

(R) Reviewed by: R. E. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 42 83

(A) PP002 Course (B) 4 (2621) Objective

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	EOP	PP002	EO-100-104 EO-000-104		C	20 (2678)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)

	1	Memory
X	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

Given the following initial plant conditions with the plant at 50% power:

- At 0800: ROOM FLOODED alarm is received for the CS PUMP ROOM A
- At 0810: Water level in the area is reported at twelve (12) inches above the floor level

Per EO-000-104, Secondary Containment Control, which one of the following is the significance of the rising water level?

a. The pump becomes inoperable if the area level reaches 2 feet.

b. The rapid rise in level requires a shutdown in accordance with GO-100-004.

c. The ADS permissive switches become inoperable if the area level reaches 2 feet.

d. The rising level will require entry into EO-100-102, scram imminent is required to be performed.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 295036 / EA2.02 / 3.1

(N) NOTES:

JUSTIFICATION:	The ADS permissive switches will become inoperable when the Maximum Safe Value (MSV) for water level (2 feet) is reached.		
DISTRACTER A:	The flooding alarm is actuated at 3-4" above the area floor level. The rate of rise is significant but level must rise much higher and take much longer to reach the pump. The pump is not the equipment of concern at this time, the ADS permissive switches become inoperable when the room water level reaches 2 feet.		
DISTRACTER B:	A shutdown is not required until a second area reaches the MSV. Additionally actions must be taken to isolate the leak first.		
DISTRACTER D:	Entry into EO-100-102 is only required when level reaches the MSV and a primary system is discharging into the Secondary Containment. Additionally actions must be taken to isolate the leak first.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	2
K/A TEXT:	EA2.02 – Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT SUMP/AREA WATER LEVEL: Water level in the affected area.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(b)(2)		
COMMENTS:	SRO must know the bases for the concerns associated with MSV and apply those levels to the concerns.		

(O) REFERENCES:
EO-100-104, Table 8, Table 9
EO-000-014, SC/L1
TS Table 3.3.5.1-1, functions 4.a and 5.a, and associated TS bases

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~48~~ 84

(A) SY017 L-11 Course (B) 1 (1955) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords : (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	CS HVAC	SY017 L-11	TS 3.7.3 OP-030-002		C			

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 and Unit 2 are at 100% power. The Control Structure HVAC Smoke Removal System (SRS) will be placed into service to exhaust odors resulting from a small fire.

Which one of the following describes the effect on the Control Room Emergency Outside Air Supply System (CREOASS) when the SRS is placed into operation?

a. One of the CREOASS trains must be declared inoperable and a TS action to shutdown is avoided.

b. Both of the CREOASS trains must be declared inoperable and a TS action to shutdown is entered.

c. The CREOASS must be placed into the Recirculation Mode of operation.

d. The CREOASS must be manually started if an initiation signal is received.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 600000 / AA1.05 / 3.1

(N) NOTES:

JUSTIFICATION:	If a LOCA conditions occurs, the CREOASS will automatically align however the SRS will continue to operate which can cause the control room positive pressure to degrade beyond the capability of the CREOASS. When the SRS is started, both CREOASS trains are inoperable and a plant shutdown must be initiated within 1 hour (LCO 3.0.3).		
DISTRACTER A:	Both trains are inoperable, not just one. A TS action to shutdown is entered.		
DISTRACTER C:	This action is not required. Even if the CREOASS is placed into the recirculation mode, the post-LOCA concern described above continues to apply.		
DISTRACTER D:	The CREOASS will automatically start and align on a LOCA signal. The SRS fans will not trip on a LOCA signal and this is the concern.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	2
K/A TEXT:	AA1.05 - Ability to operate and/or monitor the following as they apply to PLANT FIRE ON SITE: Plant and control room ventilation systems.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(b)(2)		
COMMENTS:			

(O) REFERENCES:
TS 3.7.3, Condition D
TS 3.7.3 LCO Bases
OP-030-002, 3.7.2.a
LER 2000-010

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 50 85

(A) SY017 L-5 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	RC	RPS	TS 3.3.1.1		C			

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [X] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

At 0700 on June 5, 2001, with Unit 2 at 100% power, the following occurred on the "B" Reactor Protection System (RPS):

- The upstream RPS Electrical Protection Assembly (EPA) breaker tripped due to its EPA logic card failing.
- The downstream RPS EPA remained closed.
- The plant response to the "B" RPS power loss was as intended per design.
- **At 0815**, the "B" RPS distribution panel was switched to the alternate power supply, the half scram and isolations were reset.

Which one of the following is the operational status of the RPS EPA breakers and is the "B" RPS bus considered operable by Technical Specifications after it is transferred to the alternate supply?

a. Both RPS EPA breakers are inoperable, the "B" RPS bus is operable.

b. Both RPS EPA breakers are inoperable, the "B" RPS bus is inoperable.

c. One of the RPS EPA breakers is inoperable, the "B" RPS bus is operable.

d. One of the RPS EPA breakers is inoperable, the "B" RPS bus is inoperable.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: TS 3.3.1.1

(M) K&A NUMBER/RATING: 212000 / 2.4.21 / 4.3

(N) NOTES:

JUSTIFICATION:	The upstream RPS EPA with the logic card failure is inoperable. The downstream RPS EPA should have tripped on undervoltage when the RPS bus lost power. The downstream RPS EPA is also inoperable. RPS channel B is operable after it is transferred to the alternate supply.		
DISTRACTER B:	"B" RPS is operable.		
DISTRACTER C:	Both RPS EPAs are inoperable.		
DISTRACTER D:	Both RPS EPAs are inoperable and "B" RPS is operable		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	-	SRO
	TIER:	-	2
	GROUP:	-	1
K/A TEXT:	2.4.21 – Knowledge of the parameters and logic used to assess the status of safety functions including: (1) reactivity control, (3) reactor coolant system integrity, (4) containment conditions.		
QUESTION SOURCE:	**BANK:**		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(b)(2)		
COMMENTS:	SRO only because it deals with determining T.S. operability and diagnosis of EPA breaker operation.		

(O) REFERENCES:
LER 2000-005
TS 3.3.8.2 and associated Bases (Background and LCO)

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by Phil Ballard **(R)** Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~58~~ 86

(A) SY017 J-2 Course (B) 8 (337) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	MECH	RPVINST	TS 3.3.3.2		C	15 (344)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

During the performance of the CHANNEL CALIBRATION for the Reactor Pressure – High function of the Reactor Protection System (RPS) instrumentation, the as-found and as-left values for one instrument are:

- As-found 1094 psig
- As-left 1087 psig

For this instrument the trip set point is ≤1087 psig and the allowable value is ≤1093 psig. Determine the operability of this instrument upon learning the as-found value and then after the instrument is calibrated, and state the procedure(s) used to confirm the instrument trip set point and allowable value.

Upon learning the as-found value, the instrument is...

a. **inoperable**. After calibration it became operable because it was lowered below the allowable value. The trip set point is confirmed using the TRM and the allowable value is confirmed using TS.

b. **inoperable**. After calibration it remained **inoperable** because it was unable to be lowered below the trip set point. The trip set point and the allowable value are both confirmed using TS.

c. operable. After calibration it remained operable because it was lowered below the allowable value. The trip set point is confirmed using the TRM and the allowable value is confirmed using TS.

d. operable. After calibration it became **inoperable** because it was unable to be lowered below the trip set point. The trip set point and the allowable value are both confirmed using TS.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: 216000 / A2.05 / 3.1

(N) NOTES:

JUSTIFICATION:	When the allowable value is exceeded, the instrument is inoperable. Provided the instrument as-found value is below the allowable value it is operable even though it may be above the specified trip set point. Provided the as-left value is below the allowable value it is operable. This as-left value is at the tri set point which is acceptable. Trip set points are in the TRM. Allowable values are in TS.		
DISTRACTER B:	Became operable when it was calibrated to below the allowable value. Trip set points are in the TRM, not is TS.		
DISTRACTER C:	When the allowable value is exceeded, the instrument is inoperable.		
DISTRACTER D:	When the allowable value is exceeded, the instrument is inoperable. Operable when it is below the allowable value. Became operable when it was calibrated to below the allowable value. Trip set points are in the TRM, not is TS.		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	-	SRO
	TIER:	-	2
	GROUP:	-	1
K/A TEXT:	A2.05 – Ability to (a) predict the impacts of the following on the NUCLEAR BOILER INSTRUMENTATION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Surveillance testing.		
QUESTION SOURCE:	**BANK:**		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(b)2		
COMMENTS:			

(O) REFERENCES:
TS 3.3.1.1 and bases
TRM Table 2.2-1

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~58~~ 87

(A) SY017 C-1 (B) 22 (2069)

Course Objective

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E) Keywords: (≤9 characters)	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
	RHR	SY017 C-1	TS 3.6.1.3 TS 3.6.2.4 OP-AD-001		C	23 (189)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):

	1	Memory
	2	Comprehension
X	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

Unit 1 is at 100% power. The performance of SO-149-A05, Quarterly RHR Loop A Valve Exercising, is in progress. When attempting to OPEN SUPP CHMBR SPRAY CTL HV-151-F027A to time it, the valve did **NOT** open and the breaker tripped at the MCC. The NPO reports an acrid smell at the MCC. Maintenance reports that the valve motor actuator gear set was replaced during the 2001 spring outage.

Which one of the following describes:
(1) if the breaker can be reset to attempt to stroke the valve, and
(2) if declared inoperable, which Containment Technical Specification ACTIONS are required to be entered?

a. (1) The breaker **CANNOT** be reset.
(2) Enter TS 3.6.1.3 and TS 3.6.2.4 ACTIONS.

b. (1) The breaker **CANNOT** be reset.
(2) Enter TS 3.6.2.4 ACTIONS. TS 3.6.1.3 ACTIONS are **NOT** entered.

c. (1) The breaker can be reset.
(2) If it is determined the valve is stuck, then enter TS 3.6.1.3 and TS 3.6.2.4 ACTIONS.

d. (1) The breaker can be reset.
(2) If it is determined the valve stuck, then enter TS 3.6.2.4 ACTIONS. TS 3.6.1.3 ACTIONS are **NOT** entered

(K) ANSWER: b.

(L) REQUIRED MATERIALS: TS 3.6.1.3 and Bases, TS 3.6.2.4 and Bases

(M) K&A NUMBER/RATING: 226001 / A2.13 / 2.9

(N) NOTES:

JUSTIFICATION:	Immediately declare the valve inoperable and enter the ACTIONS of TS 3.6.2.4. LCO 3.0.6 cannot be used to avoid entry into the actions of TS 3.6.2.4. TS 3.6.1.3 is not entered because HV-151-F027A is not listed as a containment isolation valve in Table B 3.6.1.3-1.		
DISTRACTER A:	TS 3.6.1.3 ACTIONS are NOT entered.		
DISTRACTER C:	Immediately declare the valve inoperable.		
DISTRACTER D:	Immediately declare the valve inoperable. TS 3.6.1.3 ACTIONS are NOT entered.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	2
	GROUP:	-	1
K/A TEXT:	A2.13 – Ability to (a) predict the impacts of the following on the RHR/LPCI CONTAINMENT SPRAY SYSTEM MODE; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Valve logic failure.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(b)(2)		
COMMENTS:			

(O) REFERENCES
TS 3.6.1.3, TS 3.6.2.4, OP-AD-001

(P) POSITIONS:
(check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R.E. Ol

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 88

(A) SY017 K-3 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	RC	CRDHYD						

(F) Point Value: 1 (G) Answer Time: ____ (Minutes)

(I) Review Date (YYMM): ____

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Immediately following a reactor scram the Reactor/Radwaste Building Sump Room Area Radiation Monitor exceeds its Hi alarm setpoint. The PCO reports that the scram discharge volume drain valves have NOT isolated. Which one of the following actions is required?

a. Enter EO-100-104, Secondary Containment Control and reset the reactor scram.

b. Enter EO-100-104, Secondary Containment Control and operate all the available sump pumps.

c. Enter ON-159-002, Containment Isolation and Isolate the CRD charging water to the HCUs.

d. Enter ON-159-002, Containment Isolation and insure RB HVAC isolates and SGTS initiates.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: 201001, A2.11/ 2.7

4(N) NOTES:

JUSTIFICATION:	EO-100-104 is entered on unexplained RB rad level above Hi alarm. E0-100-104, requires isolating the system discharging into the area. The only option given that accomplishes this is resetting the scram which will close the scram valves, isolating the SDV.
DISTRACTER B:	This is required for a high RB area exceeding a Hi level alarm, there are no Hi level alarms given in the question.
DISTRACTER C:	ON-159-002, Containment Isolation is not entered for these conditions. Isolating CRD to the HCUs does not isolate the reactor from the secondary containment (Ball check valves in HCUs will continue to drain the reactor to the SDV through the scram discharge valve.
DISTRACTER D:	ON-159-002, Containment Isolation is not entered for these conditions. There are no signals to initiate this isolation or initiation and for the stated conditions they are not required. (EO-100-104, step SC/T-3 requires maximizing RB HVAC).

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	-	2
	GROUP:	-	2
K/A TEXT:	A2.13 – Ability to (a) predict the impacts of the following on CONTROL ROD DRIVE HYDRAULIC SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Valve openings.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	43(b)(5)
COMMENTS:	SRO must enter EO-100-104 and diagnose the primary to secondary leak and take the appropriate action in the EOP to direct isolating the leak.

(O) REFERENCES: SY017 K-3, EO-100-104, Sect. SC/R-1

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by ED BOWLES **(R)** Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

~~SRO 74~~ 89

(A) SY017 G-5e Course (B) 19 (2697) Objective

C Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	UPS	SY017	OP-157-002		C			

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Unit 1 is operating at 100% when a TOTAL LOSS of power to Instrument Bus 1Y629 occurs.

Which one of the following describes the degraded plant condition that JUSTIFIES removing the unit from service?

a. Lowering reactor water level.

b. Degrading Main Condenser vacuum.

c. Rising primary containment pressure.

d. Rising Recirculation pump motor temperatures.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: ON-117-001 (All)

(M) K&A NUMBER/RATING: 262002 / 2.4.50 / 3.3

(N) NOTES:

JUSTIFICATION:	Lowering reactor water level as a result of the RFP recirc valves failing open and the RFP speeds being locked. ON-117-001, Loss of Instrument Bus, provides this information. Degrading Main Condenser vacuum. (1Y128) Rising primary containment pressure. (1Y236, 246) Rising Recirculation pump motor temperatures. (1Y236, 246)
DISTRACTER B:	Degrading Main Condenser vacuum occurs from a loss of SJAEs which have power,
DISTRACTER C:	Rising primary containment pressure occurs from a loss of CIG which has power.
DISTRACTER D:	Rising Recirc pump motor temps occur from a loss of RBCW which has power.

EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	2
	GROUP:	-	2
K/A TEXT:	2.4.50 – Ability to verify system alarm set points and operate controls identified in the alarm response manual.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	43(b)(5)
COMMENTS:	

(O) REFERENCES:
ON-117-001, Attachment L, Item #1

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~79~~ 90

(A) SY017 M-1 (B) 18 (888)

Course Objective

(C) Question Type (check one)

X	Multiple Choice
	Matching
	Free Format (Essay)

(D) Bank

Operations	X
OP002	

(E) Keywords :	1 Category	2 Topic 1	3 Topic 2	4 JTA	5 Setting	6 Other Objs.	7 Quiz Only	8 Retired
(≤9 characters)	ESW	SY017 L-20	OP-054-001		C	6 (874) 20 (890)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)

	1	Memory
X	2	Comprehension
	3	Application
	4	Analysis
	5	Problem Solving

(J) QUESTION:

The following conditions exist:

- Unit 1 is in MODE 5
- Unit 2 is at 100% power
- ESW Pump OP504B is running supplying the Unit 1 RBCCW Heat Exchanger (HX) 1E201B
- "A", "B", "C", and "D" Diesel Generators (DG) are OPERABLE with ESW aligned per the Operating Procedure
- "E" DG is shutdown with ESW isolated
- Subsequently to this alignment, ESW Pump OP504A is declared INOPERABLE

Per OP-054-001, Emergency Service Water, which one of the following describes the adjustment required to the ESW alignment to maintain one ESW loop OPERABLE?

a. Maintain HX 1E201B alignment and isolate all diesel generators from ESW Loop "B".

b. Start ESW Pump "D" and align the diesel generators to ESW Loop "B", isolated from ESW Loop "A".

c. Isolate HX 1E201B from the "B" ESW system and connect ESW Loop 'A" to HX 1E201B, line up diesel generators to ESW Loop "B".

d. Align HX 1E201A to ESW loop "A", isolate all diesel generators from ESW Loop "A" and Isolate HX 1E201B from the ESW system.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: TS 3.7.2 and associated Bases

(M) K&A NUMBER/RATING: 400000 / A2.01 / 3.4

(N) NOTES:

JUSTIFICATION:	IF RBCCW HX is aligned to ESW that loop must be declared inoperable. When the A ESW pump becomes inoperable that loop becomes inoperable. RBCCW can be lined up to the loop with a single pump (Loop A) and Loop B (with two pumps) can be lined up to the DGs to maintain B Loop operable. Additionally, the diesel generators are to be isolated from the loop supplying RBCCW.
DISTRACTER A:	This line up B loop supplying RBCCW and only one pump in Loop A makes both loops inoperable.
DISTRACTER B:	The B Loop is inoperable as long as it is aligned to RBCCW, Loop A is inoperable with only one pump available.
DISTRACTER C:	The A ESW Loop cannot supply the B RBCCW H/X.

EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	2
	GROUP:	-	2
K/A TEXT:	A2.01 – Ability to (a) predict the impacts of the following on the COMPONENT COOLING WATER SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of CCW pump.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	43(b)(2)
COMMENTS:	SRO question requires knowledge of the effects of various lineups and conditions on ESW operability and actions required to maintain operability. These conditions often exist during outages.

(O) REFERENCES:
OP-054-001, 3.2.2.h, 3.2.2.i
TS 3.7.2 and associated Bases

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~85~~ 91

(A) AD044A (Course) (B) 6 (4023) (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
Operations [X]
OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	ADMIN	AD044A	FSAR 13.1.2.3		C			

(F) Point Value: 1 (G) Answer Time: 2 (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Which one of the following describes the Technical Specification **MINIMUM** number of SRO license holders, RO license holders, and Non-Licensed Operators with both units at 100% power?

	SRO license holders	RO license holders	Non-licensed Operators
a.	2	3	3
b.	3	3	4
c.	4	4	3
d.	3	2	4

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: Generic / 2.1.4 / 3.4

(N) NOTES:

JUSTIFICATION:	Normal operation of both units consists of nine (9) qualified individuals; the Shift Supervisor who holds an SRO License, one (1) Unit Supervisor who holds an SRO License, three (3) Licensed Operators with RO Licenses, three (3) Non-Licensed Operators and (1) Shift Technical Advisor.		
DISTRACTER B:	Only 2 SROs and only 3 NLOs are required as a minimum.		
DISTRACTER C:	Only 2 SROs and only 3 ROs are required as a minimum.		
DISTRACTER D:	Only 2 SROs and only 3 NLOs are required as a minimum. At a minimum 3 ROs are required.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	3
	GROUP:	-	Generic
K/A TEXT:	2.1.4 – Knowledge of shift staffing requirements.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(B)(1)		
COMMENTS:			

(O) REFERENCES:
FSAR 13.1.2.3

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by PHIL BALLARD **(R)** Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~86~~ 92

(A) AD044A (Course) (B) ?? (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	ADMIN	AD044A	OPERATING LICENSE		C			

(F) Point Value: 1 (G) Answer Time: 2 (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

With Unit 1 at 90% power, a loss of feedwater heating occurs that results in feedwater temperature lowering 55°F. Assuming NO operator actions are taken, which one of the following is the operational concern for this condition?

a. RPV feedwater nozzle cracking.

b. Plant operating license is violated.

c. Recirculation Loop jet pump vibration.

d. Region 1 of the power/flow map entry.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: Generic / 2.1.10 / 3.9

(N) NOTES:

JUSTIFICATION:	The plant operating license value for feedwater temperature is exceeded (the temperature is below the OL limit).		
DISTRACTER A:	This is NOT the concern for this temperature.		
DISTRACTER C:	Jet pump riser vibration is not a concern for this temperature.		
DISTRACTER D:	A recirc runback does not occur on the loss of the feedwater heater string because the low reactor water level alarm will not be reached.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	3
	GROUP:	-	-
K/A TEXT:	2.1.10 – Knowledge of conditions and limitations in the facility license.		
QUESTION SOURCE:	BANK:		
	MODIFIED:	X	
	NEW:		
10CFR55:	43(b)(2)		
COMMENTS:			

(O) REFERENCES:
FACILITY OPERATING LICENSE FOR UNIT 1

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R. E. Ch.

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~87~~ 93

(A) SY017 E-2 Course (B) 1284 (21) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords: (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	ECCS	TS 3.5.1				1277 (14)		

(F) Point Value: 1 (G) Answer Time: 2 (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [X] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

The unit is at 100% power when the following Technical Specification conditions are discovered:

- August 1 at 1200, the "A" RHR pump is declared inoperable
- August 3 at 1200, the "C" RHR pump is declared inoperable
- August 6 at 0600, the "A" RHR pump is restored to OPERABLE status
- August 6 at 0800, the HPCI system is declared inoperable

Assume that equipment that is currently inoperable REMAINS inoperable.

Including any extensions permitted by Technical Specifications, which one of the following describes the LATEST time and date to place the unit into MODE 3?

a. August 6, at 2100.

b. August 8, at 2400.

c. August 9, at 2000.

d. August 9, at 2400.

(K) ANSWER: c.

(L) REQUIRED MATERIALS: TS 3.5.1 (all), TS 1.3 (all), TS 3.0 (all)

(M) K&A NUMBER/RATING: 2.1.12 / 4.0

(N) NOTES:

JUSTIFICATION:	When HPCI is declared inoperable, entry into Condition D and Condition E is required. After 72 hours expires (Condition E) which is 2/9 at 0800, entry into Condition H is required. Condition H requires that the unit be in MODE 3 within 12 hours. This is 2/9 at 2000.		
DISTRACTER A:	Assumes entry into Condition I and LCO 3.0.3 when HPCI is declared inoperable. LCO 3.0.3 requires being in MODE 3 within 13 hours of entry. This is 2/6 at 2100.		
DISTRACTER B:	Assumes entry into Condition C following the 7-day completion time for the first inoperable pump. This is incorrect because a 24-hour completion time extension is permitted for Condition B because the first inoperable component is fixed first. This time with the extension is 2/9 at 1200. Then entry into Condition C which allows 12 hours to be in MODE 3. This time is 2/9 at 2400.		
DISTRACTER D:	Assumes entry into Condition C following the 7-day completion time for the first inoperable pump plus a 24-hour extension for the second pump. This time with the extension is 2/9 at 1200. Then entry into Condition C which allows 12 hours to be in MODE 3. This time is 2/9 at 2400 which is greater than that for Condition E and Condition H (HPCI).		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	3
	GROUP:	-	Generic
K/A TEXT:	Ability to apply technical specifications for a system.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	x	
10CFR55:	43(B)(2)		
COMMENTS:			

(O) REFERENCES:
TS 3.5.1, Condition A, B, D, E, H, and associated bases
TS 1.3, Completion time extension criteria.

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
X	X			

(Q) Prepared by PHIL BALLARD **(R)** Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 94

(A) _____ (B) _____
Course Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	RCIC	SO-150-002						

(F) Point Value: [1] (G) Answer Time: [ ] (Minutes)

(I) Review Date (YYMM): [ ]

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

The plant is at 80% power. Following the completion of SO-150-002, Quarterly RCIC System Flow Verification, the following vibration data is recorded on Attachment A, Data Form for 1P203:

- Pump 1P203 inboard bearing horizontal: 0.140 ips
- Pump 1P203 inboard bearing vertical: 0.180 ips
- Pump 1P203 outboard bearing horizontal: 0.200 ips
- Pump 1P203 outboard bearing vertical: 0.140 ips
- Pump 1P203 outboard (thrust) bearing axial: 0.102 ips

When reviewing the acceptance criteria, the US identifies on Attachment A that the correct RCIC test conditions were established (turbine speed at 3600 rpm and pump flow at 600 gpm). Which one of the following describes if RCIC is OPERABLE or **NOT OPERABLE** and include any required actions?

a. **NOT OPERABLE**.
Declare RCIC inoperable and restore it to operable status within 14 days.

b. OPERABLE.
Ensure the test frequency is changed to 46 days until the root cause is determined.

c. **NOT OPERABLE**.
Immediately repeat the test using a surveillance authorization retest form to confirm inoperability.

d. OPERABLE.
Immediately repeat the test using a surveillance authorization retest form to confirm operability.

(K) ANSWER: b.

(L) REQUIRED MATERIALS: SO-150-002, Attachment A, Data Form (pages 1-4)

(M) K&A NUMBER/RATING: 2.2.21 / 3.5

(N) NOTES:

JUSTIFICATION:	If measured values of vibration fall outside the acceptance criteria but are within the ISI limits (which is the case), the surveillance frequency must be doubled until the root cause is analyzed. If the measured values are outside of the ISI limits (which is not the case) then RCIC is declared inoperable and TS 3.5.3 Condition A must be entered.		
DISTRACTER A:	If the measured values are outside of the ISI limits then RCIC is declared inoperable and TS 3.5.3 Condition A must be entered. The measured values are above the acceptance criteria but within the ISI limits.		
DISTRACTER C:	RCIC is not inoperable. There is no provision for immediate retest for the conditions specified. Valve stroke times provide provisions for retest dependent upon the stroke time.		
DISTRACTER D:	There is no provision for immediate retest for the conditions specified. Valve stroke times provide provisions for retest dependent upon the stroke time.		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	-	SRO
	TIER:	-	3
	GROUP:	-	generic
K/A TEXT:	Knowledge of pre and post maintenance operability requirements.		
QUESTION SOURCE:	**BANK:**		
	MODIFIED:		
	NEW:	x	
10CFR55:	43(b)(2)		
COMMENTS:			

(O) REFERENCES:
SO-150-002, Attachment A, Acceptance Criteria step 8
SO-150-002, Attachment A, Required Actions, step 2 and 3
TS 3.5.3 LCO and associated Bases
SR 3.5.3.3 and associated Bases

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by PHIL BALLARD **(R)** Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~92~~ 95

(A) AD044A (Course) (B) 3 (4020) (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	Fuel Handling	AD044A	OP-0RF-005		C			

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Per OP-0RF-005, Refueling, which one of the following is the individual who the Refueling Floor SRO directly reports to during a core shuffle?

a. Unit Supervisor.

b. Reactor Engineer.

c. Refuel Floor Manager.

d. PCO assigned to refueling.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: Generic / 2.2.26 / 3.7

(N) NOTES:

JUSTIFICATION:	The RF SRO reports to the US although the refueling floor communications are established and maintained with the PCO assigned to refueling.
DISTRACTER B:	The Reactor Engineer and the US communicate during refueling activities. The RF SRO reports to the US.
DISTRACTER C:	The RF SRO and the RF Manager communicate during refueling activities however, the RF SRO reports to the US.
DISTRACTER D:	The RF SRO reports to the US although the refueling floor communications are established and maintained with the PCO assigned to refueling.

EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	3
	GROUP:	-	generic
K/A TEXT:	2.2.26 – Knowledge of refueling administrative requirements.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	x

10CFR55:	43(b)(7)
COMMENTS:	

(O) REFERENCES:
OP-0RF-005, ATTACHMENT A, OPERATIONS REFUELING FLOOR ACTIVITIES ORGANIZATION CHART

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: _____

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 96 ~~95~~

(A) AD044A (Course) (B) 4276 (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords:	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	EOP	AD044A	NDAP-QA-0323		C			

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

A valve identified for a blocking permit is located in a room with a dose rate of 1.5 rem/hour. This valve is already in the position required by the blocking permit and has remote valve position indication (RPI) in the Control Room.

Per NDAP-QA-0323, Standard Blocking Practices, which one of the following describes the method for application and verification of the RED TAG for this valve to be identified on the blocking permit by the Unit Supervisor?

a. Check position locally and apply the tag at the valve. Independently verify RPI.

b. Check RPI and apply the tag at the access to the area. Waive the independent verification.

c. Check position locally and apply the tag at the valve. Waive the independent verification.

d. Check RPI and apply the tag at the access to the area. Independently verify RPI and tag location.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: EOPs

(M) K&A NUMBER/RATING: Generic / 2.3.10 / 3.3

(N) NOTES:

JUSTIFICATION:	Locked Hi-Rad Doors. This method shall only be used when access to plant component(s) for the purpose of Status Control or Blocking requires entry into Hi-Rad Areas. (e.g.: > 1R/hr, H.P. Escort required). Method is identified on Status Control Form or Permit Form as applicable and associated tags, stating the purpose of the switching move. Red tags may be placed on Hi-Rad doors. If a Hi-Rad door has a Red tag applied, the door may not be opened). Red tag(s) shall be applied to all Hi-Rad doors connected to the Hi-Rad Area, on the door handle or knob. Components controlled by this method shall be confirmed in the position requested by Permit form; current System Check Off Lists ("CL's"), System Status File, or Operating Procedures (OP's) as applicable - (Operations).		
DISTRACTER A:	The area is not entered because it is a high radiation area. Check VPI and apply the tag to the door to the area. IV the VPI and tag location. Note the area would be entered if dose rate is less than 1R/hr and IV would be waived.		
DISTRACTER B:	The IV is not waived. IV the VPI and the location of the tag.		
DISTRACTER C:	The area is not entered because it is a high radiation area. Check VPI and apply the tag to the door to the area. IV the VPI and tag location. Note the area would be entered if dose rate is less than 1R/hr and IV would be waived.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	1
	GROUP:	-	1
K/A TEXT:	2.3.10 – Ability to perform procedures to reduce excessive levels of radiation and guard against radiation exposure.		
QUESTION SOURCE:	BANK:	X	
	MODIFIED:		
	NEW:		
10CFR55:	43(b)(4)		
COMMENTS:			

(O) REFERENCES:
NDAP-QA-0323, 6.2.2

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by PHIL BALLARD

(R) Reviewed by: R.C. Chi

OPERATIONS QUESTION AND ANSWER INPUT FORM

~~SRO 96~~ 97

(A) AD045 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords (≤9 characters)	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
	OPS	ON069001						

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

As the Unit Supervisor you are notified that the wrong Sample Tank had been lined up for discharge and then discharged for (7) minutes BEFORE being recognized and terminated. NO abnormal indications occurred during the discharge.

Per ON-069-001, Abnormal Radiation Release – Liquid, which one of the following actions is required?

a. Determine the volume of the release and notify the NPDES immediately.

b. Obtain a new release permit for the tank discharging and confirm the radiation monitor setpoint.

c. Shift the discharge to the correct tank, notify chemistry of the error, and notify the EPA immediately.

d. Determine the amount of water discharged and direct Chemistry to determine if release rates have been exceeded.

(K) ANSWER: d.

(L) REQUIRED MATERIALS: None

(M) K&A NUMBER/RATING: Generic K/As, 2.3.11/3.2

(N) NOTES:

JUSTIFICATION:	Operations should assess the discharge by determining the amount of water released and by having Chemistry evaluate the release rates.
DISTRACTER A:	NPDES is the permit, not an organization requiring notification.
DISTRACTER B:	The Shift Supervisor notified and the Shift Supervisor must approve a new discharge.
DISTRACTER C:	The discharge cannot be shifted to the other tank without SS permission. There is no requirement to notify the EPA.

EXAM OUTLINE CROSS-REF:	LEVEL:	RO	SRO
	TIER:	-	3
	GROUP:	-	-
K/A TEXT:	2.3.11 – Ability to control radiation releases		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	43(b).4, 43(b).5
COMMENTS:	

(O) REFERENCES: ON-069-001, Sect. 3.10

(P) POSITIONS: (check one or more boxes)

R – RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by ED BOWLES

(R) Reviewed by: R. E. Ch

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO 97 98

(A) SY017 C-1 Course (B) 23 (189) Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords:	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	RHR	SY107 C-1	TS 3.9.7		C	11 (193)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level (Check one):
- [ ] 1 Memory
- [X] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

The following plant conditions exist during a reactor core reload:

- RHR Loop "A" is in Shutdown Cooling (SDC) and has been in operation for the past forty-eight (48) hours
- NO recirculation pumps are running

Because the SDC flow is disturbing the visibility, the Refuel Floor SRO requests that SDC be secured to allow completion of several core reload steps at that location and then be restarted. The request is granted and SDC is secured at 0800.

Which one of the following describes the Refueling Operations Technical Specification implication(s) of this action?

a. SDC must be started before 1000 to avoid declaring the LCO statement not met.

b. SDC must be started before 0900 to avoid suspending fuel movements into the RPV.

c. At 0800, TS 3.9.7, Condition C must be entered and the required actions must be taken.

d. At 0800, TS 3.9.8, Condition C must be entered and the required actions must be taken.

(K) ANSWER: a.

(L) REQUIRED MATERIALS: T.S. 3.9.7, 3.9.7 Bases, 3.9.8, 3.9.8 Bases

(M) K&A NUMBER/RATING: Generic / 2.4.9 / 3.9

(N) NOTES:

JUSTIFICATION:	The required RHR SDC subsystem may be removed from service for up to 2 hours per 8-hour period. Since SDC has been in operation for the past 48 hours, the full time can be used.
DISTRACTER B:	The TS ACTIONS are not entered. This action provided is required only if the TS ACTIONS are required to be entered and the incorrect Condition is selected, and then the 1-hour Completion Time expires with no decay heat removal mechanism established.
DISTRACTER C:	There is no requirement to declare the LCO statement not met at 0800. The required RHR SDC subsystem may be removed from service for up to 2 hours per 8-hour period. If not returned to service, then TS 3.9.7, not TS 3.9.8, LCO is declared not met at 1000 and Condition C is entered.
DISTRACTER D:	There is no requirement to declare the LCO statement not met at 0800. The required RHR SDC subsystem may be removed from service for up to 2 hours per 8-hour period. If not returned to service, then TS 3.9.7, not TS 3.9.8, LCO is declared not met at 1000 and Condition C is entered.

EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	3
	GROUP:	-	generic
K/A TEXT:	2.4.9 – Knowledge of low power / shutdown implications in LOSS OF RHR mitigation strategies.		

QUESTION SOURCE:	BANK:	
	MODIFIED:	
	NEW:	X

10CFR55:	43(b)(5) 53(b)(6) 43(b)(7)
COMMENTS:	

(O) REFERENCES:
TS 3.9.7, LCO STATEMENT AND ASSOCIATED NOTE.

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			X

(Q) Prepared by Phil Ballard

(R) Reviewed by: R. E. Cl...

OPERATIONS QUESTION AND ANSWER INPUT FORM

SRO ~~98~~ 99

(A) AD044A (Course) (B) 6 (4023) (Objective)

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs	Quiz Only	Retired
(≤9 characters)	FIRE PLAN	AD044A	NDAP-QA-0300		C	3 (4020)		

(F) Point Value: 1 (G) Answer Time: (Minutes)

(I) Review Date (YYMM):

(H) Cognitive Level: (Check one)
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

Per NDAP-QA-0445, Fire Brigade, which one of the following INDIVIDUALS can be assigned to assume the role as Fire Brigade Leader in the ABSENCE of the Assistant Unit Supervisor?

a. Either Unit Supervisor (US).

b. Site Fire Protection Engineer (FPE).

c. Senior Nuclear Plant Operator (NPO).

d. Either Plant Control Operator Monitor (PCOM).

(K) ANSWER: a.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: Generic / 2.4.27 / 3.5

(N) NOTES:

JUSTIFICATION:	The FBL must hold an RO or SRO license and is required to be an individual with an RO or SRO license other than the SS or the PCO required for the unit. The only individual that meets these requirements from those identified in the US.		
DISTRACTER B:	The FPE assists the FBL at the scene but cannot be assigned as the FBL because this individual does not hold an RO or SRO license.		
DISTRACTER C:	The senior NPO cannot be assigned as the FBL because this individual does not hold an RO or SRO license.		
DISTRACTER D:	A Unit PCOM cannot be assigned as the FBL because the FBL is required to be an individual with an RO or SRO license other than the SS or the PCO required for the unit. The PCOM is required. The PCO (extra) could be assigned.		
EXAM OUTLINE CROSS-REF:	**LEVEL:**	-	SRO
	TIER:	-	3
	GROUP:	-	generic
K/A TEXT:	2.2.26 – Knowledge of fire in the plant procedure.		
QUESTION SOURCE:	**BANK:**	X	
	MODIFIED:		
	NEW:		
10CFR55:	41(b)(10)		
COMMENTS:			

(O) REFERENCES:
NDAP-QA-0445, 4.3, 6.1.4, 6.3.1

(P) POSITIONS: (check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: _____

SRO 100

(A) PP002 Course (B) _____ Objective

(C) Question Type (check one)
- [X] Multiple Choice
- [ ] Matching
- [ ] Free Format (Essay)

(D) Bank
- Operations [X]
- OP002 [ ]

(E)	1	2	3	4	5	6	7	8
Keywords :	Category	Topic 1	Topic 2	JTA	Setting	Other Objs.	Quiz Only	Retired
(≤9 characters)	EOP	E PLAN	EP-PS-126-A EP-PS-126-4		C	??		

(F) Point Value: 1 (G) Answer Time: _____ (Minutes)

(I) Review Date (YYMM): _____

(H) Cognitive Level (Check one):
- [X] 1 Memory
- [ ] 2 Comprehension
- [ ] 3 Application
- [ ] 4 Analysis
- [ ] 5 Problem Solving

(J) QUESTION:

An ALERT is declared and it is the INITIAL emergency classification.

Per EP-PS-126, Control Room Communicator Emergency-Plan-Position-Specific Instruction, which one of the following is the time limit (in minutes) to initiate notifications to the following agencies?
- ***PEMA*** *(Pennsylvania Emergency Management Agency)*
- ***LCEMA*** *(Luzerne County Emergency Management Agency)*
- ***CCDPS*** *(Columbia County Department of Public Safety)*
- ***NRC*** *(Nuclear Regulatory Commission)*

	PEMA	*LCEMA*	*CCDPS*	*NRC*
a.	15 minutes	15 minutes	60 minutes	60 minutes
b.	15 minutes	15 minutes	15 minutes	60 minutes
c.	15 minutes	60 minutes	60 minutes	60 minutes
d.	60 minutes	60 minutes	15 minutes	15 minutes

(K) ANSWER: b.

(L) REQUIRED MATERIALS: None.

(M) K&A NUMBER/RATING: Generic / 2.4.40 / 4.0

(N) NOTES:

JUSTIFICATION:	**PEMA** (Pennsylvania Emergency Management Agency), **LCEMA** (Luzerne County Emergency Management Agency), and the **CCDPS** (Columbia County Department of Public Safety) must be notified within 15 minutes. The **NRC** (Nuclear Regulatory Commission) must be notified within 1 hour.		
DISTRACTER A:	CCDPS is 15 minutes, not 60 minutes.		
DISTRACTER C:	LCEMA and CCDPS are 15 minutes, not 60 minutes.		
DISTRACTER D:	PEMA and LCEMA are 15 minutes, not 60 minutes. The NRC is 60 minutes, not 15 minutes.		
EXAM OUTLINE CROSS-REF:	LEVEL:	-	SRO
	TIER:	-	3
	GROUP:	-	generic
K/A TEXT:	2.4.40 - Knowledge of the SRO's responsibilities in emergency plan implementation.		
QUESTION SOURCE:	BANK:		
	MODIFIED:		
	NEW:	X	
10CFR55:	43(b)(5)		
COMMENTS:			

(O) REFERENCES:
EP-PS-126-A
EP-PS-126-4

(P) POSITIONS:
(check one or more boxes)

R - RO	S - SRO	A - ASO	N - NPO	T - STA
	X			

(Q) Prepared by Phil Ballard

(R) Reviewed by: R. E. Cl