FACILITY NAME: Turkey Point Section 2

REPORT NUMBER: 2009-302

DRAFT RO WRITTEN EXAM

CONTENTS:

☑ Draft RO Written Exam (75Q with ES-401-5 Information)

Location of Electronic Files:

Submitted By: Low for for Verified By: Mark Riches

Turkey Point Initial Licensed Examination

List of references to be provided candidates during examination:

- 1. Steam tables
- Tech Spec 3.3.1, Reactor Trip Instrumentation
 Tech Spec 3.4.4, Relief Valves

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

<u>APPLICABILITY</u>: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each Reactor Trip System instrumentation channel and interlock and the automatic trip logic shall be demonstrated OPERABLE by the performance of the Reactor Trip System Instrumentation Surveillance Requirement specified in Table 4.3-1.



TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

FU	NCTIONAL UNIT	TOTAL NO. <u>OF CHANNELS</u>	CHANNELS <u>TO TRIP</u>	MINIMUM CHANNELS <u>OPERABLE</u>	APPLICABLE MODES	ACTION
1.	Manual Reactor Trip	2 2	1 1	2 2	1, 2 3*, 4*, 5*	1 9
2.	Power Range, Neutron Flux a. High Setpoint b. Low Setpoint	4 4	2 2	3 3	1, 2 1##, 2	2 2
3.	Intermediate Range, Neutron Flux	2	1	2	1##, 2	3
4.	Source Range, Neutron Flux a. Startup b. Shutdown** c. Shutdown	2 2 2	1 0 1	2 2 2	2# 3, 4, 5 3*, 4*, 5*	4 5 9
5.	Overtemperature ΔT	3	2	2	1, 2	13
6.	Overpower ∆T	3	2	2	1, 2	13
7.	Pressurizer Pressure-Low (Above P-7)	3	2	2	1	6
8.	Pressurizer PressureHigh	3	2	2	1, 2	6
9.	Pressurizer Water LevelHigh (Above P-7)	3	2	2	1	13
10	 Reactor Coolant FlowLow a. Single Loop (Above P-8) b. Two Loops (Above P-7 and below P-8) 	3/loop 3/loop	2/loop 2/loop	2/loop 2/loop	1 1	6 6

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS <u>TO TRIP</u>	MINIMUM CHANNELS <u>OPERABLE</u>	APPLICABLE MODES	ACTION
11. Steam Generator Water LevelLow-Low	3/stm. gen.	2/stm. gen.	2/stm. gen.	1, 2	6
12. Steam Generator Water Level Low Coincident With Steam/ Feedwater Flow Mismatch	2 stm. gen. level and 2 stm./feed- water flow mismatch in each stm. gen.	1 stm. gen. level coin- cident with 1 stm./feed- water flow mismatch in same stm. gen.	1 stm. gen. level and 2 stm./feed- water flow mismatch in same stm. gen. or 2 stm. gen. level and 1 stm./feedwater flow mismatch in same stm. gen.	1, 2	6
13. Undervoltage4.16 KV Busses A and B (Above P-7)	2/bus	1/bus on both busses	2/bus	1	12
 Underfrequency-Trip of Reactor Coolant Pump Breaker(s) Open (Above P-7) 	2/bus	1 to trip RCPs***	2/bus	1	11
 Turbine Trip (Above P-7) a. Autostop Oil Pressure b. Turbine Stop Valve Closure 	3 2	2 2	2 2	1 1	12 12

REACTOR TRIP SYSTEM INSTRUMENTATION

FUI	NCTIONAL UNIT	TOTAL NO. <u>OF CHANNELS</u>	CHANNELS <u>TO TRIP</u>	MINIMUM CHANNELS <u>OPERABLE</u>	APPLICABLE MODES	ACTION
16.	Safety Injection Input	2	4	2	4.0	0
	from ESF	2	1	2	1, 2	8
17.	Reactor Trip System Interlocks					
	a. Intermediate Range					
	Neutron Flux, P-6	2	1	2	2#	7
	 Low Power Reactor 					
	Trips Block, P-7					
	P-10 Input	4	2	3	1	7
	or					
	Turbine First	2	1	2	1	7
	Stage Pressure					
	c. Power Range Neutron					
	Flux, P-8	4	2	3	1	7
	d. Power Range Neutron					
	Flux, P-10	4	2	3	1, 2	7
18	Poastor Coolant Rump Proaker					
10.	Position Trin					
	a Above P-8	1/breaker	1	1/breaker	1	11
	h Above P-7 and below P-8	1/breaker	2	1/breaker	1	11
		horeater	2	indi caller	I	• •
19.	Reactor Trip Breakers	2	1	2	1, 2	8, 10
		2	1	2	3*, 4*, 5*	9
20	Automatic Trip and Interlock	2	1	2	1 2	8
20.	logic	2	1	2	3* 4* 5*	9
			•	-	• , , , •	~

TABLE NOTATION

- * When the Reactor Trip System breakers are in the closed position and the Control Rod Drive System is capable of rod withdrawal.
- ** When the Reactor Trip System breakers are in the open position, one or both of the backup NIS instrumentation channels may be used to satisfy this requirement. For backup NIS testing requirements, see Specification 3/4.3.3.3, ACCIDENT MONITORING.
- *** Reactor Coolant Pump breaker A is tripped by underfrequency sensor UF-3A1(UF-4A1) or UF-3B1(UF-4B1). Reactor Coolant Pump breakers B and C are tripped by underfrequency sensor UF-3A2(UF-4A2) or UF-3B2(UF-4B2).
- # Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.
- ## Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.

ACTION STATEMENTS

- ACTION 1 With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.
- ACTION 2 With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
 - a. The inoperable channel is placed in the tripped condition within 6 hours,
 - b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1, and
 - c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored per Specification 4.2.4.2.



ACTION STATEMENTS (Continued)

- ACTION 3 With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:
 - Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint, and
 - b. Above P-6 (Intermediate Range Neutron Flux Interlock) Setpoint but below 10% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10% of RATED THERMAL POWER.
- ACTION 4 With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes.
- ACTION 5 With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes and verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.
- ACTION 6 With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 6 hours.
- ACTION 7 With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.
- ACTION 8 With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.
- ACTION 9 With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the Reactor Trip System breakers within the next hour.
- ACTION 10- With one of the diverse trip features (undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply ACTION 8. The breaker shall not be bypassed while one of the diverse trip features is inoperable, except for the time required for performing maintenance to restore the breaker to OPERABLE status.

1

ACTION STATEMENTS (Continued)

- ACTION 11 -With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours.
- ACTION 12 -With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required ACTUATION LOGIC TEST provided the inoperable channel is placed in the tripped condition within 6 hours.
- ACTION 13 -With the number of OPERABLE channels one less than the Total number of channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours. For subsequent required DIGITAL CHANNEL OPERATIONAL TESTS the inoperable channel may be placed in bypass status for up to 4 hours.



REACTOR COOLANT SYSTEM

3/4.4.4 RELIEF VALVES

LIMITING CONDITION FOR OPERATION

3.4.4 Both power-operated relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one or both PORVs inoperable because of excessive leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With one PORV inoperable due to causes other than excessive leakage, within 1 hour either restore the PORV to OPERABLE status or close its associated block valve and remove power from the block valve; otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With both PORVs inoperable due to causes other than excessive leakage, within 1 hour either restore at least one PORV to OPERABLE status or close each PORV's associated block valve and remove power from the block valve; with both block valves closed with power removed, restore at least one PORV to OPERABLE status within 30 days and restore power to its associated block valve; otherwise, be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours.
- d. With one or both block valve(s) inoperable, within 1 hour either restore the block valve(s) to OPERABLE status or close the block valve(s) and remove power from the block valve(s); otherwise, place its associated PORV in manual control within the next hour and be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours. Restore at least one block valve to OPERABLE status within 30 days if both block valves are inoperable; otherwise, be in at least HOT STANDBY within the following 6 hours.
- e. The provisions of Specification 3.0.4 are not applicable.



6/25/2009

ES-401	Writt Questio	ten Examination n Worksheet		Form ES-401-5
Question 1 Examination Outline Cross-Re	eference:	Level Tier # Group # K/A # Importance Rating	RO 1 _008AA2.20 3.4	SRO
Proposed Question:				
See attached				
Proposed Answer: Explanation (Optional):	<u> </u>			
(including version/revision nul Proposed references to be pro-	ovided to ap	plicants during examin	ation: <u>N</u>	lone
Question Source:	<u>6902109 Ob</u> Bank # Modified Bar New	nk # (No parent) X	ote changes c	or attach
Question History: (Optional: Questions validated at the the NRC; failure to provide the inform	Last NRC Ex e facility since a nation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous re every question.)	view by
Question Cognitive Level:	Memory or F Comprehens	Fundamental Knowledg sion or Analysis	je	
10 CFR Part 55 Content:	55.41 55.435	_		

Comments:

Question 1

- With Unit 3 initially at 100%, the unit trips on low Pressurizer pressure.
- Pressurizer pressure has stabilized at 1385 psig.
- The crew suspects that a PORV opened inadvertently and is now partially open.
- PRT pressure is 35 psig.

Which one of the following confirming indications could be expected if a PORV is partially open?

POR	V relief line ter	mperature at(1) and Pressurizer level	(2).
		(2)	
А	587°	increasing due to a loss of subcooling	
В	587°F	decreasing due to a loss of inventory	
С	281°F	increasing due to a loss of subcooling	
D	281°F	decreasing due to a loss of inventory	



Question 1

K/A 008AA2.20 Pressurizer vapor space accident Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: The effect of an open PORV on code safety, based on observation of plant parameters

Reference: 5613-M-3041 sheet 2

History: New

Correct answer: C

A. Incorrect; 281° is correct temperature. Plausible; common misconception – Tsat for PZR pressure.

B. Incorrect; 281° is correct temperature and PZR level increasing due to loss of subcooling (TMI). Plausible; common misconception – Tsat for PZR pressure and losing mass out PORV.

C. Correct; 281°F is the saturation temperature for 50 psia and PZR will increase due to head void when subcooling lost.

D. Incorrect; PZR level increasing due to loss of subcooling (TMI). Plausible; losing mass out PORV.

Cognitive level: 3 Need to use steam table to determine temperature

Provide steam tables as a reference



6/25/2009

ES-401	Writ Questic	ten Examination on Worksheet	Form ES-4	101- 8
Question 2				
Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO SRO 	
Proposed Question:				
See attached				
Proposed Answer:	D			
Explanation (Optional): Steam Tables – for the abov should start delivering flow	e conditions, l around 1500 p	RCS pressure is 760 ps osig.	ig. The HHSI Pumps	
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>4-EOP-E-1</u> vided) <u>BD-EO</u> number <u>ERG E</u>	FOP 12/02/08 P-E-1 FOP 05/15/08 Executive Volume RCI	P Trip p. 14 Rev. 2	
Proposed references to be Learning Objective:	provided to ap <u>6902327 Ot</u>	plicants during examir <u>j. 3 </u>	nation: <u>Steam Tables</u> available)	
Question Source:	Bank # Modified Ba	nk # (N	ote changes or attach	
	New	X		
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC E the facility since ormation will nece	xam 10/95 will generally underg essitate a detailed review o	o less rigorous review by f every question.)	
Question Cognitive Level:	Memory or F Comprehen	Fundamental Knowled sion or Analysis	geX	
10 CFR Part 55 Content:	55.41 <u>5</u> 55.43 <u>5</u>	_		
Comments:				

This is a substitute K/A. Original K/A was 009EG2.2.3

06/25/2009

Turkey Point ILC 25 NRC Examination

Question 2

The crew has just entered 4-EOP-E-1, Loss of Reactor or Secondary Coolant, in response to a small break LOCA.

- Containment temperature is 220°F.
- Only the 4A HHSI Pump is running.
- MOV-4-843 A & B, HHSI to Cold Leg MOV, are both closed.
- RCS Subcooling is 40°F.

In accordance with 4-EOP-E-1, which of the following statements is correct concerning the RCPs?

The RO should...

- A trip the RCPs. This will minimize RCS mass loss.
- B trip the RCPs. This will reduce heat input into the RCS.
- C NOT trip the RCPs. The RCPs are needed for pressure control.
- D NOT trip the RCPs. The RCPs are helping provide RCS heat removal.



06/25/2009

Turkey Point ILC 25 NRC Examination

Question 2

K/A 009EG2.2.44 Small Break LOCA Ability to verify control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions NOTE: This is a substitute K/A

Reference: 4-EOP-E-1 FOP BD-EOP-E-1 FOP ERG Executive Volume RCP Trip p. 14 Steam Tables – for the above conditions, RCS pressure is 1000 psig. The HHSI Pumps should start delivering flow around 1500 psig.

Question history: New

Correct answer: D

A Incorrect; per E-1 FOP trip RCPs if flowpath verified – no flow. Plausible; RCP subcooling trip criteria met and reason is the correct one.

B Incorrect; per E-1 FOP trip RCPs if flowpath verified – no flow. Plausible; RCP subcooling trip criteria met and reason is a common misconception.

C Incorrect; per Executive Volume, don't trip RCP without flowpath so RCPs can help provide core heat removal via break and S/Gs. Plausible; RCPs used for spray during post-LOCA cooldown and depressurization.

D Correct per above discussion

Cognitive level: 2

Need to determine RCS pressure and should have HHSI flow. Furthermore, that RCPs should not be tripped and why.



6/25/2009

ES-401	ES-401 Written Examination Question Worksheet			Form ES-401-5	
Question 3 Examination Outline Cross-Reference:		Level Tier # Group # K/A # Importance Rating	RO 1 011EG2.1.7 4.4	SRO 4.7	
Proposed Question:					
See attached					
Proposed Answer: Explanation (Optional):	D				
Technical Reference(s): 3-EOP-F-0 12/09/2008 (Attach if not previously provided) (including version/revision number Proposed references to be provided to applicants during examination: None Accessing Objective:					
Question Source:	Bank # Modified Ban New	k #(Not parent) X	e changes or a	ttach	
Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)					
Question Cognitive Level:	Memory or Fo Comprehensi	undamental Knowledg ion or Analysis	geX	-	
10 CFR Part 55 Content:	55.41 <u>5</u> 55.43 <u>5</u>	-			

Comments:

06/25/2009

Turkey Point ILC 25 NRC Examination

Question 3

Unit 3 has experienced a safety injection with the following indications:

- Containment temperature is 225°F
- RCS pressure is 1100 psig and lowering.
- RCS Tcolds are 300°F and lowering.
- Gammametrics NIs are at 8% and decreasing at 0.1 dpm.
- Intermediate Range NIs are at 10^{-6} amps with a positive 0.1 dpm SUR.

The crew is preparing to transition from 3-EOP-E-0, Reactor Trip or Safety Injection.

What procedure should be the crew transition to first?

- A 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, on an Orange path.
- B 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, on a Red path.
- C 3-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS on an Orange path.
- D 3-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS on a Red path.



Question 3

K/A 011EG2.1.7 Large Break LOCA Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior and instrument interpretation.

Reference: 3-EOP-F-0

History: New

Correct answer: D

A Incorrect per reference. Plausible; conditions for FR-P.1 in stem.

B Incorrect per reference. Plausible; conditions for FR-P.1 in stem.

C Incorrect per reference. Plausible; IR indications would require FR-S.1 on orange path

D Correct per reference.

Cognitive level: 2 Candidate has to determine procedure transition from conditions in stem.



6/25/2009

ES-401	Writte Question	en Examination Worksheet		Form ES-401-5
Question 4 Examination Outline Cross-R	eference:	Level Tier # Group # K/A # Importance Rating	RO 1 1	SRO 3.2
Proposed Question:				
See attached				
Proposed Answer: Explanation (Optional):	<u> </u>			
Technical Reference(s): (Attach if not previously provid (including version/revision nu	<u>T.S. 3.4.1.1</u> ded) <u>0-ADM-</u> mber) <u>3-AR</u>	5 <u>36 section 3.4.1 02/1</u> P-097.CR p. 77 04/28	8/2009 /2990	
Proposed references to be pr Learning Objective:	ovided to app 6902163 Ob	licants during examina <u>j. 7 </u>	ation: <u>No</u> ailable)	one
Question Source:	Bank # Modified Banl New	k # (No parent) X	te changes or	attach
Question History: (Optional: Questions validated at th the NRC; failure to provide the infon	Last NRC Exa e facility since 10 mation will neces	am W95 will generally undergo sitate a detailed review of	less rigorous revi every question.)	ew by
Question Cognitive Level:	Memory or Fu Comprehensi	undamental Knowledg on or Analysis	eX	-
10 CFR Part 55 Content:	55.41 <u>10</u> 55.43			
Comments:				

Question 4

- Unit 3 is at 35% power.
- The 3A RCP breaker has just tripped.

What automatic or manual action will occur and what is the reason for this action?

- A The reactor will automatically trip. This is a DNB concern.
- B The crew will immediately trip the reactor. This is a DNB concern.
- C The reactor will automatically trip. This is a kw/ft concern.
- D The crew will immediately trip the reactor. This is a kw/ft concern.



Question 4

K/A 015AK3.04 RCP Malfunctions Knowledge for the reasons for the following responses as they apply to the Reactor Coolant Pump Malfunctions (Loss of Flow): Reduction of power to below the steady state power-to-flow limit

Reference: Tech Spec 3.4.1.1 0-ADM-536 section 3.4.1 0-ARP-097.CR p77

Question history: New question

Correct answer: B

A Incorrect; the plant is below P-8 and will not automatically trip. Plausible; either the Candidate does not know P-8 setpoint or believes loss of one RCP will cause a reactor trip.

B Correct; per reference ARP requires the crew to trip the reactor and per ADM-536 this is a DNB concern

C Incorrect; Not a kw/ft concern. Plausible; Candidate can confuse DNB with kw/ft

D Incorrect; Not a kw/ft concern. Plausible; Candidate can confuse DNB with kw/ft

Cognitive level: 2 Candidate has to compare power with setpoint for P-8.





6/25/2009

ES-401	Written Examination Question Worksheet			Form ES-401-5
Question 5 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 022AA2.02 _3.2_	SRO
Proposed Question:				
See attached				
Proposed Answer:	C			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective:	<u>3-ONOP-04</u> vided) humber) provided to ap <u>6900234 Ob</u>	7.1 11/04/2008 plicants during examina	ation: <u>No</u> wailable)	
Question Source:	Bank # Modified Ba	nk # (Nc	te changes or	attach
	New	parent)	te changes of	allach
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC E: the facility since ormation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous rev every question.)	iew by
Question Cognitive Level:	Memory or F Comprehens	Fundamental Knowledg sion or Analysis	eX	
10 CFR Part 55 Content:	55.41 55.43			

Comments:

Question 5

- Unit 3 is at 100% power.
- The crew is responding to a loss of charging flow.
- The 3A Charging Pump is running with the following indications:
 - > Charging flow and pressure are oscillating
 - > The SNPO reports the 3A Charging Pump is running normally.

In accordance with 3-ONOP-047.1, Loss of Charging Flow in Modes 1 Through 4, which one of the following is the most likely cause of the above event?

The 3A Charging Pump...

- A is gas bound.
- B has low oil pressure.
- C relief valve is cycling.
- D suction piping is leaking.

Question 5

K/A 022AA2.02 Loss of Rx Coolant Makeup Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: Charging pump problems

Reference: 3-ONOP-047.1

Question history: New

Correct answer: C

A Incorrect; IAW ONOP-047.1 would expect high vibrations on running pump and reduced charging flow. Plausible; gas bound would effect flow.

B Incorrect; would expect high vibrations on running pump and flow would not recover. Plausible; bearing problems would effect flow.

C Correct IAW above reference.

D Incorrect; would see low charging. Plausible; would produce low flow.

Cognitive level: 2 Need to determine cause of failure.



6/25/2009

ES-401	Writt Question	en Examination n Worksheet		<u>Form ES-401-5</u>
Question 6 Examination Outline Cross-F	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 <u>025AK1.01</u> 	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u> </u>			
Explanation (Optional): Per the conditions given, RC establishes feed to S/Gs. Ste verifies natural circulation.	S is intact and p 14 checks C RCPs are not a	S/Gs are available. 4 ETs increasing. If RC wailable because of th	-ONOP-050 st CPs not availab e loss of CCW	tep 13 ble, step 19 7.
Technical Reference(s): (Attach if not previously prov (including version/revision n	<u>0-ADM-051 F</u> ided) umber)	⁻ ig. 1 03/10/09		
Proposed references to be p Learning Objective:	rovided to app <u>6902210 Obj</u>	blicants during examin	ation: <u>No</u> available)	ne
Question Source:	Bank # Modified Bar	ik # (No	ote changes o	r attach
	New	<u> </u>		
Question History: (Optional: Questions validated at t the NRC; failure to provide the info	Last NRC Ex he facility since 1 mation will neces	am 0/95 will generally undergo ssitate a detailed review of) less rigorous rev every question.)	view by
Question Cognitive Level:	Memory or F Comprehens	undamental Knowledo ion or Analysis	geX	
10 CFR Part 55 Content:	55.41 <u>10</u> 55.43	-		
Comments:				

Question 6

Initial conditions:

- Unit 4 operated for 5 days after a refueling outage.
- The crew has since shutdown and gone on RHR with the following conditions:
 - RCS pressure is 350 psig
 - ➢ RCS temperature is 115°F
 - > Time since shutdown -150 hours

Subsequently, RHR has been lost.

In accordance with 0-ADM-051, Figure 1, Outage Risk Assessment and Control, Typical heat Up Rates w/Vessel Full, approximately how long will it be before the RCS reaches 200°F?

Reference provided: 0-ADM-051, Figure 1

- A 40 to 45 minutes
- B 55 to 60 minutes
- C 85 to 90 minutes
- D 185 to 190 minutes



Question 6

K/A 025AK1.01 Loss of RHR System Knowledge of the operational implications of the following concepts as they apply to the Loss of Residual Heat Removal System: Loss of RHRS during all modes of operation

Reference: 0-ADM-051 Figure 1

History: New

Correct answer: B

A Incorrect; correct answer is approximately 57 minutes. Plausible; if use wrong MWD, will get this answer

B Correct IAW above reference.

C Incorrect; correct answer is approximately 57 minutes. Plausible; if misinterpret hours for days, could use 15 days instead of 150 hours.

D Incorrect; correct answer is approximately 57 minutes. Plausible; if misinterpret hours for days, would use end of axis.

Cognitive level: 3

Provide reference: 0-ADM-051, Figure 1



6/25/2009

ES-401	Writ Questio	ten Examination n Worksheet		Form ES-401-5
Question 7 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 026AA1.07 _2.9	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u>B</u>			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro- (including version/revision n Proposed references to be p Learning Objective:	<u>4-ONOP-03(</u> vided) <u>5614-M</u> jumber) provided to app <u>6902229 Ob</u>	0 step 22 01/05/2009 1-3030 sheet 2 02/12/2 plicants during examina j. 4 & 7 (As av	990 ation: <u>No</u> r vailable)	<u>ne</u>
Question Source:	Bank # Modified Bar	nk # <u>1.1.25.29.3.6</u> (No) te changes or	attach
	New			
Question History: (Optional: Questions validated at the NRC; failure to provide the info	Last NRC Ex the facility since 1 prmation will nece	cam 10/95 will generally undergo ssitate a detailed review of	less rigorous rev every question.)	iew by
Question Cognitive Level:	Memory or F Comprehens	undamental Knowledg sion or Analysis	e <u>X</u>	
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43	- · · ·		

Comments:

Item: 1.1.25.29.3.6

69022290306;

A leak of the Component Cooling Water piping in the Cask Wash Area has occurred, the leak has been isolated and CCW Head Tank level restored.

The plant is shutdown and will be cooled down to facilitate repairs.

Which ONE of the following describes how the Charging/Letdown System is operated during the Cooldown?

- A) Emergency cooling water will be aligned to all Charging pps to support inventory control during cooldown.
- B) Letdown is isolated and the charging pump is operated as necessary to maintain PZR Level and RCP seal cooling.
- C) Seal injection flow MUST be maintained at all times to prevent overheating of the RCP seals.
- D) Excess LTDN is established, charging pumps are operated for inventory control and pressure control using aux. spray valve CV-311

Feedback for alternative A: 1.1.25.29.3.6 Attachment and set-up in field only provides capability (hoses) and guidance to hook up cooling to one pp at a time

Feedback for alternative C: 1.1.25.29.3.6

incorrect for conditions given (leak location) rcp seal cooling should be available via thermal barrier cooling- in any case therre is no requirement to maintain continuous charging/seal injection

Feedback for alternative D: 1.1.25.29.3.6

Distractor is **not correct** since normal LTDN is isolated & procedures prohibit the use of aux. spray without ltdn available

Item Classification: Comprehension Item difficulty: 0.50 Keywords: LOP, 026 AK3.03 Item weight: 10 Points required for mastery: 1 Correct alternative(s): B Judging values of alternatives: A=-1 B=1 C=-1 D=-1 Memo Field: REFERENCE: ONOP-030, Step 20

Question 7

- Unit 4 has experienced a CCW leak in the Cask Wash Area.
- CCW has been isolated to the Charging Pumps.
- The 4A Charging Pump is running

In accordance with 4-ONOP-030, Component Cooling Water Malfunction, how will the Charging Pump(s) be operated during this event?

The 4A Charging Pump will be ____(1) ____ and Emergency Cooling Water will be aligned to ____(2)___.

	(1)	(2)
A	run at max speed	all Charging Pumps
В	run at max speed	one Charging Pump
С	tripped	all Charging Pumps
D	tripped	one Charging Pump





Question 7

K/A 026AA1.07

Loss of Component Cooling Water Ability to operate and / or monitor the following responses as they apply to the Loss of Component Cooling Water: Flow rates to the components and systems that are serviced by the CCWS; interactions among the components.

Reference: 4-ONOP-030 step 22 Drawing 5614-M-3030 sheet 2

History: EXAMINER question 1.1.25.29.3.6 modified

Answer: B

A. Incorrect; setup in field only provides capability to hook up cooling to one charging pump at a time. Plausible; candidate might not be aware of field arrangement.

B. Correct; run one pump at max speed and hook up service water to one pump.

C. Incorrect; need to run one charging pump at max speed IAW Attachment in ONOP-030 and setup in field only provides capability to hook up cooling to one charging pump at a time. Plausible; candidate might not be aware of field arrangement.

D. Incorrect; need to run one charging pump at max speed IAW Attachment in ONOP-030 and setup in field only provides capability to hook up cooling to one charging pump at a time. Plausible; candidate might not be aware of field arrangement.

Cognitive level: 1



6/25/2009

ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 8				
Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 027AK1.03 	SRO 3
Proposed Question:				
See attached				
Proposed Answer:	A			
Explanation (Optional): At 0% on PC-3-444J, heate and increase Pressurizer pre Technical Reference(s): (Attach if not previously pro	rs will be full o essure, driving <u>5610-T-D 16</u>	on. This will increase li up vapor space tempera 3B 12/08/06	iquid space to ature.	emperature
(including version/revision i	number)			
Proposed references to be Learning Objective:	provided to ap <u>6902912 Ot</u>	plicants during examina	ation: vailable)	
Question Source:	Bank # Modified Ba New	nk # (No parent) X	ote changes o	or attach
Question History: (Optional: Questions validated at the NRC; failure to provide the ini	Last NRC E t the facility since formation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous re every question.	eview by)
Question Cognitive Level:	Memory or F Comprehens	⁻ undamental Knowledg sion or Analysis	e	x
10 CFR Part 55 Content:	55.41 <u>8</u> 55.43			
Comments:				

Question 8

- Unit 3 is stable at 70% power.
- PC-3-444J, Pressurizer Pressure Controller, fails to 0% demand.

How will the Pressurizer liquid and vapor space temperatures initially respond?

	Liquid space	Vapor space
А	Increase	Increase
В	Increase	Decrease
С	Decrease	Decrease





Question 8

K/A 027AK1.03 Pressurizer Pressure Control System Malfunction Knowledge of the operational implications of the following concepts as they apply to Pressurizer Pressure Control Malfunctions: Latent heat of vaporization/condensation

Reference: 5610-T-D-16B At 0% on PC-3-444J, heaters will be full on. This will increase liquid space temperature and increase Pressurizer pressure, driving up vapor space temperature.

History: New

Correct answer: A

A. Correct; 0% demand energizes heaters, which increases liquid space temperature and increases pressurizer pressure.

B. Incorrect; both will increase due to heaters coming on. Plausible; need to realize 0% demand energizes heaters.

C. Incorrect; both will increase due to heaters coming on. Plausible; need to realize 0% demand energizes heaters.

D. Incorrect; both will increase due to heaters coming on. Plausible; need to realize 0% demand energizes heaters.

Cognitive level: 2

6/25/2009

ES-401	Writte Questior	en Examination N Worksheet		Form ES-401-5
Question 9 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 038EA2.08 3.8	SRO
Proposed Question:				
See attached				
Proposed Answer:	B			
Explanation (Optional): With LOOP in stem of ques to condenser are not availab	tion, circulating	g water pumps have tri ot in service – will use	pped off. Stea PORV.	ım dumps
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>4-EOP-E-3 s</u> vided) <u>5614-T-</u> number)	step 11 12/09/2008 L1 sheet 13 04/26/93		
Proposed references to be Learning Objective:	provided to app <u>6902339 Obj</u> .	licants during examina	ation: <u>Nor</u> vailable)	<u>1e</u>
Question Source:	Bank # Modified Ban New	k # (No parent) X	te changes or	attach
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC Exa the facility since 10 comation will neces	am D/95 will generally undergo sitate a detailed review of	less rigorous reviewery question.)	iew by
Question Cognitive Level:	Memory or Fu Comprehensi	undamental Knowledg on or Analysis	eX	
10 CFR Part 55 Content:	55.41 55.43	-		

Comments:
Question 9

- Unit 4 has experienced a Steam Generator tube rupture.
- Off-site power has been lost and will not be restored for 24 hours.

In accordance with 4-EOP-E-3, Steam Generator Tube Rupture, how will the RCS cooldown and depressurization to terminate safety injection be conducted?

The crew will use steam dumps to ...

- A atmosphere and auxiliary spray.
- B atmosphere and a PORV.
- C condenser and auxiliary spray.
- D condenser and a PORV.

Question 9

K/A 038EA2.08 Steam Gen. Tube Rupture Ability to determine or interpret the following as they apply to a SGTR: Viable alternatives for placing plant in safe shutdown condition when condenser is not available

Reference: 5614-T-L1 sheet 13 4-EOP-E-3

With LOOP in stem of question, circulating water pumps have tripped off. Steam dumps to condenser are not available. Letdown not in service – will use PORV.

History: New question

Correct answer: B

A. Incorrect; will use PORV. Plausible; letdown established later in E-3 and auxiliary spray is then available.

B. Correct; IAW with 4-EOP-E-3

C. Incorrect; SDTCs are not available due to loss of circulating water pumps and will use PORV. Plausible; SDTCs are the preferred method and letdown is established later in E-3 and auxiliary spray is then available.

D. Incorrect; SDTC are not available due to loss of circulating water pumps. Plausible; SDTCs are the preferred method.

Cognitive level: 2 Candidate must diagnose that SDTCs not available due to LOOP and determine method for depressurization.



6/25/2009

ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 10 Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 1 054AK1.01 4.1	SRO
Proposed Question:				
See attached				
Proposed Answer: Explanation (Optional):	<u>D</u>			
Technical Reference(s): (Attach if not previously pro (including version/revision i	<u>5613-M-307</u> ovided) <u>FSAR</u> number)	74 Sheet 3 04/09/2009 14.1.11 & 14.2.5 04/98		
Learning Objective:	6902914 Ot	plicants during examin oj. 5 (As a	ation: <u>No</u> available)	one
Question Source:	Bank # Modified Ba New	nk # (No parent) X	ote changes o	r attach
Question History: (Optional: Questions validated at the NRC; failure to provide the ini	Last NRC E the facility since formation will nec	xam 10/95 will generally undergo essitate a detailed review of	less rigorous re every question.)	view by
Question Cognitive Level:	Memory or I Comprehen	Fundamental Knowledg sion or Analysis	jeX	
10 CFR Part 55 Content:	55.41 <u>8</u> 55.43	_		
Comments:				

Used on Ginna NRC RO exam 2007 question 48

Question 10

- Unit 4 was initially at 100% power.
- A Feedline break developed at the piping connection to the 4A S/G inside Containment.

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

- A RCS temperatures lower prior to reactor trip.
 4A S/G pressure stabilizes after Feedwater Isolation.
- B RCS temperatures lower prior to reactor trip.
 4A S/G pressure continues to depressurize after Feedwater Isolation.
- C RCS temperatures rise prior to reactor trip.
 4A S/G pressure stabilizes after Feedwater Isolation.
- D RCS temperatures rise prior to reactor trip.
 4A S/G pressure continues to depressurize after Feedwater Isolation.

Question 10

K/A 054AK1.01

Loss of Main Feedwater

Knowledge of the operational implications of the following concepts as they apply to Loss of Main Feedwater: MFW line break depressurizes the S/G (similar to a steam line break)

Reference: 5613-M-3074 sheet 3 FSAR 14.1.11 & 14.2.5

Question history: Ginna NRC RO exam 2007 question 48

Correct answer: D

A Incorrect; temperature would decrease if it were a steam break. A feed break will rob the S/G of water, causing it to heat up prior to the trip. No check valve keeping the S/G from depressurizing. Plausible; this is the symptom of a steam line break downstream of MSIV.

B Incorrect; temperature would decrease if it were a steam break. A feed break will rob the S/G of water, causing it to heat up prior to the trip. No check valve keeping the S/G from depressurizing. Plausible; this is the symptom of a steam line break upstream of MSIV.

C Incorrect; no check valve to keep S/G from depressurizing. Plausible; if leak were upstream of check valve, S/G would stabilize.

D Correct; A feed break will rob the S/G of water, causing it to heat up. No check valve keeping the S/G from depressurizing.

Cognitive level: 2

Candidate must diagnose effects of feed break on RCS temperature and S/G pressure



6/25/2009

ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 11 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 1 _055EK3.02 4.3	SRO
Proposed Question:				
See attached				
Proposed Answer: Explanation (Optional):	A			
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective:	<u>3-EOP-ECA</u> vided) <u>BD-EC</u> number) provided to ap <u>6902348 Ot</u>	0-0.0 step 13 12/29/200 DP-ECA-0.0 step 13 04/ oplicants during examina	8 05/2009 ation: <u>N</u> o	one
Question Source:	Bank # Modified Ba New	ink # (No parent) X	te changes o	or attach
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC E the facility since formation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous re every question.,	eview by)
Question Cognitive Level:	Memory or I Comprehen	Fundamental Knowledg sion or Analysis	e _>	<u><</u>
10 CFR Part 55 Content:	55.41 <u>10</u> 55.43			

Comments:

Question 11

- Unit 3 has experienced a loss of all AC power.
- The crew has determined that a source of power is not available.

In accordance with 3-EOP-ECA-0.0, Loss of All AC Power, why are RCP Seal Manual Isolation Valves (3-297 A/B/C) and the RCP Seal Cooling Water Outlet Valve (MOV-3-626) closed?

3-297 A/B/C are closed to prevent _____ and MOV-3-626 is closed to prevent _____.

- A (1) thermal shocking the RCPs(2) steam introduction into the CCW System
- B (1) steam introduction into the RCP Seal Return(2) steam introduction into the CCW System
- C (1) steam introduction into the RCP Seal Return (2) thermal shocking the RCPs
- D (1) thermal shocking the RCPs (2) thermal shocking the RCPs



Question 11

K/A 055EK3.02 Station Blackout Knowledge for the reasons for the following responses as they apply to the Station Blackout: Actions contained in EOP for loss of offsite and onsite power

Reference: 3-EOP-ECA-0.0 & Basis Document for step 13

History: New question

Correct answer: A

A. Correct; per reference 297 A/B/C to prevent cold seal injection water thermal shocking the RCPs. MOV-3-626 is closed to prevent introduction of steam into the main portion of CCW System

B. Incorrect; 297A/B/C not closed to prevent steam introduction into RCP seal return lines. Plausible; Candidate could confuse reason for closing MOV-3-626 with reason for closing 297 A/B/C

C. Incorrect; 297A/B/C not closed to prevent steam introduction into RCP seal return lines. Plausible; Candidate could confuse reason for closing MOV-3-626 with reason for closing 297 A/B/C

D. Incorrect; MOV-3-626 not closed to prevent thermal shocking RCPs. Plausible; Candidate could confuse reason for closing MOV-3-626 with reason for closing 297 A/B/C

Cognitive level: 1



6/25/2009

ES-401	Writt Questior	en Examination n Worksheet		Form ES-401-5
Question 12 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 056AG2.4.4 _2.9	SRO 1
Proposed Question:				
See attached				
Proposed Answer:	D			
Explanation (Optional)				
Technical Reference(s): (Attach if not previously pro- (including version/revision n	PTN EP sect vided) umber)	ion 3.1 – 3.4 05/20/20		
Learning Objective:	<u>3202003 Obj</u>	. <u>4</u> (As a	ivailable)	<u>e</u>
Question Source:	Bank # Modified Ban New	k # (No parent) X	te changes or	attach
Question History: (Optional: Questions validated at the NRC; failure to provide the info	Last NRC Ex the facility since 10 ormation will neces	am 0/95 will generally undergo ssitate a detailed review of	less rigorous revie every question.)	ew by
Question Cognitive Level:	Memory or Fu Comprehensi	undamental Knowledg ion or Analysis	e _X_	
10 CFR Part 55 Content:	55.41 <u>10</u> 55.43	-		

Comments:

Question 12

- Unit 3 experienced a loss of offsite power.
- The 3A and 3B EDGs started and loaded their respective busses.
- An Unusual Event was declared

In accordance with the Turkey Point Radiological Emergency Plan, which one of the following is the emergency action level threshold that was met for this event?

Events are in process or have occurred which...

- A involve actual or likely major failures of plant functions needed for protection of the public.
- B involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity.
- C involve an actual or potential substantial degradation of the level of safety of the plant.
- D indicate a potential degradation of the level of safety of the plant.



Question 12

K/A 056AG2.4.41 Loss of Off-site Power Knowledge of the emergency action level thresholds and classifications

Reference: (PTN Radiological Emergency Plan) PTN EP sections 3.1 – 3.4

History: New question

Correct answer: D

A. Incorrect; this is the definition for site are emergency. Plausible; defines one of the EAL classifications.

B. Incorrect; this is the definition for general emergency. Plausible; defines one of the EAL classifications.

C. Incorrect; this is the definition for an alert. Plausible; defines one of the EAL classifications.

D. Correct per above reference

Cognitive level: 1



6/25/2009

Question 13 ES-401	Writ Questio	ten Examination on Worksheet		Form ES-401-5
Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 _057AA1.04 _3.5	SRO
Proposed Question:				
See attached				
Proposed Answer:	A			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro (including version/revision i	<u>3-ONOP-00</u> wided) <u>5613-N</u> number) <u>5610</u> -	3.7 Enclosure 1 06/27/ /-3047 Sheet 2 04/04/2 -T-D-19 Sheet 1 10/05/	2008 2007 2006	
Proposed references to be Learning Objective:	provided to ap <u>6902260 Ot</u>	plicants during examin oj. 4 (As a	ation: <u>No</u> available)	ne
Question Source:	Bank # Modified Ba	nk # (No	<u>13</u> ote changes of	r attach
	New	parent)		
Question History: (Optional: Questions validated at the NRC; failure to provide the init	Last NRC E	xam <u>1999 Q. 11</u> 10/95 will generally undergo essitate a detailed review of	less rigorous revery question.)	view by
Question Cognitive Level:	Memory or F Comprehens	⁻ undamental Knowledg sion or Analysis	jeX	
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43	_		
Comments:				

Used on PTN NRC exam for ILC 18 RO question 11

Item: 1.1.25.60.3.13

69022600313;

Unit 3 is in Mode 3 with the following conditions:

- A loss of a 120V Vital Instrument Panel has caused VCT level indicator LI-3-115 to indicate zero level.
- Annunciator A 4/6 "VCT HI/LO LEVEL" is in alarm.

Which ONE of the following is correct for the given conditions?

VCT Auto Makeup:

- A) initiates and charging pump suction remains aligned to the VCT.
- B) initiates and charging pump suction auto swaps to the RWST.
- C) is disabled and charging pump suction remains aligned to the VCT.
- D) is disabled and charging pump suction auto swaps to the RWST.

CORRECT or INCORRECT feedback for item: 1.1.25.60.3.13

REFERENCES: ONOP-003.7 Enclosure 1 page 1and SD-13 Figure 19 PTN Gp.18 RO Q#11 PTN Gp.18 SRO Q#16 NRC Level 2 Question NRC KA Importance: (3.5/3.6) Distractor Analysis:

a. Correct, with LT-115 failed on a loss of a vital bus ,auto makeup is initiated because it fails low but charging pump suction alignment remains the same because it takes 2/2 logic for the auto swap to the RWST.
b. Plausible, VCT auto makeup does initiate but the required 2/2 logic is not made up for a swap of charging pump suction. The response is incorrect because the charging pump suction remains on the VCT.
c. Plausible, if LT-115 failed high, VCT auto makeup would be disabled. The charging pump suction would remain on the VCT. The response is incorrect because LT-115 fails low and makeup to the VCT is auto initiated.
d. Plausible, if LT-115 failed high, auto makeup would be disabled and this would also defeat the 2/2 logic for the auto swap of the charging pump suction. The response is wrong because both conditions given in the distractor do not occur.

Item Classification: Comprehension Item difficulty: 0.50 Keywords: LOP, NRC Exam Question, 057 AA1.04 Item weight: 10 Points required for mastery: 1 Correct alternative(s): A Judging values of alternatives: A=1 B=-1 C=-1 D=-1



Question 13

Initial conditions:

- 45 gpm letdown orifice is in service.
- Makeup is set for 75 gpm.

Subsequently:

- Unit 3 has lost 120 Volt Vital Instrument Panel 3-P07.
- VCT level indicator LI-3-112 indicates 25%.
- VCT level indicator LI-3-115 indicates zero level.
- Annunciator A 4/6, VCT HI/LO LEVEL, is in alarm.

Which of the following is correct for the given conditions?

VCT auto makeup...

- A initiates and charging pump suction remains aligned to the VCT.
- B initiates and charging pump suction automatically swaps to the RWST.
- C is disabled and charging pump suction remains aligned to the VCT.
- D is disabled and charging pump suction automatically swaps to the RWST.

Question 13

K/A 057AA1.04 Loss of Vital AC Inst. Bus Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: RWST and VCT valves

Reference: ONOP-003.7 Enclosure 1 5613-M-3047 sheet 2 5610-T-D-19 sheet 1

History: EXAMINER 1.1.25.60.3.13 Used on PTN NRC exam for ILC 18 RO question 11

Correct answer: A

A. Correct; VCT LT-115 fails low on loss of 3-P07, initiating auto makeup. Charging pump suction alignment remains the same because it takes a 2/2 logic for auto swap to RWST.

B. Incorrect; auto swap to RWST does not occur. Plausible; VCT auto make initiates. Candidate needs to know that swapover requires 2/2 logic

C. Incorrect; VCT auto makeup will initiate. Plausible; LT-115 failing high would disable auto makeup. Also, candidate might confuse LT-115 with LT-112, which does not cause auto makeup.

D. Incorrect; VCT auto makeup will initiate. Plausible; LT-115 failing high would disable auto makeup. Also, candidate might confuse LT-115 with LT-112, which does not cause auto makeup.

Cognitive level: 2 Candidate needs to realize that swapover logic is 2/2 and LT-115 failing low causes auto makeup



6/25/2009

ES-401	Writt Questio	ten Examination n Worksheet		Form ES-401-5
Question 14 Examination Outline Cross-Re	eference:	Level Tier # Group # K/A # Importance Rating	RO 1 1 065AA1.01 2.7	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u> </u>			
Explanation (Optional): Following an extended loss of 2046A, 3A EDG level control require instrument air to functi	instrument a valve. Unit on.	air, attachment 2 will 4 EDG makeup valve	be used to open es are electric a	n CV-3- nd do not
Technical Reference(s): ((Attach if not previously provid (including version/revision nur	0-ONOP-013 led) nber)	3 Attachment 2 03/21/	/2009	
Proposed references to be pro	ovided to app	blicants during examir (A	nation: <u>No</u> As available)	ne
Question Source:	3ank # Modified Bar New	nk # (N parent) X	ote changes or	⁻ attach
Question History: I (Optional: Questions validated at the the NRC; failure to provide the inform	ast NRC Ex facility since 1 fation will nece	am 0/95 will generally underg ssitate a detailed review o	o less rigorous rev f every question.)	view by
Question Cognitive Level:	Memory or F Comprehens	undamental Knowled ion or Analysis	ge <u>X</u>	
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43 <u> </u>	-		
Comments:				



Question 14

• Turkey Point has experienced a long-term total loss of Instrument Air.

In accordance with 0-ONOP-013, how is CV-3-2046A, 3A EDG Level Control Valve, opened to fill the 3A EDG day tank?

CV-3-2046A is opened using...

- A a hand loader and a compressed air cylinder.
- B normal level controller and a compressed air cylinder.
- C a hand loader and a compressed nitrogen cylinder .
- D normal level controller and a compressed nitrogen cylinder.

Question 14

K/A 065AA1.01

Loss of Instrument Air Ability to operate and / or monitor the following as they apply to the Loss of Instrument Air: Remote manual loaders

Reference:

3-ONOP-013 Att. 2

Following an extended loss of instrument air, attachment 2 will be used to open CV-3-2046A, 3A EDG level control valve. Unit 4 EDG makeup valves are electric and do not require instrument air to function.

Question history: New

Correct answer: C

- A Incorrect; a compressed nitrogen cylinder is use per reference, plausible because a hand loader is used per the reference to open the valve
- B Incorrect; 3A EDG requires instrument air for the normal level control to work. Plausible because normal level control will be functional on 4A EDG following an extended loss of instrument air
- C Correct per reference and discussion above.
- D Incorrect; 3A EDG requires instrument air for the normal level control to work. Plausible because normal level control will be functional on 4A EDG following an extended loss of instrument air and compressed nitrogen is used for 3A EDG.

Cog level: 1

6/25/2009

ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 15 Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 1 <u>WE04EK2.1</u> 3.5	SRO
Proposed Question:				
See attached				
Proposed Answer:	A			
Explanation (Optional): If RCS pressure is increasir Emergency Coolant Recircu	ng at step 3, go ulation.	to E-1. If not, go to EC	CA-1.1, Loss o	f
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>3-EOP-ECA</u> vided) number)	<u>-1.2 step 3 12/29/2008</u>		
Proposed references to be Learning Objective:	provided to ap <u>6902333 Ot</u>	plicants during examina	ation: <u>Nor</u> vailable)	<u>ne</u>
Question Source:	Bank # Modified Ba	nk # (Nc	te changes or	attach
	New	parent) X		
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC E the facility since formation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous revievery question.)	ew by
Question Cognitive Level:	Memory or F Comprehen	⁻ undamental Knowledg sion or Analysis	e <u>X</u>	
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43			
Comments:				

Comments: Used on H.B. Robinson 2007 exam question 53

Question 15

- A LOCA outside Containment has occurred.
- The crew is performing 3-EOP-ECA-1.2, LOCA outside Containment.
- Auxiliary Building radiation levels are lowering.
- Safety Injection flow is 80 gpm and decreasing.
- Pressurizer level is off scale low.
- RCS pressure is 1450 psig and rising.

In accordance with 3-EOP-ECA-1.2, what is the leak status?

The leak is...

- A isolated because RCS pressure is increasing.
- B isolated because Auxiliary Building radiation levels are lowering.
- C NOT isolated because SI pump flow still exists.
- D NOT isolated because Pressurizer level is not on scale.



06/25/2009

Turkey Point ILC 25 NRC Examination

Question 15

K/A WE04EK2.1

LOCA Outside Containment

Knowledge of the relationships between the (LOCA Outside Containment) and the following: Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features

Reference: 3-EOP-ECA-1.2 step 3 If RCS pressure is increasing at step 3, go to E-1. If not, go to ECA-1.1, Loss of Emergency Coolant Recirculation.

History: H.B. Robinson 2007 exam question 53

Correct answer: A

A. Correct IAW reference

B. Incorrect; only parameter used in ECA-1.1 is RCS pressure. Plausible; leak isolation could cause Aux Bldg rad levels to lower. Could also be lowering because cleaner water coming out break injection flow.

C. Incorrect; IAW reference pressure increase means leak isolated. Plausible; with leak isolated pressure will increase, but pressure could still be low enough for HHSI flow with leak isolated.

D. Incorrect; IAW reference pressure increase means leak isolated. Plausible; with leak isolated Pressurizer level will eventually come on scale

Cognitive level: 1



6/25/2009

ES-401	Writt Questio	en Examination n Worksheet		Form ES-401-5
Question 16 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 1 WE05EK2. _3.9	SRO 2
Proposed Question:				
See attached				
Proposed Answer: Explanation (Optional):	A			
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>4-ONOP-075</u> vided) <u>5610-T-</u> number)	5 08/20/2008 E-1591 Sheet 1 11/16	/2006	
Proposed references to be Learning Objective:	provided to app <u>6902122 Obj</u>	blicants during examina 9 (As a	ation: <u>No</u> vailable)	ne
Question Source:	Bank # Modified Bar New	nk # <u>1.2.25.2.3.4</u> parent)	te changes o	r attach
Question History: (Optional: Questions validated at the NRC; failure to provide the infe	Last NRC Ex the facility since 1 formation will neces	am 0/95 will generally undergo ssitate a detailed review of	less rigorous re every question.)	view by
Question Cognitive Level:	Memory or F Comprehens	undamental Knowledg ion or Analysis	e <u>X</u>	
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43 <u></u>	-		
Comments:				

Item: 1.1.25.2.3.4

69022020304;

Given the following plant conditions:

Unit 3 is in Mode 3

The 3B SGFP is OOS

The Unit 3 S/U Transformer Locks out

The Auxiliary Feedwater System has failed completely,

Which ONE of the following describes the order of priority established by ONOP-075, "Auxiliary Feedwater System Malfunction" for establishing feedwater flow from alternate sources?

- A) "A" SBSGFP, "B" SBSGFP, Unit's 2 OR Unit 4
- B) "A" SBSGFP, "B" SBSGFP, 3C Condensate pump
- C) "B" SBSGFP, "A" SBSGFP, Unit's 2 OR Unit 4
- D) "B" SBSGFP, "A" SBSGFP, 3C condensate pump

Item Classification: Comprehension Item difficulty: 0.50 Keywords: NLO, E05 EA2.2, NLOCT, SNPO Item Nonselectable Item weight: 10 Points required for mastery: 1 Correct alternative(s): C Judging values of alternatives: A=-1 B=-1 C=1 D=-1 Memo Field: REFERENCE: ONOP-75 DL: 300

Question 16

Initial conditions:

- Unit 3 is in Mode 3.
- The 3B Steam Generator Feedpump is out of service.

Subsequently:

- The Unit 3 Startup Transformer locks out.
- The Auxiliary Feedwater System has failed completely.
- Main Feedwater is not available.

In accordance with 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink, what is the availability of the Standby Steam Generator Feedpumps (SSGFPs)?

A	A SSGFP B SSGFP	available available
В	A SSGFP B SSGFP	NOT available available
С	A SSGFP B SSGFP	available NOT available
D	A SSGFP B SSGFP	NOT available NOT available



Question 16

K/A WE05EK2.2

Inadequate Heat Transfer – Loss of Secondary Heat Sink Knowledge of the relationships between the (Inadequate Heat Transfer – Loss of Secondary Heat Sink) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems and relations between the proper operation of these systems to the operation of the facility.

Reference: 4-ONOP-075 5610-T-E 1591 sheet 1

History: EXAMINER 1.1.25.2.3.4 significantly modified

Correct answer: A

A Correct; A SSGFP is from 3C 4kV bus, B SBSGFP is diesel

B Incorrect; A SSGFP is powered from the 3C 4kV bus. Plausible; need to know power supply for A SSGFP and it would not be available if switchyard lost.

C Incorrect; B SSGFP is diesel powered. Plausible; needs to know B SGFP is diesel powered.

D Incorrect; A SSGFP is powered from the 3C 4kV bus and B SBSGFP is diesel powered. Plausible; need to know power supplies.

Cognitive level: 1

6/25/2009

ES-401	Writ Questio	ten Examination on Worksheet		Form ES-401-5
Examination Outline Cross	-Reference:	Level Tier # Group # K/A #	RO 1 1	SRO
Question 17 Proposed Question:		Importance Rating	_3.3_	_3.9_
See attached				
Proposed Answer:	<u> </u>			
Explanation (Optional): ECA-1.1 step 31 stops HHS – can maintain NPSH dowr	SI, RHR, & CS n to 20,000 gall	Ps due to lack of NPSF lons.	I. Charging le	ft running
Technical Reference(s): (Attach if not previously pro (including version/revision i	<u>3-EOP-ECA</u> vided) <u>BD-EC</u> number)	-1.1 step 1 RNO & step A-1.1 for above steps {	0 33 08/25/200 3/25/2008	<u> </u>
Proposed references to be Learning Objective:	provided to ap <u>6902332 Ot</u>	plicants during examina	ation: <u>No</u> vailable)	ne
Question Source:	Bank # Modified Ba	nk # (No	te changes or	attach
	New	<u> </u>		
Question History: (Optional: Questions validated at the NRC; failure to provide the ini	Last NRC E. the facility since formation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous rev every question.)	view by
Question Cognitive Level:	Memory or F Comprehens	⁻ undamental Knowledg sion or Analysis	e <u>X</u>	
10 CFR Part 55 Content:	55.41 <u>5</u> 55.43			
Comments:				

Question 17

- Unit 3 has experienced a loss of emergency coolant recirculation.
- RWST level is 59,000 gallons.

In accordance with 3-EOP-ECA-1.1, Loss of Emergency Coolant Recirculation, what action should the crew take and why should they take that action?

Immediately stop...

- A all pumps taking suction from the RWST. There is insufficient suction head to run any pumps.
- B all pumps taking suction from the RWST except the Charging Pumps.There is insufficient suction head to run any pumps except the Charging Pumps.
- C only the RHR and Containment Spray Pumps. This will extend the availability of the RWST.
- D only the Charging Pumps and Containment Spray Pumps. This will extend the availability of the RWST.

Question 17

K/A WE11EK3.1

Loss of Emergency Coolant Recirculation

Knowledge for the reasons for the following responses as they apply to the (Loss of Emergency Coolant Recirculation): Facility operating characteristics during transient conditions, including chemistry and the effects of temperature, pressure and reactivity changes and operating limitations and reasons for these operating characteristics.

Reference: 3-EOP-ECA-1.1 step 1 RNO and step 31 – stop HHSI, RHR, & CSP BD-EOP-ECA-1.1 for above steps – pumps stopped for lack of NPSH – Charging Pump can go to 20K

History: New

Correct answer: B

A Incorrect; don't stop the Charging Pumps. Plausible; stop all pumps except Charging Pumps and reason is correct.

B Correct IAW above discussion.

C Incorrect; also stop the HHSI Pumps. Plausible; want to extend availability of RWST and HHSI Pumps would still provide core cooling.

D Incorrect; don't stop the Charging Pump. Plausible; want to extend availability of RWST and HHSI/RHR Pumps would still provide core cooling.

Cognitive level: 1



6/25/2009

Question 18 Examination Outline Cross-Reference: Level RO SRO Tier # 1 1 1 Group # 1 1 1 K/A # WE12EK2.2 Importance Rating 3.6 3.9 Proposed Question: See attached Proposed Answer:		Question	n Worksheet	······································	<u>F0111 E3-401-3</u>
Proposed Question: See attached Proposed Answer:	Question 18 Examination Outline Cross-I	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 1	SRO 2.2
See attached Proposed Answer:	Proposed Question:				
Proposed Answer: _A	See attached				
Explanation (Optional): 4-EOP-ECA-2.1 step 2 has the crew establish another source of feedwater. Caution before step 3 has crew maintain a minimum of 25 gpm to any S/G with NR level less than 6%. Step 3.a RNO is to decrease feed to 25 gpm for each S/G is cooldown greater than 100°F/hr. All of PTN AFW Pumps are steam driven. Expect to lose steam pressure on all S/Gs and lose the AFW Pumps. Technical Reference(s): 4-EOP-ECA-2.1 steps 2 & 3 12/19/2005 (Attach if not previously provided) <u>BD-EOP-ECA-2.1 steps 2 & 3 12/19/2005</u> (including version/revision number) Proposed references to be provided to applicants during examination: T.S. 3.3.1 Learning Objective: <u>6902335 Obj. 3</u> (Note changes or attach parent) Question Source: Bank # Modified Bank # (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 _7 _5.43	Proposed Answer:	A			
Proposed references to be provided to applicants during examination: 1.5.3.3.1 Learning Objective: 6902335 Obj. 3 (As available) Question Source: Bank # 1.1.26.35.3.3 Modified Bank # (Note changes or attach parent) New	Explanation (Optional): 4-EOP-ECA-2.1 step 2 has t before step 3 has crew maint 6%. Step 3.a RNO is to decr 100°F/hr. All of PTN AFW all S/Gs and lose the AFW F Technical Reference(s): (Attach if not previously prov (including version/revision n	he crew establi tain a minimun rease feed to 2: Pumps are stea Pumps. <u>4-EOP-ECA-</u> (ided) <u>BD-EOI</u> umber)	ish another source of f n of 25 gpm to any S/G 5 gpm for each S/G is am driven. Expect to 2.1 steps 2 & 3 12/19 P-ECA-2.1 steps 2 & 3	eedwater. C G with NR le cooldown gr lose steam pr /2005 3 12/19/2005	aution vel less than reater than ressure on
Question Source: Bank # 1.1.26.35.3.3 Modified Bank #	Proposed references to be p Learning Objective:	orovided to app 6902335 Obj	licants during examin	ation: <u>F.s</u> available)	<u>5. 3.3.1</u>
Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 _ 7_ 55.43	Question Source:	Bank # Modified Ban New	ik # <u>1.1.26.35.3.</u> parent)	<u>3</u> ote changes	or attach
Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis	Question History: (Optional: Questions validated at the NRC; failure to provide the info	Last NRC Ex the facility since 1 ormation will neces	am 0/95 will generally undergo ssitate a detailed review of	less rigorous r every question	eview by .)
10 CFR Part 55 Content: 55.41 <u>7</u> 55.43	Question Cognitive Level:	Memory or F Comprehens	undamental Knowledg ion or Analysis	je	x
	10 CFR Part 55 Content:	55.41 <u>7</u> 55.43	-		
Comments:	Comments:				

Item: 1.1.26.35.3.3

69023350303;

Unit 4 was at 100% power when the following events occurred:

- The main steam header faulted just down stream of the MSIVs.
- SI automatically actuated.
- The MSIVs did not close and efforts to close them have not been successful.
- The RCS has cooled down 150°F in the past 45 minutes and the lowest Tcold is 400°F.

Operators are performing ECA-2.1, "Uncontrolled Depressurization of All Steam Generators."

Which ONE of the following describes the correct operation of the feedwater system(s)?

- A) Establish an alternate feedwater supply equal to 25 gpm per S/G. Isolate the steam supply to all AFW pumps.
- B) Establish an alternate feedwater supply equal to 345 gpm total flow. Isolate the steam supply to all AFW pumps.
- C) Establish AFW feedwater flow equal to 25 gpm per S/G. Maintain steam supply to all AFW pumps.
- D) Establish AFW feedwater flow equal to 345 gpm total flow. Maintain steam supply to all AFW pumps.

CORRECT or INCORRECT feedback for item: 1.1.26.35.3.3



RCO Group 19 Audit Exam 3-EOP-ECA-2.1, Steps 1 & 2

Item Classification: Comprehension Item difficulty: 0.50 Keywords: E12 EK3.3 Item weight: 10 Points required for mastery: 1 Correct alternative(s): A Judging values of alternatives: A=1 B=-1 C=-1 D=-1 Memo Field: Reference: ECA-2.1 step 2



06/25/2009

Turkey Point ILC 25 NRC Examination

Question 18

Unit 4 was at 100% when the following occurred:

- The Main Steam header ruptured downstream of the MSIVs.
- SI automatically actuated.
- The MSIVs did not close and efforts to close them have not been successful.

In accordance with 4-EOP-ECA-2.1, Uncontrolled Depressurization of All Steam Generators, which one of the following describes the correct operation of the feedwater system(s)?

- A Establish an alternate feedwater supply equal to 25 gpm per S/G. Isolate the steam supply to all AFW Pumps.
- B Establish an alternate feedwater supply equal to 130 gpm per S/G. Isolate the steam supply to all AFW Pumps.
- C Establish AFW feedwater at 25 gpm per S/G. Maintain steam supply to at least one AFW Pump.
- D Establish AFW feedwater at 130 gpm per S/G. Maintain steam supply to at least one AFW Pump.



Question 18

K/A WE12EK2.2

Steam Line Rupture – Excessive Heat Transfer Knowledge of the relationships between the (Steam Line Rupture – Excessive Heat Transfer) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems and relations between the proper operation of these systems to the operation of the facility.

Reference: 4-EOP-ECA-2.1 steps 2 and 3 Basis Document EOP-ECA-2.1 steps 2 and 3

Step 2 has the crew establish another source of feedwater. Caution before step 3 has crew maintain a minimum of 25 gpm to any S/G with NR level less than 6%. Step 3.a RNO is to decrease feed to 25 gpm for each S/G is cooldown greater than 100°F/hr.

All of PTN AFW Pumps are steam driven. Expect to lose steam pressure on all S/Gs and lose the AFW Pumps.

History: EXAMINER 1.1.26.35.3.3

Correct answer: A

A Correct per above reference and explanation

B Incorrect; with a cooldown of 150°F, ECA-2.1 step 3.a RNO is to reduce flow to 25 gpm/S/G. Plausible; 345 gpm is PTN normal AFW minimum flow.

C Incorrect; ECA-2.1 step 2 is establish an alternate source. Plausible; AFW is normally maintained in the EOP network.

D Incorrect; ECA-2.1 step 2 is establish an alternate source. Plausible; AFW is normally maintained in the EOP network.

Cognitive level: 2 Candidate has to diagnose conditions and apply correct action



6/25/2009

ES-401	Writ Questic	ten Examination on Worksheet		<u>Form ES-401-5</u>
Question 19 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 _2	SRO
Proposed Question:				
See attached				
Proposed Answer:	D			
Explanation (Optional):				
The RO's error is invisible	to rod control,	so will attempt to with	draw past ARC).
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>3-ONOP-02</u> vided) <u>5610-1</u> number)	8.3 Attachment 1 04/07 -D-12A 12/17/2007	7/2009	
Proposed references to be Learning Objective:	provided to ap <u>6902105 Ot</u>	plicants during examina bj. 10 (As a	ation: <u>No</u> vailable)	ne
Question Source:	Bank # Modified Ba	nk # (No	ote changes or	attach
	New			
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC E the facility since formation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous rev every question.)	iew by
Question Cognitive Level:	Memory or F Comprehens	Fundamental Knowledg sion or Analysis	eX	
10 CFR Part 55 Content:	55.41 <u>5</u> 55.43			
Comments: This is a substitute K/A. K//	A was 003AK3	.03		



06/25/2009

Turkey Point ILC 25 NRC Examination

Question 19

- Rod M-8 in Bank D Group 1 dropped into the core earlier.
- The crew is recovering rod M-8 using 3-ONOP-028.3, Dropped RCC, Attachment 1, Dropped Rod Recovery.
- Bank D Group 1 and 2 Group Step Counters were at 175 steps.
- The RO withdraws M-8 165 steps instead of 175 steps.
- The crew completes 3-ONOP-028.3 and commences to return to 100% power.

How will the control rods respond to the RO's error?

- A A pulser failure will cause an urgent failure alarm, preventing all rod motion.
- B A slave cycler failure will cause an urgent failure alarm, preventing all rod motion.
- C Bank D Group 1 will continue to withdrawal past all rods out. Bank D Group 2 will stop at all rods out.
- D Bank D Groups 1 and 2 will continue to demand withdrawal past all rods out.



Question 19

K/A 003AK3.09 Dropped Control Rod Knowledge for the reasons for the following responses as they apply to the Dropped Control Rod: Recording of group bank position for dropped rod (reference point used to withdraw dropped rod to equal height with other rods in the bank? NOTE: This is a substitute K/A

Reference: 3-ONOP-028.3 Attachment 1 Both banks are withdrawn to demanded position (in this case 165 steps instead of 175 steps). 5610-T-D-12A The RO's error is invisible to rod control, so will attempt to withdraw past ARO.

Question history: New

Correct answer: D

A Incorrect; error invisible to rod control. Plausible; pulser failure occurs upon failure to generate a pulse when rod motion is demanded.

B Incorrect; error invisible to rod control. Plausible; slave cycler failure occurs when fail to generate pulse when motion is demanded.

C Incorrect; both groups will continue to attempt to move. Plausible; M-8 in group 1

D Correct per above reference.

Cognitive level: 2 Need to analyze for effect of RO's failure.



6/25/2009

ES-401	Writ Questic	ten Examination on Worksheet		Form ES-40	1-5
Question 20 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 _2 024AK3.01 _4.1	SRO	
Proposed Question:					
See attached					
Proposed Answer: Explanation (Optional):	<u>B</u>				
Technical Reference(s): (Attach if not previously pro (including version/revision r	PCB Sectio vided) <u>3-ARP</u> number) <u>3-ON</u> BD ONOP0	n 9 section 6.5 04/10/2 -097.CR B 8/2_05/05/0 IOP-046.1 steps 2.2 & 46.1 steps 2.2 & 2.4 02	009)9 2.4 02/29/200 2/29/2008	08	
Proposed references to be Learning Objective:	provided to ap <u>6902105 Ot</u>	plicants during examin <u>pj. 13</u> (As a	ation: <u>No</u> available)	one	
Question Source:	Bank # Modified Ba New	nk # (No parent) X	ote changes c	or attach	
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC E the facility since formation will nece	xam 10/95 will generally undergo essitate a detailed review of) less rigorous re every question.)	view by	
Question Cognitive Level:	Memory or I Comprehen	⁻ undamental Knowledg sion or Analysis	ge <u>></u>	<u> </u>	
10 CFR Part 55 Content:	55.41 <u>10</u> 55.43	<u>) </u>			
Comments:					
Question 20

In accordance with 3-ONOP-046.1, Emergency Boration, which one of the following events requires emergency boration and why?

- A A reactor trip occurred 15 minutes ago and Tcolds have decreased to 530°F. Shutdown margin is not assured.
- B A reactor trip occurred 15 minutes ago and two rods remained fully withdrawn. Shutdown margin is not assured.
- C Bank D rods went below the extra low limit 15 minutes ago. Rod ejection accident analysis assumptions are no longer valid.
- D Bank D rods went below the extra low limit 15 minutes ago. $F_{\Delta H}$ could exceed design limits.

Question 20

K/A 024AK3.01 Emergency Boration Knowledge for the reasons for the following responses as they apply to Emergency Boration: When emergency boration is required

Reference: 3-ARP-097.CR B 8/2 PCB Section 9 section 6.5 3-ONOP-046.1 2.2 & 2.4 BD-ONOP-046.1 2.2 & 2.4

History: New

Correct answer: B

A Incorrect; Tcold less than 525°F requires emergency boration. Plausible; less than 525°F requires emergency boration.

B Correct; per 0-ONOP-046.1.

C Incorrect; do not have to emergency borate until below insertion limit for 1 hour. Plausible; reason is correct per PCB.

D Incorrect; do not have to emergency borate until below insertion limit for 1 hour. Plausible; reason is correct per PCB.

Cognitive level: 1

6/25/2009

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ES-401	Writ Questio	ten Examination on Worksheet		Form ES-401-5
Question 21 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 2 028AG2.2.1	SRO 2
Proposed Question:				
See attached				
Proposed Answer:	A			
Explanation (Optional): High pressurizer level B/S t so taking another channel O the Eagle 21 System. IAW the effected channel before a equipment.	ripped IAW 4- OS will cause T.S. 3.0.6, can returning to se	ONOP-049.1 p.42. Th a reactor trip. Also, pe bypass channel for up rvice or to demonstrate	iis is a 2/3 char r p. 42, LT-460 to 4 hours for t e operability of	nnel trip,) is part of testing for other
Technical Reference(s): (Attach if not previously pro- (including version/revision n	<u>T.S. 3.0.3/3.</u> /ided)_ <u>4-ONO</u> umber)	0.6/3.3.1 P-049.1 08/11/2008		
Proposed references to be p Learning Objective:	provided to ap 6902107 Ob	plicants during examin j. 12.e (As a	ation: <u>Nor</u> vailable)	<u>ne</u>
Question Source:	Bank # Modified Bai	nk # (No	ote changes or	attach
	New	X		
Question History: (Optional: Questions validated at the NRC; failure to provide the info	Last NRC Ex the facility since a formation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous rev every question.)	iew by
Question Cognitive Level:	Memory or F Comprehens	undamental Knowledg sion or Analysis	jeX	<u> </u>
10 CFR Part 55 Content:	55.41 <u>10</u> 55.43	_		
Comments:				

Question 21

Initial conditions:

- Unit 4 is at 100% power.
- Pressurizer Level Transmitter LT-4-460 failed low last month.
- All applicable bistables have been tripped in accordance 4-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels

Subsequently:

- 4-SMI-041.11, Pressurizer Level Protection Loops Quarterly Test, drop dead date is in 6 hours.
- Each Pressurizer Level Channel will be removed from service one at a time.

How will the above event affect plant operations?

Note: Tech Spec 3.3.1 is provided as a reference

- A LT-4-460 will be bypassed for up to four hours.
- B 4-SMI-041.11 will be performed without any additional actions.
- C A plant shutdown will be required to avoid entry into Tech Spec 3.0.3.
- D A plant shutdown will be required to comply with Tech Spec 3.3.1, Reactor Trip System Instrumentation.



Question 21

K/A 028G2.2.12 Pressurizer Level Malfunction Knowledge of surveillance procedures

Reference: Tech Spec 3.0.3/3.0.6 Tech Spec 3.3.1 4-ONOP-049.1 High pressurizer level B/S tripped IAW 4-ONOP-049.1 p.42. This is a 2/3 channel trip, so taking another channel OOS will cause a reactor trip. Also, per p. 42, LT-460 is part of the Eagle 21 System. IAW T.S. 3.3.1 action 13, can bypass channel for up to 4 hours for testing for the effected channel before returning to service or to demonstrate operability of other equipment.

History: New question

Correct answer: A

A Correct; T.S. 3.0.6 allows bypassing for up to 4 hours to demonstrate operability of other equipment.

B Incorrect; performance of SMI-041.11 without bypassing LT-460 will makeup 2/3 logic and result in reactor trip. Plausible; stem has LT failing low - ONOP-049.1 also trip high level B/S, which is what causes trip.

C Incorrect; IAW T.S. 3.0.6 can bypass channel for up to 4 hours. Plausible; if not aware of 3.0.6, would require shutdown.

D Incorrect IAW T.S. 3.0.6 can bypass channel for up to 4 hours. Plausible; if not aware of 3.0.6, would require shutdown.

Cognitive level: 2 Have to apply T.S. 3.3.1 action 13 to situation

Note: provide T.S. 3.3.1

6/25/2009

ES-401	Writt Questio	ten Examination n Worksheet		Form ES-401-5
Question 22 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 2	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u>B</u>			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>4-ARP-097.(</u> vided) <u>4-OSP-</u> umber)	CR B 4/1 03/20/2009 059.1 step 7.3.1.2.a 1	2/12/2007	
Proposed references to be Learning Objective:	provided to app <u>6902144 Ob</u>	olicants during examin j. 10	ation: <u>No</u> (As	<u>ne</u> available)
Question Source:	Bank # Modified Bar	nk # (No	ote changes o	^r attach
	New	<u>X</u>		
Question History: (Optional: Questions validated at the NRC; failure to provide the info	Last NRC Ex the facility since 1 prmation will nece	am 0/95 will generally undergo ssitate a detailed review of	less rigorous rev every question.)	view by
Question Cognitive Level:	Memory or F Comprehens	undamental Knowledg ion or Analysis	jeX	
10 CFR Part 55 Content:	55.41 <u>10</u> 55.43	-		

Comments:



Question 22

- A core reload is in progress on Unit 4.
- N-31 and N-32, Source Range Nuclear Instruments, are at 10 cps before the reload starts.

Complete the following:

In accordance with, 4-OSP-059.1, Source Range Nuclear Instrument Analog Channel Operational Test, the Source Range High Flux at Shutdown Alarm is set at ______. If the alarm actuates the Containment evacuation alarm ______(2)____.

	_(1)	(2)
A	32 cps	must be manually actuated
В	32 cps	will automatically actuate
С	50 cps	must be manually actuated
D	50 cps	will automatically actuate



Question 22

K/A 036AK1.03 Fuel Handling Accident Knowledge of the operational implications of the following concepts as they apply to Fuel Handling Incidents: Indications of approaching criticality.

Reference: 4-ARP-097.CR B 4/1 4-OSP-059.1 step 7.3.1.2.a

Question history: New

Correct answer: B

A Incorrect; alarm will automatically actuate. Plausible; action of B 4/1 is to verify alarm actuation – need to know SR NI circuit.

B Correct set at 3.16 x background and will automatically actuate.

C Incorrect; set at 3.16 x background and will automatically actuate. Plausible; set $\frac{1}{2}$ decade above background – need to know that is 3.16 x background – and need to know SR NI circuit.

D Incorrect; set at 3.16 x background. Plausible; set $\frac{1}{2}$ decade above background – need to know that is 3.16 x background.

Cognitive level: 3 Need to calculate 10 x 3.16

6/25/2009

ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 23 Examination Outline Cross-F	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 _2 059AA2.03 _3.1	SRO 3 <u>3.6</u>
Proposed Question:				
See attached				
Proposed Answer:	<u>B</u>			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously prov (including version/revision not Proposed references to be p Learning Objective:	<u>3-ONOP-06</u> ided) umber) rovided to ap <u>6902168 Ot</u>	7 09/27/2007 plicants during examin	nation: available)	
Question Source:	Bank #			
	Modified Ba New	nk # (N parent) X	ote changes c	or attach
Question History: (Optional: Questions validated at t the NRC; failure to provide the info	Last NRC E he facility since mation will nece	xam 10/95 will generally underg essitate a detailed review o	o less rigorous re f every question.)	view by
Question Cognitive Level:	Memory or F Comprehen	⁻ undamental Knowled sion or Analysis	ge	<
10 CFR Part 55 Content:	55.41 55.43	_		

Comments:

Question 23

The A Monitor Tank (MT) is being released when the following occurred:

- Annunciator H 1/4 PRMS HI RADIATION is received in the Control Room.
- PRMS-R-18, Waste Disposal Liquid Effluent Monitor, high alarm is validated.
- MT A level is reported to be 75% and slowly lowering.
- RCV-018, Liquid Waste Discharge Valve, indicates as follows:
 - Red light on
 - > White light on
 - Green light on

In accordance with 3-ONOP-067, Radioactive Effluent Release, which of the following is correct?

- A RCV-018 is open. Close RCV-018 from VPB with keyswitch.
- B RCV-18 is open. Close RCV-018 from the waste boron panel.
- C RCV-018 is closed. Flush R-18 and re-initiate the release.
- D RCV-18 is closed. If R-18 alarm clears, re-initiate the release.



Question 23

K/A 059AA2.03 Accidental Liquid RadWaste Release Ability to determine and interpret the following as they apply to the Accidental Liquid Radwaste Release: Failure modes, their symptoms and the causes of misleading indications on a radioactive-liquid monitor

Reference: 3-ONOP-067

Question History: New

Correct answer: B

A Incorrect; cannot operate RCV-018 from VPB with keyswitch. Plausible; can use keyswitch on VPB to override R-11 and R-12.

B Correct; with Monitor Tank level still decreasing and green light lit, RCV-018 is open and would close from WBP.

C Incorrect; valve is open. Plausible; green light is lit, indicating valve is shut and would flush before re-initiating a release

D Incorrect; valve is open. Plausible; green light is lit, indicating valve is shut.

Cognitive level: 2



6/25/2009

ES-401	Writt Questior	en Examination n Worksheet		Form ES-401-5
Question 24 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 2 068AK2.02 3.7	SRO
Proposed Question:				
See attached				
Proposed Answer:	В			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro (including version/revision n	_0-ONOP-10 vided) uumber)	95 Att 3 steps 1 & 2	0/30/2008	
Proposed references to be p Learning Objective:	provided to app <u>690252 Obj.</u>	licants during examina	ation: <u>N</u> As available)	one
Question Source:	Bank # Modified Ban New	k # (Nc parent) X	te changes or	attach
Question History: (Optional: Questions validated at the NRC; failure to provide the infe	Last NRC Ex the facility since 1 cormation will neces	am 0/95 will generally undergo ssitate a detailed review of	less rigorous rev every question.)	iew by
Question Cognitive Level:	Memory or Fo	undamental Knowledg ion or Analysis	e <u>X</u>	
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43	-		

Comments:

Question 24

In accordance with 0-ONOP-105, Control Room Evacuation, which of these actions is the Unit 3 RO expected to perform before leaving the Control Room?

- A Start the A Standby S/G Feedwater Pump Close the MSIVs Verify RCPs running
- B Trip the reactor Trip the RCPs Close PORV block valves
- C Trip the Steam Generator Feedwater Pumps Verify MSIVs open Close PORV block valves
- D Trip the main turbine Close the MSIVs Start 3B Charging Pump

Question 24

K/A 068AK2.02 Control Room Evac Knowledge of the interrelations between the Control Room Evacuation and the following: Reactor Trip System

Reference: 0-ONOP-105 Attachment 3 steps 1 & 2

History: New

Correct answer: B

A Incorrect; RO trips the RCPs. Plausible; RO performs 1st two items listed and trips the RCPs

B Correct IAW 0-ONOP-105; RO performs all three actions.

C Incorrect; RO closes MSIVs. Plausible; RO performs $1^{st} \& 3^{rd}$ items listed and closes MSIVs.

D Incorrect; RO stops the 3B Charging Pump. Plausible; RO performs 1st two items listed and trips the 3B Charging Pump.

Cognitive level: 1

6/25/2009

ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 25				
Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 _2 074EK1.0 	SRO 1
Proposed Question:				
See attached				
Proposed Answer:	D			
Explanation (Optional): With 50 gpm HHSI flow, R QSPDS B is not indicating (pre-trip value). All three T	CS pressure is properly. For Thots would no	tess than 1600# (appro Thot given, PT-4-406 h t be affected by SI flow	ximately 150 as failed to 2 7.	00#). 2235 psig
Technical Reference(s): (Attach if not previously pro (including version/revision	<u>4-OP-041.2</u> ovided) number)	02/12/2009		
Proposed references to be Learning Objective:	provided to ap	pplicants during examina	ation: <u>Steam</u> s available)	tables
Question Source:	Bank # Modified Ba New	nk # (No parent) X	ote changes o	or attach
Question History: (Optional: Questions validated a the NRC; failure to provide the in	Last NRC E t the facility since formation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous re every question.,	eview by)
Question Cognitive Level:	Memory or I Comprehen	Fundamental Knowledg sion or Analysis	ie	<u>K</u>
10 CFR Part 55 Content:	55.41 <u>8</u> 55.43			
Comments:				

Question 25

Initial Conditions:

- Unit 4 was at 100% power.
- 4A QSPDS has been declared inoperable because of a PT-4-404 failure.

Subsequently:

- Unit 4 experienced a LOCA with Safety Injection actuation.
- 50 gpm of flow is indicated on FI-4-943, Safety Injection Flow.
- The crew entered 4-EOP-FR-C.2, Degraded Core Cooling, and started all available Charging Pumps.

QSPDS Train B now indicates the following:

- Thots are all approximately 525°F.
- RCS subcooling is 126°F.

Which of the following correctly describes QSPDS Train B operability and required action(s)?

- A QSPDS Train B is indicating properly. Complete 4-EOP-FR-C.2 then return to procedure and step in effect.
- B QSPDS Train B is indicating properly.Stop performance of 4-EOP-FR-C.2 and return to procedure and step in effect.
- C QSPDS Train B is NOT indicating properly. Thots are affected by the Safety Injection flow.Manually calculate subcooling.
- D QSPDS Train B is NOT indicating properly. PT-4-406 has failed to pre-trip value.
 Manually calculate subcooling.



Question 25

K/A 074EK1.01

Inad. Core Cooling Knowledge of the operational implications of the following concepts as they apply to the Inadequate Core Cooling: Methods of calculating subcooling margin.

Reference: Steam tables 4-OP-041.2 With 50 gpm HHSI flow, RCS pressure is less than 1600# (approximately 1500#). QSPDS B is not indicating properly. For Thot given, PT-4-406 has failed to 2235 psig (pre-trip value). All three Thots would not be affected by SI flow.

Question history: New question

Correct answer: D

A Incorrect; per above discussion, HHSI flow combined with Containment pressure indicates RCS pressure less than 1600 psig. Plausible; if subcooling were correct, core cooling would have been re-established.

B Incorrect; per above discussion, HHSI flow combined with Containment pressure indicates RCS pressure less than 1600 psig. Plausible; if subcooling were correct, core cooling would have been re-established.

C Incorrect; SI flow would affect Tcolds and not all three Thots. Plausible; Tcolds could be affected by SI flow.

D Correct per above discussion

Cognitive level: 3

Candidate has to use steam tables to determine correct subcooling margin for conditions given.





6/25/2009

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ES-401	Writte Question	en Examination Worksheet		Form ES-401-5
Question 26 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 1 _2 <u>WE02EK2.1</u> _3.4	SRO
Proposed Question:				
See attached				
Proposed Answer:	A			
Explanation (Optional): 3-EOP-ES-1.1 step 5 places	RHR & HHSI	Pumps in standby		
Technical Reference(s): (Attach if not previously prov (including version/revision n	<u>3-EOP-ES-1.</u> /ided) <u>5610-T-</u> umber)	1 step 5 04/09/2009 L1 sheet 11 04/09/200	9	
Proposed references to be p Learning Objective:	provided to app <u>6902157 Obj</u>	licants during examina _7 (As a	ation: vailable)	
Question Source:	Bank # Modified Ban	k # (No	te changes or	attach
	New	parent)		
Question History: (Optional: Questions validated at the NRC; failure to provide the info	Last NRC Exa the facility since 10 ormation will neces	am 0/95 will generally undergo sitate a detailed review of e	less rigorous revi every question.)	ew by
Question Cognitive Level:	Memory or Fu Comprehensi	undamental Knowledg on or Analysis	eX	-
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43			
_				

Comments:

Item: 1.1.26.28.2.2

69023280202;

Unit 3 has experienced a steam line break on the common steam header and a SI actuation.

- The steam line break has been isolated and the crew terminated the SI in accordance with EOP-ES-1.1, SI Termination.
- All SI signals have cleared.
- The unit subsequently experiences a steam generator tube rupture and RCS pressure drops to 1200 psig.

What is the status of the HHSI pumps?

The HHSI pumps are:

- A) running. They were left running after ES-1.1 was competed.
- B) running. They started when pressurizer pressure dropped below 1730 psig.
- C) NOT running. They were placed in pull-to-lock in ES-1.1.
- D) NOT running. SI reset blocked their auto start from any subsequent SI signal.

CORRECT or INCORRECT feedback for item: 1.1.26.28.2.2 RCO Group 19 Audit Exam EOP-ES-1.1 step 5; 5610-T-L1 Sh 11

Item Classification: Comprehension Item difficulty: 0.50 Reywords: 006 K4.11 Item weight: 10 Points required for mastery: 1 Correct alternative(s): B Judging values of alternatives: A=-1 B=1 C=-1 D=-1

Question 26

- Unit 3 has experienced a steam line break on the common steam header.
- · Safety injection (SI) actuated.
- The steam line break has been isolated.
- The crew terminated SI in accordance with 3-EOP-ES-1.1, SI Termination.
- All SI signals have cleared.

The unit subsequently experiences a steam generator tube rupture and RCS pressure drops to 1200 psig.

What is the status of the HHSI Pumps?

The HHSI Pumps are ...

- A running. They auto started when Pressurizer pressure dropped below 1730 psig.
- B running. They auto started due to the 100 psid Steam Line signal.
- C NOT running. The sequencer must be reset before it can see another SI signal.
- D NOT running. SI reset blocked their auto start from any subsequent SI signal.

Question 26

K/A WE02EK2.1

SI Termination

Knowledge of the interrelations between the (SI Termination) and the following: Components and functions of controls and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features

Reference: 3-EOP-ES-1.1 step 5 places RHR & HHSI Pumps in standby 5610-T-L1 sheet 11

Question history: EXAMINER 1.1.26.28.2.2

Correct answer: A

A Correct; with all SI signals cleared after reset, 2/3 Pressurizer pressure less than 1730 will re-initiate SI.

B Incorrect; steam line break was on common steam header, so SGTR will not increase Containment pressure. Plausible; SGTR with previous steam line break inside Containment could increase Containment pressure.

C Incorrect; Pumps placed in standy in ES-1.1. Plausible; Pumps are stopped in ES-1.1.

D Incorrect; when all SI signals cleared, block is removed. Plausible; need to realize block removed when SI clears.

Cognitive level: 2

Candidate needs to put together that SI signal no longer blocked when all signals clear. Also needs to realize that Containment pressure will not increase with this steam line break location.



6/25/2009

	Written Ex Question Wor	amination ksheet	1	Form ES-401-
Question 27 Examination Outline Cross-I	Reference: Lev Tier Gro K/A Imp	el # pup # # portance Rating	RO 1 	SRO
Proposed Question:				
See attached				
Proposed Answer:	D			
Explanation (Optional):				
			20	
Technical Reference(s): (Attach if not previously prov (including version/revision ne Proposed references to be p Learning Objective:	<u>3-EOP-ECA-Z.3 st</u> rided) <u>5613-M-3053</u> umber) provided to applicant 6902129 Obj. 5	ep 1.b 04/15/199 03/14/2005 s during examina (As a	99 ation:	-
Technical Reference(s): (Attach if not previously prov (including version/revision n Proposed references to be p Learning Objective: Question Source:	<u>3-EOP-ECA-Z.3 st</u> vided) <u>5613-M-3053</u> umber) provided to applicant <u>6902129 Obj. 5</u> Bank # Modified Bank # New	ep 1.b 04/15/199 03/14/2005 s during examina (As a <u>1.1.26.38.3.3</u> (No parent)	ation: vailable) te changes or a	attach
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Technical Reference(s): (Attach if not previously prov (including version/revision no Proposed references to be p Learning Objective: Question Source: Question Source: (Optional: Questions validated at the the NRC; failure to provide the info Question Cognitive Level: 10 CFR Part 55 Content:	3-EOP-ECA-Z.3 st rided) 5613-M-3053 umber) provided to applicant 6902129 Obj. 5 Bank # Modified Bank # New Last NRC Exam the facility since 10/95 with mation will necessitate and Memory or Fundan Comprehension or 55.41 _7	ep 1.b 04/15/199 03/14/2005 s during examina (As a <u>1.1.26.38.3.3</u> <u>(No parent)</u> ill generally undergo a detailed review of mental Knowledg Analysis	ation: vailable) te changes or a less rigorous revie every question.) e	attach w by

Items in G:\Trng\Apps\WEXAMINE\PTN Exam\PTN Exam.xam

Item: 1.1.26.38.3.3

69023380303;

The following conditions exist on Unit 3 with the unit initially in Mode 3:

- A Containment purge was in progress.
- A LOCA occurred and operators responded using the EOP network.
- Operators are performing FR-Z.3. "Response to High Containment Radiation Level."
- POV-2602, Containment Purge Exhaust Isolation Valve, will NOT close from VPB.

Which ONE of the following describes the required operator response?

- A) Dispatch an operator to locally close POV-2602.
- B) Verify its series isolation valve, POV-2603, is closed.
- C) Fail POV-2602 closed by pulling its fuse behind VPB.
- D) Dispatch an operator to close POV-2602 at the Alternate Shutdown Panel.

CORRECT or INCORRECT feedback for item: 1.1.26.38.3.3 RCO Group 19 Audit Exam EOP-FR-Z.3, Step 1.b.RNO

Item Classification: Knowledge em difficulty: 0.50 Keywords: LOP, E16 EK2.1 Item weight: 10 Points required for mastery: 1 Correct alternative(s): C Judging values of alternatives: A=-1 B=-1 C=1 D=-1 Memo Field: Reference: FR-Z.3 Step 1b RNO

Question 27

- A Containment purge was in progress on Unit 3.
- A LOCA occurred.
- The crew is responding to high containment radiation level.
- POV-3-2603, Containment Purge Exhaust Isolation Valve, will not close manually.

In accordance with 3-EOP- FR-Z.3, Response to High Containment Radiation Level, how will POV-3-2603 be closed?

- A Dispatch an operator to close POV-3-2603 from the Alternate Shutdown Panel.
- B Dispatch an operator to locally close POV-3-2603.
- C Fail POV-3-2603 closed by pulling its fuse behind VPA.
- D Fail POV-3-2603 closed by pulling its fuse behind VPB.

Question 27

K/A WE16EA1.1

High Containment Radiation

Ability to operate and / or monitor the following as they apply the (High Containment Radiation): Components and functions of control and safety systems, including instrumentation signals, interlocks, failure modes and automatic and manual features.

Reference: 3-EOP-FR-Z.3 step 1.b 5613-M-3053

History: EXAMINER 1.1.26.38.3.3 modified

Correct answer: D

A Incorrect; not on alternate shutdown panel. Plausible; sometimes in EOP network components are checked on ASP.

B Incorrect; POV-3-2603 is inside Containment.

C Incorrect; behind VPB. Plausible; need to know where operated from.

D Correct; IAW 3-EOP-ECA-Z.3

Cognitive level: 1



6/25/2009

	Questic	tten Examination on Worksheet		Form ES-401-
Question 28				
Examination Outline Cross-	Reference:	Level Tier # Group # K/A #	RO 2 1 003A3.02	SRO
		Importance Rating		_2.5_
Proposed Question:				
See attached				
Proposed Answer:	<u>B</u>			
Explanation (Optional): IAW BD OP-041.1, motor	current will go	off-scale to near 5000 a use flow to indicate pur	amps for col np coming u	d start and p to speed.
return to normal in 22 secon				
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>4-NOP-041.</u> vided) <u>BD-OF</u> number)	01A 12/19/2008 2-041.1 03/05/2008		
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective:	<u>4-NOP-041.</u> vided) <u>BD-OF</u> number) provided to ap <u>6902108 Ot</u>	01A 12/19/2008 2-041.1 03/05/2008 plicants during examina oj. 6 & 10 (As av	ation: <u>N</u> railable)	lone
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Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective: Question Source: Question Source: (Optional: Questions validated at the NRC; failure to provide the inf Question Cognitive Level: 10 CFR Part 55 Content:	4-NOP-041. vided) BD-OF number) provided to ap 6902108 Ot Bank # Modified Ba New Last NRC E the facility since ormation will nece Memory or I Comprehen 55.41 _7 55.43	01A 12/19/2008 2-041.1 03/05/2008 plicants during examina oj. 6 & 10 (As av nk # (No parent) X xam 10/95 will generally undergo essitate a detailed review of Fundamental Knowledg sion or Analysis	ation: <u>N</u> vailable) Ite changes	lone or attach review by .)

Question 28

- Unit 4 is in Mode 5.
- The 4A RCP is being started.

In accordance with 4-NOP-041.01A, 4A Reactor Coolant Pump Operations, how will the 4A RCP current and flow respond?

RCP current will ______ then return to normal. Flow indication will start to increase ______(2) ____.

	(1)	(2)
A	peg off-scale high	after current is back to normal
в	peg off-scale high	while current is off-scale
С	remain on scale	after current is back to normal
D	remain on scale	while current is at the top of the meter

Question 28

K/A 003A3.02 Reactor Coolant Pump Ability to monitor automatic operation of the RCPS, including: Motor current

Reference: 4-NOP-041.01A Basis Document OP-041.1 IAW BD OP-041.1, motor current will go off-scale to near 5000 amps for cold start and return to normal in 25 seconds. Also, can use flow to indicate pump coming up to speed.

History: New question

Correct answer: B

A Incorrect; flow will start to increase before amps come back on scale. Plausible; need to know that flow will start to increase shortly after start and while current still pegged high.

B Correct; IAW Basis Document

C Incorrect; meter only goes to 1200 amps. Plausible; current could only go to top of meter.

D Incorrect; meter only goes to 1200 amps. Plausible; current could only go to top of meter.

Cognitive level: 1

6/25/2009

	Written Ex Question Wor	amination ksheet		Form ES-401-5
Question 29 Examination Outline Cross-Ref	erence: Lev Tier Gro K/A Imp	el # up # # ortance Rating	RO 003A4.05 	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u>D</u>			
Explanation (Optional):				
Technical Reference(s): <u>3</u> (Attach if not previously provide	ARP-097.CR G 2	2/1 05/08/2009 NOTE before s	tep 37 11/27/2	2007
Technical Reference(s): 3 (Attach if not previously provide (including version/revision num Proposed references to be provide (learning Objective:	ARP-097.CR G 2 cd)_3-ONOP-04.1 ber) vided to applicants 902108 Obj. 7	2/1 05/08/2009 NOTE before si s during examina (As a	tep 37 11/27/2 ation: <u>No</u> available)	2007
Technical Reference(s): 3 (Attach if not previously provide (including version/revision num Proposed references to be provide Learning Objective: Question Source: B N	ARP-097.CR G 2 ed)_3-ONOP-04.1 ber) vided to applicants 902108 Obj. 7 ank # lodified Bank #	2/1 05/08/2009 NOTE before si s during examina (As a <u>1.1.24.8.6.2</u> (No parent)	tep 37 11/27/2 ation: <u>No</u> available) ote changes of	ne
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Item: 1.1.24.8.6.2

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Given:

- Annunciator G-2/1, RCP A STANDPIPE HI LEVEL, has alarmed.
- 3A RCP #1 seal leakoff flow has decreased from 2 gpm to 1 gpm.

The above is indicative of:

- A) Decreased seal injection flow
- B) Increased seal injection flow
- C) #1 seal failure
- D) #2 seal failure

CORRECT or INCORRECT feedback for item: 1.1.24.8.6.2 RCO Group 19 Audit Exam 3-ARP-097.CP ARP G-2/1; ONOP-41.1 NOTES before step 37

Item Classification: Comprehension Item difficulty: 0.50 Keywords: LOP, 003 A4.06 Item weight: 10 Points required for mastery: 1 Forrect alternative(s): D Foudging values of alternatives: A=-1 B=-1 C=-1 D=1 Memo Field: REFERENCE: SD-008

OPS APPROVED T.S. 3/29/04

Question 29

- Annunciator G 2/1, RCP A STANDPIPE HI LEVEL, has alarmed.
- 3A RCP #1 seal leakoff flow has decreased from 2 gpm to 1 gpm.

In accordance with 3-ONOP-041.1, Reactor Coolant Pump Off-Normal, which of the following is the most probable cause of the above conditions?

- A RV-3-382, Seal Return Relief Valve, failed open
- B CV-3-303A, 3A RCP Seal Leakoff Isolation Valve failed closed
- C Number 1 seal failure
- D Number 2 seal failure



Question 29

K/A 003A4.05 Reactor Coolant Pump Ability to manually operate and/or monitor in the control room: RCP seal leakage detection instrumentation

Reference: 3-ARP-097.CR G 2/1 - cause of alarm is #2 seal damage 3-ONOP-041.1 NOTE before step 37

Question history: EXAMINER 1.1.24.8.6.2

Correct answer: D

A Incorrect; standpipe would not increase. Plausible; would decrease indicated seal return flow.

B Incorrect; seal leakoff would be zero. Plausible; would increase standpipe level.

C Incorrect; #1 seal failure would have less flow through #2 seal. Plausible; need to understand how RCP seals work.

D Correct per above references

Cognitive level: 2



6/25/2009

Juestion 30 Examination Outline Cross	Questio	ten Examination n Worksheet		Form ES-401
xamination Outline Cross				
	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 	SRO
roposed Question:				
ee attached				
roposed Answer:	<u> </u>			
explanation (Optional):				
echnical Reference(s);	3-0NOP-04	1.1 11/27/2007		-
ncluding version/revision r	number)			-
roposed references to be	provided to ap	plicants during examination	ation: <u>None</u>	
earning Objective:	6902110 Ob	<u>j. 5</u> (As a	vailable)	
luestion Source:	Bank # Modified Bar	nk # <u>1.1.25.5.3.1</u> (No	te changes or a	ttach
	New			
	Last NRC Ex	kam 10/95 will generally undergo	less rigorous reviev	v by
Question History: Optional: Questions validated al NRC; failure to provide the ini	formation will nece	ssitate a detailed review of	every question.)	
Question History: Optional: Questions validated at the NRC; failure to provide the inf Question Cognitive Level:	formation will nece Memory or F Comprehens	ssitate a detailed review of Fundamental Knowledg sion or Analysis	every question.) eX	
Question History: Optional: Questions validated at the NRC; failure to provide the inf Question Cognitive Level: O CFR Part 55 Content:	formation will nece Memory or F Comprehens 55.41 <u>7</u> 55.43	ssitate a detailed review of Fundamental Knowledg sion or Analysis	every question.) eX	

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Item: 1.1.25.5.3.1

^{~9022050301;}

The following conditions exist:

- The reactor is at power.
- POWER ABOVE P-8 status light is dark (extinguished).
- One charging pump is running with a discharge pressure higher than RCS pressure.
- Annunciator A-6/6, SEAL WATER INJ FILTER HI DP, alarms.
- Local seal water injection flows (FI-124, 127, and 130) indicate 2, 3, and 2 gpm respectively.
- The standby seal water injection filter is NOT available.

Which ONE of the following describes the actions required under these circumstances?

- A) Commence a normal plant shutdown and stop all RCPs within 12 hours.
- B) Maintain component cooling water flow to the thermal barrier.
- C) Trip the reactor and stop all RCPs.
- D) Bypass the seal injection filters.

Item Classification: Knowledge 'em difficulty: 0.50 keywords: 003 A2.02, RCO Item weight: 10 Points required for mastery: 1 Correct alternative(s): B Judging values of alternatives: A=-1 B=1 C=-1 D=-1 Memo Field: REFERENCES: 3/4-ONOP-041.1 steps 14_15, HBR RCO 7/94_Q 04

Question 30

- Unit 3 is at 100% power.
- Annunciator A 6/6, SEAL WATER INJ FILTER HI DP, actuates.
- The standby filter is not available
- Local seal injection flows indicate about 2 gpm to each RCP.

In accordance with 3-ONOP-041.1, Reactor Coolant Pump Off-Normal, which one of the following describes required action(s)?

- A Trip the reactor and stop all RCPs
- B Bypass the RCP seal injection filters
- C Maintain CCW flow to the RCP thermal barriers
- D Shutdown the unit and stop all RCPs within 12 hours

Question 30

K/A 004K6.31 Chemical Volume Control Knowledge of the effect of a loss or malfunction on the following will have on Chemical Volume Control: Seal injection system and limits on flow range

Reference: 3-ONOP-041.1

Question history: EXAMINER 1.1.25.5.3.1

Correct answer: C

A Incorrect; do not need to trip the unit. Plausible; numerous seal failures require reactor trip.

B Incorrect; ONOP-041.1 isolates seal injection filters if not available. Plausible; this would increase seal injection flow.

C Correct IAW 3-ONOP-041.1.

D Incorrect; plant shutdown required, but not within 12 hours. Plausible; 18 hours to commence shutdown and 24 hours to stop RCPs.

Cognitive level: 2 Need to determine actions for seal injection malfunction


ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401
Question 31				
Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 1 005A4.05 2.8	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u> </u>			
Explanation (Optional): Per the cautions, cavitation r flow to core and indicated fl	may occur. The ow will also c	his flowpath robs flow lecrease.	from 605, dec	creasing
(Attach if not previously prov (including version/revision n	vided) <u>3-OP-2</u> umber) <u>6.1.2</u>	201 cautions & note be .9 03/13/2009	fore step 6.1.	2.9 & step
Learning Objective:	6902121A 0	<u>Dbj. 9c</u> (As a	available)	
Question Source:	Bank # Modified Ba	nk # (No	ote changes o	or attach
	New	<u> </u>		
Question History: (Optional: Questions validated at the NRC; failure to provide the info	Last NRC E the facility since comation will nec	xam 10/95 will generally undergo essitate a detailed review of	less rigorous re every question.	eview by)
Question Cognitive Level:	Memory or I Comprehen	Fundamental Knowledg sion or Analysis	ie	
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43 <u></u>	<u>-</u>		
Comments:				

Question 31

- Unit 3 is in Mode 6.
- The crew is preparing to drain the refueling cavity to the RWST.
- One RHR Pump is running.

What effect will fully opening 3-887, RHR to RWST Hdr Isol Valve, have on the RHR System?

Flow indicated on FI-3-605, RHR Hx Outlet Flow Indicator, will <u>(1)</u>. Flow to the core will <u>(2)</u>.

	(1)	(2)
A	decrease	remain the same
В	decrease	decrease
Ċ	increase	remain the same
D	increase	decrease



Question 31

K/A 005A4.05 Residual Heat Removal Ability to manually operate and/or monitor in the control room: Position of RWST recirculation valve (locked when not in use, continuously monitored when in use).

Reference: 5613-M-3050 sheet 1 3-OP-201 CAUTIONS and NOTE before step 6.1.2.9 and step 6.1.2.9 Per the cautions, cavitation may occur. This flowpath robs flow from 605, decreasing flow to core and indicated flow will also decrease.

Question history: New

Correct answer: B

A Incorrect; flow to the core decreases. Plausible; FCV-3-605 will open in attempt to restore core flow and need to realize where FI-3-605 is in flowpath.

B Correct; flow is robbed from FI-3-605 and from the core.

C Incorrect; FI-3-605 does not increase and flow to the core decreases. Plausible; if tap were after 605, indicated flow would increase. FCV-3-605 will open in attempt to restore core flow. Need to realize where FI-3-605 is in flowpath

D Incorrect; FI-3-605 does not increase. Plausible; if tap were after 605, indicated flow would increase and need to realize where FI-3-605 is in flowpath.

Cognitive level: 2 Need to determine effect of opening 3-887 and apply that to where value is in system flowpath



6/25/2009

ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 32 Examination Outline Cross	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 1 006A3.05 4.2	SRO
Proposed Question:				
See attached				
Proposed Answer:	_ <u>C</u>			
Explanation (Optional): Per reference, order is LCs,	HHSI & RHR	, then ECCs		
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective:	5614-T-L1 5 vided) number) provided to ap 6902157 Ot	Sheet 12 & 12A 12/21/1 plicants during examina	996 ation: <u>No</u> vailable)	ne
Question Source:	Bank # Modified Ba New	nk # (No parent) X	te changes or	attach
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC E the facility since ormation will nece	xam 10/95 will generally undergo essitate a detailed review of	less rigorous rev every question.)	iew by
Question Cognitive Level:	Memory or I Comprehen	Fundamental Knowledg sion or Analysis	e <u>X</u>	_
10 CFR Part 55 Content:	55.41 <u>7</u> 55.43			
Comments:				

This is a substitute K/A. The original K/A (006A3.08) is not applicable to PTN.

Question 32

Unit 4 has received a LOOP/LOCA.

Which one of the following correctly lists the order for sequencer loading?

- A Load Centers ECCs RHR and HHSI Pumps
- B RHR and HHSI Pumps ECCs Load Centers
- C Load Centers RHR and HHSI Pumps ECCs
- D RHR and HHSI Pumps Load Centers ECCs

Question 32

K/A 006A3.05 Emergency Core Cooling Ability to monitor automatic operation of the Emergency Core Cooling System, including: Safety injection pumps NOTE: This is a substitute K/A

Reference: 5614-T-L1 sheets 12 & 12A Per reference, order is LCs, HHSI & RHR, then ECCs

Question history: New

Correct answer: C

A Incorrect per reference. Plausible; need to know order

B Incorrect per reference. Plausible; need to know order.

C Correct per reference.

D Incorrect per reference. Plausible; need to know order.

Cognitive level: 1

L0-401	Writ Questic	ten Examination on Worksheet		Form ES-401-5
Question 33				
Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u>D</u>			
Explanation (Optional):				
(Attach if not previously pro (including version/revision r	vided) <u>3-OP-</u> number) <u>BD-C</u> <u>T.S. 3.5.1</u>	064 step 4.4 4/2/09 PP-064 12/17/2007		
Proposed references to be Learning Objective:	provided to ap <u>6902121b C</u>	plicants during examina 0bj. 9a (As a	ation: <u>Non</u> vailable)	e
Question Source:	Bank # Modified Ba	nk # (No	te changes o	r attach
	New	x		
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	New Last NRC E the facility since ormation will nece	Xam 10/95 will generally undergo essitate a detailed review of	less rigorous rev every question.)	view by
Question History: (Optional: Questions validated at the NRC; failure to provide the inf Question Cognitive Level:	New Last NRC E the facility since ormation will nece Memory or f Comprehens	Xam 10/95 will generally undergo essitate a detailed review of the Fundamental Knowledg sion or Analysis	less rigorous reverv question.) every question.) e <u>X</u>	view by
Question History: (Optional: Questions validated at the NRC; failure to provide the inf Question Cognitive Level: 10 CFR Part 55 Content:	New Last NRC E the facility since ormation will nece Memory or F Comprehen: 55.41 7 55.43	Xam 10/95 will generally undergo essitate a detailed review of the Fundamental Knowledg sion or Analysis	less rigorous revery question.) e <u>X</u>	view by

Question 33

Unit 3 is at 100% with the following 3A Safety Injection (SI) Accumulator values:

- Level 6560 gallons
- Pressure 670 psig
- Boron concentration 1925 ppm
- > The discharge MOV breaker is locked open

Which of the following correctly states the status of the 3A SI Accumulator and the basis for that status?

The 3A SI accumulator is...

- A OPERABLE. All Tech Spec and admin limits have been met.
- B INOPERABLE. There is insufficient water to ensure core reflood during a large break LOCA.
- C INOPERABLE. The cover gas pressure would cause the introduction of nitrogen into the RCS following a large break LOCA.
 - D INOPERABLE. The boron concentration is insufficient to ensure all areas of the core will remain subcritical during the reflood following a large break LOCA.



Question 33

K/A 006K6.02 Emergency Core Cooling Knowledge of the effect of a loss or malfunction on the following will have on the Emergency Core Cooling System: Core flood tanks (accumulators)

Reference: T.S. 3.5.1 0-ADM-536 section 3.5.1 3-OP-064 step 4.4 BD-OP-064

Question history: New

Correct answer: D

A Incorrect; boron is too low.

B Incorrect; level limits are 6552-6788 gallons. Plausible; near lower limit and that is basis for level.

C Incorrect; pressure limits are 600-675. Plausible; near upper limit and that is basis for upper limit

D Correct IAW 0-ADM-536.

Cognitive level: 1

ES-401	Writte Question	n Examination Worksheet		Form ES-401
Question 34				
Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO <u>2</u> <u>1</u> <u>007G2.2.4</u> <u>3.4</u>	SRO 40
Proposed Question:				
See attached				
Proposed Answer:	<u>A</u>			
Explanation (Optional): T.S. 3.4.4 action a requires	closing block val	ve if excessive leaka	ge action e s	ys 3.0.4 is
0-ADM-536 p. 54 if greate	r than 10 gpm req	uires closing block		
O-ADM-536 p. 54 if greate Technical Reference(s): (Attach if not previously pro (including version/revision	r than 10 gpm req <u>T.S. 3.4.4</u> ovided) <u>0-ADM-5</u> number)	uires closing block 36 p. 54 02/18/2009		
not applicable 0-ADM-536 p. 54 if greate Technical Reference(s): (Attach if not previously pro (including version/revision Proposed references to be Learning Objective:	r than 10 gpm req <u>T.S. 3.4.4</u> pvided) <u>0-ADM-5</u> number) provided to applie <u>6902109 Obj.</u>	uires closing block 36 p. 54 02/18/2009 cants during examina 12.e (As av	ation: <u>T.S</u> /ailable)	<u>. 3.4.4</u>
not applicable 0-ADM-536 p. 54 if greate Technical Reference(s): (Attach if not previously pro (including version/revision Proposed references to be Learning Objective: Question Source:	r than 10 gpm req <u>T.S. 3.4.4</u> pvided) <u>0-ADM-5</u> number) provided to applie <u>6902109 Obj.</u> Bank # Modified Bank New	uires closing block 36 p. 54 02/18/2009 cants during examina 12.e (As av # $\frac{1.1.28.24.3.1}{(Nc)}$ # $\frac{1.1.28.24.3.1}{(Nc)}$	ation: <u>T.S</u> /ailable) <u>0</u> te changes (<u>5. 3.4.4</u> or attach
O-ADM-536 p. 54 if greate 0-ADM-536 p. 54 if greate Technical Reference(s): (Attach if not previously pro (including version/revision Proposed references to be Learning Objective: Question Source: Question History: (Optional: Questions validated a the NRC; failure to provide the in	r than 10 gpm req <u>T.S. 3.4.4</u> pvided) <u>0-ADM-5</u> number) provided to applie <u>6902109 Obj.</u> Bank # Modified Bank New Last NRC Exal t the facility since 10/ formation will necess	uires closing block <u>36 p. 54 02/18/2009</u> cants during examina <u>12.e</u> (As an <u>4</u> <u>1.1.28.24.3.1</u> <u>4</u> (No parent) <u>5 will generally undergo</u> itate a detailed review of	ation: <u>T.S</u> /ailable) 0 te changes o	5. 3.4.4 or attach eview by
not applicable 0-ADM-536 p. 54 if greate Technical Reference(s): (Attach if not previously pro (including version/revision Proposed references to be Learning Objective: Question Source: Question Source: (Optional: Questions validated a the NRC; failure to provide the in Question Cognitive Level:	r than 10 gpm req <u>T.S. 3.4.4</u> pvided) <u>0-ADM-5</u> number) provided to applie <u>6902109 Obj.</u> Bank # Modified Bank New Last NRC Exat the facility since 10/ formation will necess Memory or Fur Comprehensio	uires closing block 36 p. 54 02/18/2009 cants during examina 12.e (As an 12.e (As an 11.28.24.3.1 #(No parent) m 95 will generally undergo itate a detailed review of chdamental Knowledg n or Analysis	ation: <u>T.S</u> vailable) 0 te changes o less rigorous re every question. e	5. 3.4.4 or attach eview by
not applicable 0-ADM-536 p. 54 if greate Technical Reference(s): (Attach if not previously pro (including version/revision Proposed references to be Learning Objective: Question Source: Question Source: Question Source: (Optional: Questions validated a the NRC; failure to provide the in Question Cognitive Level: 10 CFR Part 55 Content:	r than 10 gpm req <u>T.S. 3.4.4</u> pvided) <u>0-ADM-5</u> number) provided to applie <u>6902109 Obj.</u> Bank # Modified Bank New Last NRC Exal t the facility since 10/ formation will necess Memory or Fur Comprehensio <u>55.41 10</u> <u>55.43 10</u>	uires closing block 36 p. 54 02/18/2009 cants during examina 12.e (As an 4 1.1.28.24.3.1 # 1.1.28.24.3.1 # 1.1.28.24.3.1 m 95 will generally undergo itate a detailed review of the damental Knowledg n or Analysis	ation: <u>T.S</u> vailable) <u>0</u> te changes of less rigorous n every question. e	S. 3.4.4 or attach eview by

Item: 1.1.28.24.3.10

59021240310

- Unit 3 is operating in Mode 3 preparing to startup the reactor.
- The temperature indicator downstream of the pressurizer PORVs alarms.
- Subsequent leakrate calculations determine that PORV-3-456 has 12.0 gpm leakage past its seat.
- RCS leakrate was 0.03 gpm and has gone to 12.03 gpm.

What actions are required by Technical Specifications?

(Reference provided)

- A) Startup (entry into Mode 2) is permitted. The associated bock valve is required to be closed since the PORV is inoperable.
- B) Startup (entry into Mode 2) is permitted. The associated bock valve may be closed if desired but it is not required by Tech Specs.
- C) Startup (entry into Mode 2) is NOT permitted until the PORV is repaired. The associated bock valve is required to be closed since the PORV is inoperable.
- D) Startup (entry into Mode 2) is NOT permitted until the PORV is repaired. The associated bock valve may be closed if desired but it is not required by Tech Specs.

CORRECT or INCORRECT feedback for item: 1.1.28.24.3.10

T.S. 3.4.4 action a requires closing block valve if excessive leakage. ADM 536 p. 54 - if > 10 gpm requires closing block action e says 3.0.4 not applicable

Item Classification: Application Item difficulty: 0.00 Keywords: 010 G2.1.12 Item weight: 10 Points required for mastery: 1 Correct alternative(s): A Judging values of alternatives: A=1 B=-1 C=-1 D=-1

Question 34

- Unit 3 is in Mode 3.
- PRT temperature, pressure, and level are increasing.
- It is determined that PORV PCV-3-456 has 12.0 gpm leakage past its seat.

What actions are required by Tech Specs?

Tech Spec 3.4.4 provided as reference.

Entry into Mode 2 is...

- A permitted. The associated block valve is required to be closed since the PORV is inoperable.
- B permitted. The associated block valve may closed if desired but it is not required by Tech Specs.
- C NOT permitted. The associated block valve is required to be closed since the PORV is inoperable.
- D NOT permitted. The associated block valve may closed if desired but it is not required by Tech Specs.



Question 34

K/A 007G2.2.40 Pressurizer Relief/Quench Tank Ability to apply Technical Specifications to a system

Reference:

T.S. 3.4.4 action a requires closing block valve if excessive leakage 0-ADM-536 p. 54 if greater than 10 gpm requires closing block action e sys 3.0.4 is not applicable

History: EXAMINER 1.1.28.24.3.10

Correct answer: A

A Correct per above reference

B Incorrect; closure required. Plausible; need to know at what point closure is required.

C Incorrect; entry into Mode 2 permitted since 3.0.4 not applicable. Plausible; Mode entry is usually not permitted.

D Incorrect; per above discussion. Plausible; need to know at what point closure is required and realize Mode change permitted.

Cognitive level: 3 Have to apply Tech Specs

Note: Provide T.S. 3.4.4

Note: PTN has no T.S. that apply directly to the PRT; only the piping into and the piping going out.



	Question	en Examination		Form ES-401
Question 35				
Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 <u>1</u> 008K4.07 2.6	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u> </u>			
Explanation (Optional): 3D 4kV bus feeder breakers	3AB19 and 3A	.D06 feed power to the	e swing bus f	or CCW
echnical Reference(s):	<u>5610-T-L1 sh</u>	eets 138, 141, 142, &	143	_
Fechnical Reference(s): Attach if not previously pro including version/revision r	<u>5610-T-L1 sh</u> vided <u>) 01/20/1</u> number)	eets 138, 141, 142, & 1994	143	
Technical Reference(s): Attach if not previously pro including version/revision r Proposed references to be _earning Objective:	5610-T-L1 sh vided) 01/20/ number) provided to app	licants during examina (As	143 ation: available)	
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Technical Reference(s): Attach if not previously pro including version/revision r Proposed references to be earning Objective: Question Source: Question History: Optional: Questions validated at the NRC; failure to provide the inf	5610-T-L1 sh vided) 01/20/ number) provided to app Bank # Modified Ban New Last NRC Exa the facility since 10 commation will neces	licants during examina licants during examina (As k # <u>1.1.24.38.6.5</u> k # <u>1.1.24.38.6.5</u> mam D/95 will generally undergo sistate a detailed review of	143 ation: available) 50 ite changes o	or attach
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Item: 1.1.24.38.6.50

59021380650;

Operators are attempting to energize 3D 4kV bus from the 3B 4kV bus.

Which ONE of the following describes the interlock between 3D 4kV bus feeder breakers 3AB19 and 3AD06?

- A) 3AB19 must be closed first.
 3AD06 will trip if 3AB19 is opened.
- B) 3AD06 must be closed first.
 3AB19 will trip if 3AD06 is opened
- C) 3AB19 must be closed first.
 3AD06 will remain closed if 3AB19 is opened.
- D) 3AD06 must be closed first.
 3AB19 will remain closed if 3AD06 is opened.

Item Classification: Comprehension Item difficulty: 0.00 Keywords: NLOCT, SNPO, NPO, LOCT, NSO Item weight: 10 Points required for mastery: 1 Correct alternative(s): B Judging values of alternatives: A=-1 B=1 C=-1 D=-1 Memo Field: REFERENCE: 5610-T-L1 Sh 142 DL: 100

06/25/2009

Turkey Point ILC 25 NRC Examination

Question 35

Which one of the following describes the operation of 3D 4kV bus feeder breakers 3AB19 and 3AD06?

- Note: 3AB19 is 3B Bus Supply to 3D Bus 3AD06 is Feeder to 4.16 kV Bus 3B
- A 3AB19 must be closed first. 3AD06 will trip if 3AB19 is opened.
- B 3AD06 must be closed first.
 3AB19 will trip if 3AD06 is opened.
- C 3AB19 must be closed first. 3AD06 will remain closed if 3AB19 is opened.
- D 3AD06 must be closed first. 3AB19 will remain closed if 3AD06 is opened.



Page 69 of 200

Question 35

K/A 008K4.07 Component Cooling Water Knowledge of the Component Cooling Water System design features and/or interlocks which provide for the following: Operation of the CCW swing-bus power supply and its associated breakers and controls

Reference: 5610-T-L1 sheets 138, 141, 142, & 143 3D 4kV bus feeder breakers 3AB19 and 3AD06 feed power to the swing bus for CCW

Question history: EXAMINER 1.1.24.38.6.50

Correct answer: B

A Incorrect; per reference, 3AD06 must be closed first. Plausible; need to know which breaker must be closed first.

B Correct; this describes the interlock.

C Incorrect; 3AD06 must be closed first. Plausible; need to know which breaker must be closed first.

D Incorrect; 3AB19 will trip if 3AD06 is opened. Plausible; need to know that 3AD06 opening will trip 3AB19.

Cognitive level: 1



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Question 36				
Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO <u>2</u> <u>1</u> <u>010K2.04</u> <u>2.7</u>	SRO
Proposed Question:				
See attached				
Proposed Answer:	A			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective:	<u>3-ONOP-00</u> vided) number) provided to ap <u>6902163 Ot</u>	3.6 Enclosure 1 06/27/ plicants during examina	2008 ation: <u>No</u> available)	
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Question 36

The red label on TI-3-467, Safety Tailpipe Temperature, means it is powered from...

- A 3P06
- B 3P07
- C 3P08
- D 3P09



Page 71 of 200

Question 36

K/A 010K2.04 Pressurizer Pressure Control Knowledge of bus power supplies to the following: Indicator for code safety position

Reference: 3-ONOP-003.6 Enclosure 1

Question history: New

Correct answer: A

A Correct

B Incorrect; power is 3P06. Plausible; need to know P07 is white

C Incorrect; power is 3P06. Plausible; need to know P08 is blue

D Incorrect; power is 3P06. Plausible; need to know P09 is yellow

Cognitive level: 1



ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401
Question 37	7.00.7.51			
Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u></u>			
Explanation (Optional):				
Technical Reference(s):	5610-T-D-1	6B 04/19/96		
Technical Reference(s): (Attach if not previously pro (including version/revision) Proposed references to be Learning Objective:	<u>5610-T-D-16</u> ovided) number) provided to ap	6B 04/19/96 plicants during examina	ation: <u>No</u> s available)	
Technical Reference(s): Attach if not previously pro including version/revision of Proposed references to be earning Objective: Question Source:	5610-T-D-1(ovided) number) provided to ap Bank # Modified Ba New	6B 04/19/96 plicants during examina (As nk #	ation: <u>No</u> s available) te changes o	ne
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Question 37

What are the setpoints for the Pressurizer Backup Heaters energization (1) and Letdown isolation (2)?

	_(1)	(2)
A	2210 psig	12%
в	2210 psig	14%
С	2220 psig	12%
D	2220 psig	14%



Question 37

K/A 010K4.02 Pressurizer Pressure Control Knowledge of Pressurize Pressure Control design features and/or interlocks which provide for the following: Prevention of uncovering PZR heaters

Reference: 5610-T-D-16B

Question history: New

Correct answer: B

A Incorrect; L/D isolation is 14%. Plausible; 12% is manual SI setpoint

B Correct per above reference – B/U heaters energize at 2210 psig and L/D isolates at 14%.

C Incorrect; B/U heaters energize at 2210 psig and L/D isolates at 14%. Plausible; 2220 is setpoint for control group full on and 12% is manual SI setpoint.

D Incorrect; B /U heaters energize at 2210 psig. Plausible; 2220 is setpoint for control group full on.

Cognitive level: 1

ES-401	Writ Questio	ten Examination n Worksheet		Form ES-401
Question 38				
Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 <u>1</u> 012K1.02 3.4	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u>B</u>			
Explanation (Optional):	ГВ and Bypass	A		
4D23 breaker 12 goes to R	ΓA and Bypass	В		
4D23 breaker 12 goes to R Technical Reference(s): (Attach if not previously pro (including version/revision r	TA and Bypass <u>4-ONOP-003</u> ovided) <u>4-ONO</u> number)	B 3.4 Attachment 3 p. 3 c P-003.5 Attachment 3	of 3 09/14/20 p. 2 of 2 09/1	<u>08</u> 14/2008
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ES-401	Written Question W	Examination /orksheet		Form ES-401-
Question 39 Examination Outline Cross	-Reference: L T G K Ir	evel ier # Group # /A # nportance Rating	RO 2 1 012K2.01 3.3	SRO
Proposed Question:				
See attached				
Proposed Answer:	C			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro	3-ONOP-003.7 I	Enclosure 1 p. 2 of 03.8 Enclosure 1 p	3 06/27/2008	/2008
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Technical Reference(s): (Attach if not previously pro (including version/revision) Proposed references to be Learning Objective: Question Source: Question History: (<i>Optional: Questions validated a</i> <i>the NRC; failure to provide the in</i>	<u>3-ONOP-003.7 I</u> ovided) <u>3-ONOP-00</u> number) provided to applica <u>690260 Obj. 2</u> Bank # Modified Bank # New Last NRC Exam t the facility since 10/95 formation will necessita	Enclosure 1 p. 2 of 03.8 Enclosure 1 p ants during examina (As a <u>1.1.24.63.5.9</u> (No parent) i will generally undergo te a detailed review of	<u>3 06/27/2008</u> 2 of 3 06/27/ ation: <u>No</u> vailable) 0 te changes o	view by
Technical Reference(s): (Attach if not previously pro (including version/revision i Proposed references to be Learning Objective: Question Source: Question Source: (<i>Optional: Questions validated a</i> <i>the NRC; failure to provide the in</i> Question Cognitive Level:	3-ONOP-003.7 I ovided) <u>3-ONOP-00</u> number) provided to applica <u>690260 Obj. 2</u> Bank # Modified Bank # New Last NRC Exam the facility since 10/95 formation will necessita Memory or Fund Comprehension	Enclosure 1 p. 2 of 03.8 Enclosure 1 p ants during examina (As a <u>1.1.24.63.5.9</u> (No parent) will generally undergo te a detailed review of amental Knowledg or Analysis	<u>3 06/27/2008</u> 2 of 3 06/27/ ation: <u>No</u> available) <u>0</u> the changes o <u>1</u> less rigorous revery question.) ne <u>X</u>	view by
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Item: 1.1.24.63.5.9

69021630509;

The bottom two rows of reactor protection bistable postage stamp lights have gone out.

This could be due to the loss of what instrument bus?

- A) 3P06
- B) 3P07
- C) 3P08
- D) 3P09

CORRECT or INCORRECT feedback for item: 1.1.24.63.5.9 RCO Group 19 Audit Exam 3-ONOP-003.8, 5610-T-D-2

Item Classification: Knowledge Item difficulty: 0.50 Keywords: 012 K2.01 Item weight: 10 Points required for mastery: 1 Correct alternative(s): C Judging values of alternatives: A=-1 B=-1 C=1 D=-1

Question 38

Initial conditions:

- Unit is in Mode 2 at 2% power.
- Train 4B RPS testing is in progress.
- The 4B Reactor Trip Bypass Breaker is racked in and closed.

Subsequently:

• 125V DC Bus 4D01 is lost.

What is the status of the reactor trip breakers and will the reactor trip as a direct result of the 4D01 failure?

- A Only the 4A Reactor Trip Breaker will open. The reactor will NOT trip.
- B Only the 4B Reactor Trip Breaker will open. The reactor will NOT trip.
- C The 4A Reactor Trip Breaker and 4B Reactor Trip Bypass Breakers will open. The reactor will trip.
- D The 4B Reactor Trip Breaker and 4B Reactor Trip Bypass Breakers will open. The reactor will trip.

Question 38

K/A 012K1.02 Reactor Protection Knowledge of the physical connections and/or cause-effect relationships between the Reactor Protection System and the following system: 125V dc system

Reference: 4-ONOP-003.4 Attachment 3 p3 of 3 4D01 breaker 38 goes to RTB and Bypass A

4-ONOP-003.5 Attachment 3 p2 of 2 4D23 breaker 12 goes to RTA and Bypass B

History: New

Correct answer: B

A Incorrect; 4D01 goes to RTB & BYPA. Plausible; need to know power supplies.

B Correct; 4D01 goes to RTB & BYPA – reactor trip will not occur. Plausible; need to know power supplies.

C Incorrect; 4D01 goes to RTB & BYPA. Plausible; need to know power supplies.

D Incorrect; 4D01 goes to RTB & BYPA. Plausible; need to know power supplies.

Cognitive level: 2

Need to compare lost power supply to reactor trip breakers and determine effect on plant for conditions given.



Question 39

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

- Multiple annunciators simultaneously alarm.
- The top two rows of bistable lights on VPB go out.

Which one of the following procedures should the crew implement?

- A 3-EOP-E-0, Reactor Trip or Safety Injection
- B 3-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS
- C 3-ONOP-003.7, Loss of 120V Vital Instrument Panel 3P07
- D 3-ONOP-003.8, Loss of 120V Vital Instrument Panel 3P08

Question 39

K/A 012K2.01 Reactor protection

Knowledge of bus power supplies to the following: RPS channels, components and interconnections

Reference: 3-ONOP-003.7 Enclosure 1 page 2 of 3 3-ONOP-003.8 Enclosure 1 page 2 of 3

Question history: EXAMINER 1.1.24.63.5.9 modified

Correct answer: C

A Incorrect; loss of one train on RPS/SI only, no need for reactor trip. Plausible; need to realize that loss of 3P08 takes out two trains of bistable lights.

B Incorrect; loss of one train on RPS/SI only, no need for reactor trip and not in ATWS. Plausible; need to realize that loss of 3P08 takes out two trains of bistable lights.

C Correct; per ONOP-003.7 Enclosure 1, lose two rows of bistable lights.

D Incorrect; loss of 3P08 causes loss of bottom two rows of bistable lights. Plausible; loss of 3P08 causes loss of bottom two rows of bistable lights.

Cognitive level: 2 Candidate needs to diagnose loss of 3P07 from information given and then determine what procedure to use

ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 40** Level Examination Outline Cross-Reference: RO SRO Tier # 2 Group # 1 K/A # 013A2.01 Importance Rating 4.6 4.8 Proposed Question: See attached Proposed Answer: D Explanation (Optional): LOCA on other unit only starts HHSI Pumps on unaffected unit. 4-EOP-E-0 Attachment 3 step 9 will stop the Unit 3 HHSI Pumps if both Unit 4 Pumps are running 4-EOP-E-0 Att. 3 step 9 12/09/2008 Technical Reference(s): (Attach if not previously provided) 5613-T-L1 Sheet 12A 10/03/1996 (including version/revision number) Proposed references to be provided to applicants during examination: None Learning Objective: 6902163 Obj. 11 (As available) Question Source: Bank # Modified Bank # (Note changes or attach parent) New Х Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 5 55.43 Comments:

Question 40

- The 3A, 3B, and 4A HHSI Pumps are running.
- MOV-3-843A and B, HHSI Cold Leg Injection Valves, are both closed.
- The 3A and 3B RHR Pumps are NOT running.

The event is a safety injection on Unit (1). The Unit 3 HHSI Pumps will be operated in accordance with (2), Reactor Trip or Safety Injection.

	(1)	(2)
À	Unit 3	3-ЕОР-Е-0
В	Unit 3	4-EOP-E-0
С	Unit 4	3-EOP-E-0
D	Unit 4	4-EOP-E-0

Question 40

K/A 013A2.01

Engineered Safety Features Actuation

Ability to (a) predict the impacts of the following malfunctions or operations on the Engineered Safety Features Actuation System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: LOCA

Reference:

5613-T-L1 Sheet 12A

LOCA on other unit only starts HHSI Pumps and EDGs on unaffected unit 4-EOP-E-0 Attachment 3 step 9 will stop the Unit 3 HHSI Pumps if both Unit 4 Pumps are running – or one pump if only one Unit 4 HHSI Pump is running.

Question history: New

Correct answer: D

A Incorrect; per above discussion. Plausible; HHSI Pumps are running on Unit 3.

B Incorrect; per above discussion. Plausible; HHSI Pumps are running on Unit 3.

C Incorrect; per above discussion. Plausible; might expect to stop Unit 3 Pumps using a Unit 3 procedure.

D Correct per above discussion.

Cognitive level: 1

ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 41** Examination Outline Cross-Reference: RO SRO Level Tier # 2 Group # 1 K/A # 022K1.04 Importance Rating 2.9 2.9 Proposed Question: See attached Proposed Answer: С Explanation (Optional): 4-NOP-030 Limitation 2.2.3.6 lists components for "rule of 5." NCCs count as one load; each ECC is a load; each RHR HX is a load. 4-OSP-203.1 Attachment 5 p. 5 - only 2 NCCs running/4-OSP-203.1 Attachment 7 p. 7 - MOV-4-1417 (CCW to NCC inlet) closes/4-OSP-203.2 Attachment 7 p 16 - MOV-4-1418 closed (CCW from NCC) closes CCW not aligned to RHR HX until enter 4-EOP-ES-1.3. Technical Reference(s): 3-NOP-030 2.2.3.6 03/11/2009 (Attach if not previously provided) 3-OSP-203.1 Att. 5 & 7 11/19/2008 (including version/revision number) 3-OSP-203.2 Att 5 & 7 04/08/2009 3-EOP-E-0 Att. 3 04/09/2009 Proposed references to be provided to applicants during examination: None Learning Objective: (As available) Bank # Question Source: 1.1.24.40.3.13 Modified Bank # (Note changes or attach parent) New Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis х 10 CFR Part 55 Content: 55.41 8 55.43 Comments:

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Item: 1.1.24.40.3.13

69021400313

The following events occurred when Unit 3 was operating at 100% with all systems in normal alignment.

- An AUTO SI signal occurred.
- All systems functioned as designed.
- Sequencing has just completed.

Which ONE of the following identifies the number of CCW load(s) attached to the CCW system as it relates to the CCW "Rule of Five"?

- A) Two CCW loads
- B) Three CCW loads
- C) Four CCW loads
- D) Five CCW loads

```
CORRECT or INCORRECT feedback for item: 1.1.24.40.3.13
5613-T-L1 SH 12A/B
"A" AND "C" ECCs ("B" does not auto start)
```

Item Classification: Analysis Item difficulty: 0.50 Keywords: 008 A3.08, LOP, NLOCT Them weight: 10 oints required for mastery: 1 Correct alternative(s): A Judging values of alternatives: A=1 B=-1 C=-1 D=-1 Memo Field: REFERENCE: OP-030 P/L; SD-040 Component Cooling Water System;

OPS APPROVED T.S. 3/29/04

Question 41

- Unit 3 has experienced a spurious safety injection.
- The RO has just commenced performance of 3-EOP-E-0, Attachment 3, Reactor Trip or Safety Injection, Prompt Action Verifications.
- RCPs are running.

How many CCW loads will be attached to the CCW System as it relates to the "Rule of 5" before the BOP commences Attachment 3 and after Attachment 3 has been completed?

	Before	After
A	Two	Two
в	Three	Three
с	Two	Three
D	Three	Four


Question 41

K/A 022K1.04

Containment Cooling

Knowledge of the physical connections and/or cause-effect relationships between the Containment Cooling System and the following system: Chilled water

Reference:

3-NOP-030 Limitation 2.2.3.6 lists components for "rule of 5." NCCs count as one load; each ECC is a load; each RHR HX is a load.

3-OSP-203.1 Attachment 5 p. 5 - only 2 NCCs running
3-OSP-203.1 Attachment 7 p. 7 - MOV-4-1417 (CCW to NCC inlet) closes
3-OSP-203.2 Attachment 7 p 16 - MOV-4-1418 closed (CCW from NCC) closes
3-EOP-E-0 Attachment 3 - NCCs started by Attachment 3 if RCPs are running

Question history: Examiner 1.1.24.40.3.13

Correct answer: C

A Incorrect; NCCs started by Attachment 3. Plausible; need to realize NCCs are started for conditions in stem

B Incorrect IAW above discussion. NCCs isolated and 2 ECCs running. Plausible; we have 3 ECCs, but only 2 start because of rule of 5.

C Correct IAW above discussion. NCCs isolated and 2 ECCs running initially and NCCs started by Attachment 3.

D Incorrect IAW above discussion. Only 2 ECCs running initially. Plausible; we have 3 ECCs.

Cognitive level: 2 Need to realize what CCW loads are in rule of 5 and then apply that loads in service after SI actuation and again after completion of Attachment 3.



Page 82 of 200

ES-401	Writt Questio	ten Examination n Worksheet		Form ES-401
Question 42				
Examination Outline Cross-F	Reference:	Level Tier # Group # K/A #	RO 2 1 022K3.02	SRO
Proposed Question:		importance Raing		
See attached				
Proposed Answer:	B			
At 125°T Containment tempo will be at 110°F). This mean in the S/G. Technical Reference(s): (Attach if not previously prov	sthat at 110° <u>5613-M-3074</u>	dicated level will be les F Containment tempera 4 Sheet 3 04/09/2009	ss than actua ature, there i	ll (than it s more mass
including version/revision nu	umber)			
Proposed references to be p earning Objective:	rovided to app 6902321 Ob	blicants during examina i. 6 (As a	ation: <u>N</u> vailable)	lone
Question Source:	Bank # Modified Bar	nk # (No	te changes	or attach
	New	X		
Question History: Optional: Questions validated at ti he NRC; failure to provide the info	Last NRC Ex he facility since 1 mation will nece	am 0/95 will generally undergo ssitate a detailed review of	less rigorous r every question	eview by .)
Question History: Optional: Questions validated at the he NRC; failure to provide the info Question Cognitive Level:	Last NRC Ex he facility since 1 mation will nece Memory or F Comprehens	am 0/95 will generally undergo ssitate a detailed review of undamental Knowledg ion or Analysis	less rigorous r every question e	eview by .) X
Question History: Optional: Questions validated at to he NRC; failure to provide the info Question Cognitive Level: 0 CFR Part 55 Content:	Last NRC Ex he facility since 1 mation will nece Memory or F Comprehens 55.41 _7 55.43	am 0/95 will generally undergo ssitate a detailed review of undamental Knowledg ion or Analysis	less rigorous r every question e	eview by .) X

Question 42

Initial conditions

- Unit 4 Containment temperature at 110°F
- All Steam Generator levels on program at 60%

Subsequently:

- CCW flow to the NCCs is lost.
- Containment temperature has increased to 125°F
- All Steam Generator levels on program at 60%

	(1)	(2)
A	less	variable
в	less	reference
С	greater	variable
D	greater	reference



Question 42

K/A 022K3.02

Containment Cooling

Knowledge of the effect that a loss or malfunction of the Containment Cooling System will have on the following: Containment instrumentation readings

Reference:

5613-M-3074 sheet 3

S/G level uses a wet reference leg ΔP indicator. The compares the pressure of the full reference leg to pressure of the variable leg. The variable leg represents the mass in the S/G. As the Containment temperature lowers, the density in the reference leg increases. The variable leg density is not significantly affected.

At 125°T Containment temperature, the indicated level will be less than actual (than it will be at 110°F). This means that at 125°F Containment temperature, there is less mass in the S/G.

Question history:

Point Beach NRC exam given on 6/13/07 question 41 - significantly modified

Correct answer: B

A incorrect; per above discussion, variable leg not significantly affected. Plausible; variable leg also inside containment.

B correct per above discussion

C incorrect; per above discussion, mass has decreased and variable leg not significantly affected. Plausible; need to analyze how change in reference leg pressure will affect S/G mass.

D incorrect; per above discussion, mass has decreased. Plausible; need to analyze how change in reference leg pressure will affect S/G mass.

Cognitive level: 2

Candidate needs to analyze effect on change in reference leg temperature on mass in S/G.

ES-401 Written Examination Form ES-401-5 **Question Worksheet** Question 43 Examination Outline Cross-Reference: Level RO SRO Tier # 2 Group # 1 K/A # 026A3.01 Importance Rating 4.3 4.5 Proposed Question: See attached Proposed Answer: Explanation (Optional): 20# signal opens 880A & B and sends signal to sequencer to start CSPs. Sequencer will start CSPs if SI not reset. Feedwater Isolation verification is step 3 of Attachment 3. SI is reset in step 12. Technical Reference(s): 5614-T-L1 sheet 12A 10/21/1996 (Attach if not previously provided) 5610-T-L1 sheet 11 04/09/2009 (including version/revision number) 4-EOP-E-0 Att. 3 12/09/2008 Proposed references to be provided to applicants during examination: None Learning Objective: 6902125 Obj. 7.d (As available) Question Source: Bank # 1.1.26.21.3.6 Modified Bank # (Note changes or attach parent) New Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 7 55.43 Comments:

Question 43

- Unit 4 experienced a LOCA.
- The BOP is verifying Feedwater Isolation in accordance with 4-EOP-E-0, Attachment 3, Reactor Trip or Safety Injection, Prompt Action Verification, when Containment pressure exceeds 20 psig.

How will the Containment Spray Pumps (CSPs) and their discharge valves (MOV-4-880 A & B) respond?

- A The CSPs will start. MOV-4-880 A & B will open.
- B The CSPs will start. MOV-4-880 A & B will NOT open.
- C The CSPs will NOT start. MOV-4-880 A & B will open.
- D The CSPs will NOT start. MOV-4-880 A & B will NOT open.



Page 85 of 200

Question 43

K/A 026A3.01 Containment Spray Ability to monitor automatic operation of the Containment Spray System, including: Pump starts and correct MOV positioning

Reference:

5614-T-L1 sheet 12A - 20# signal opens 880A & B and sends signal to sequencer to start CSPs.

5610-T-L1 sheet 11 - sequencer will start CSPs if SI not reset. 4-EOP-E-0 Attachment 3 - Feedwater Isolation verification is step 3 of Attachment 3. SI is reset in step 12.

Question history: EXAMINER 1.1.26.21.3.6

Correct answer: A

A correct per above discussion.

B Incorrect; the 880s will open. Plausible; SI signal has already been generated.

C Incorrect; the CSPs will start. Plausible; if SI had been reset, CSPs would not start.

D Incorrect; see discussion for B and C

Cognitive level: 2 Need to realize that SI not reset yet, so CSPs will start and MOVs will open.



ES-401 Written Examination Form ES-401-5 **Question Worksheet** Question 44 Examination Outline Cross-Reference: Level RO SRO Tier # Group # 1 K/A # 039A1.05 Importance Rating 3.2 3.3 Proposed Question: See attached Proposed Answer: C Explanation (Optional): This is a classic steam line leak. A dilution would cause Tavg to increase. ADM-200 5.4.3.7 requires for a secondary transient, to reduce power below 100% using steam demand/turbine load. Technical Reference(s): 0-ADM-200 5.4.3.7 03/26/2009 (Attach if not previously provided) (including version/revision number) Proposed references to be provided to applicants during examination: None Learning Objective: 6902025 Obj. 5 (As available) Question Source: Bank # Modified Bank # (Note changes or attach parent) New х Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 5 55.43 Comments: H.B. Robinson NRC exam given on 6/26/07 question 16 - modified

Question 44

- Unit 3 is at 100% power.
- The RO has recently performed a dilution to compensate for fuel burnup.
- The following indications are noted in Control Room:
 - Power Range NIs are increasing slowly.
 - Tavg is decreasing slowly.
 - Reactor power is 100.3% and rising slowly.

Which one of the following describes the event in progress and the action required in accordance with 0-ADM-200, Conduct of Operations?

- A Excessive RCS dilution Reduce power by reducing turbine load.
- B Excessive RCS dilution
 Reduce power by inserting control rods.
- C Main steam line leak Reduce power by reducing turbine load.
- D Main steam line leak Reduce power by inserting control rods.



Question 44

K/A 039A1.05

Main and Reheat Steam

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the Main and Reheat Steam System controls including: RCS T-ave

Reference:

This is a classic steam line leak. A dilution would cause Tavg to increase. ADM-200 5.4.3.7 requires for a secondary transient, to reduce power below 100% using steam demand/turbine load.

Question history: H.B. Robinson NRC exam given on 6/26/07 question 16 - modified

Correct answer: C

A Incorrect; Tavg would not go down on dilution event. Plausible; in stem had just diluted.

B Incorrect; Tavg would not go down on dilution event. Plausible; in stem had just diluted.

C Correct; Tavg decreasing and power increasing indicates steam line leak and per ADM-200 should reduce turbine load.

D Incorrect; inserting rods is not in accordance with ADM-200. Plausible; would insert rods for primary transient.

Cognitive level: 2 Have to diagnose event and then determine corrective action



Page 88 of 200

ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 45** Examination Outline Cross-Reference: Level RO SRO Tier # 2 Group # 1 K/A # 039G2.4.45 Importance Rating 4.1 4.3 Proposed Question: See attached Proposed Answer: С Explanation (Optional): Alarm C 5/1 actuates when steam flow greater than feed flow by 500,000 lbs/hr on 1/2 channels. Reactor trip is 1/2 S/G level at 10% AND 1/2 steam flow greater than feed flow by 665000 lb/hr. The loss of 3P06 makes up one channel of low level on each S/G. Continuing to reduce feed will cause a reactor trip with the low level already made up. Technical Reference(s): 3-ARP-097.CR p. 153 05/08/2009 (Attach if not previously provided) 5610-T-D sheets 17 & 18B 04/03/2007 & 10/15/2003 (including version/revision number) 5610-T-L1 sheet 11 04/09/2009 Proposed references to be provided to applicants during examination: None (As available) Learning Objective: 6902260 Obj. 6 Question Source: Bank # Modified Bank # (Note changes or attach parent) New х Last NRC Exam Question History: (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) **Question Cognitive Level:** Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 10 55.43 Comments:

Question 45

- Unit 3 was at 100% when 3P06 was lost.
- 3A S/G increasing slowly.
- The BOP is reducing feed to the 3A S/G when the following actuate:
 - Annunciator C 2/1, SG A NARROW RANGE HI LEVEL
 - Annunciator C 5/1, SG A STEAM > FEED
 - Bistable status light STM-FW FLOW DEV FC 478 B1
- The reactor is still at 100% power.

In accordance with 3-ONOP-003.6, Loss of 120V Vital Instrument Panel 3P06, how should the crew respond to the above event?

- A The BOP should continue reducing feed flow. A reactor trip will occur if S/G level continues to increase.
- B The BOP should stop reducing feed flow.
 A reactor trip will occur if feed flow is reduced further.
- C The RO should trip the reactor. SI is NOT required. A reactor trip setpoint has been exceeded.
- D The RO should trip the reactor and close the MSIVs. A reactor trip setpoint has been exceeded.



Question 45

K/A 039G2.4.45 Main and Reheat Steam Ability to prioritize and interpret the significance of each annunciator or alarm

Reference: 3-ARP-097.CR p. 153 5610-T-D-17 & 18B 5610-T-L1 sheet 11

Alarm C 5/1 actuates when steam flow greater than feed flow by 500,000 lbs/hr on 1/2 channels. Reactor trip is 1/2 S/G level at 10% AND 1/2 steam flow greater than feed flow by 665000 lb/hr.

Question history: New

Correct answer: C

A Incorrect; it's correct that a reactor trip will occur if S/G level continues to increase, but another reactor trip setpoint has been exceeded. Plausible; reactor trip occurs at 80% S/G level.

B Incorrect; reactor trip setpoint already exceeded. Plausible; need to realize that P06 failure brings in S/G level on each channel.

C Correct; S/G level in due to P06 failure and now have 1/2 FF less than SF.

D Incorrect; MSIV closure not required. Plausible; ONOP-003.6 FOP directs closure of MFIVs.

Cognitive level: 2 Operator needs to assess situation and determine actions to take.



	Writ Questic	ten Examination on Worksheet		Form ES-401-
Question 46				
Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 1 059K3.03 3 5	SRO
Proposed Question:				
See attached				
Proposed Answer:	C			
Explanation (Optional): Lesson 6902111A section 2	3 & p. 43			
Pressure input failure high c The level error signal has ar	auses and incr integral and v	ease in indicated steam vill eventually reduce t	flow. he total error	signal.
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>5610-T-D-17</u> vided) number)	7 04/03/2006		
Droppood references to be	provided to ap	plicants during examination	ation: <u>N</u>	one
Learning Objective:	<u>6902111A C</u>	00]. 6 (As a	available)	
Learning Objective: Question Source:	6902111A C Bank # Modified Ba	nk # (No	ote changes (or attach
Learning Objective: Question Source:	6902111A C Bank # Modified Ba New	nk # (As a parent) 	ote changes (or attach
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Question 46

- Unit 3 is at 100% power.
- The steam pressure input into the 3A S/G level control system fails high.

Which of the following actions will occur?

Initially, feedwater flow to the 3A S/G will...

- A decrease due to lower indicated steam flow. Eventually, the level error signal will reduce the total error signal.
- B decrease due to lower indicated steam flow.
 The level error signal will NOT reduce the total error signal.
- C increase due to higher indicated steam flow. Eventually, the level error signal will reduce the total error signal.
- D increase due to higher indicated steam flow. The level error signal will NOT reduce the total error signal.



	Question W	Examination orksheet		Form ES-401-
Question 47				
Examination Outline Cross-F	Reference: Le Ti G K/ In	evel er # roup # A # nportance Rating	RO <u>2</u> <u>1</u> <u>061K5.02</u> <u>3.2</u>	SRO 3.6
Proposed Question:				
See attached				
Proposed Answer:	_C			
Explanation (Optional): RCS pressure is decreasing n	neans adequate co	oling. S/G pressur	e is greater th	nan RCS
pressure, so 5/0s are a heat s	ouree.			
Technical Reference(s): (Attach if not previously provi	Lesson 6902918 ided)	02/19/8		
Technical Reference(s): (Attach if not previously provi (including version/revision nu Proposed references to be pr Learning Objective:	Lesson 6902918 ided) imber) rovided to applica 6902918 Obj. 6	02/19/8 nts during examina (As a	ation: <u>N</u> a	
Technical Reference(s): (Attach if not previously provi (including version/revision nu Proposed references to be pr Learning Objective: Question Source:	Lesson 6902918 ided) imber) rovided to applica 6902918 Obj. 6 Bank # Modified Bank #	02/19/8 nts during examina (As a <u>1.1.32.18.1.9</u> (No	ation: <u>No</u> available)	one
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Technical Reference(s): (Attach if not previously provi (including version/revision nu Proposed references to be pi Learning Objective: Question Source: Question History: (Optional: Questions validated at the the NRC; failure to provide the infor	Lesson 6902918 ided) imber) rovided to applica 6902918 Obj. 6 Bank # Modified Bank # New Last NRC Exam the facility since 10/95 mation will necessitat	02/19/8 nts during examina (As a <u>1.1.32.18.1.9</u> <u>(No</u> parent) will generally undergo e a detailed review of	ation: <u>No</u> available) Dete changes of less rigorous re every question.)	one
Technical Reference(s): (Attach if not previously provi (including version/revision nu Proposed references to be pr Learning Objective: Question Source: (Optional: Questions validated at the the NRC; failure to provide the infor Question Cognitive Level:	Lesson 6902918 ided) imber) rovided to applica 6902918 Obj. 6 Bank # Modified Bank # New Last NRC Exam he facility since 10/95 mation will necessitat Memory or Funda Comprehension	02/19/8 nts during examina (As a <u>1.1.32.18.1.9</u> <u>(No</u> <u>parent)</u> will generally undergo e a detailed review of amental Knowledg or Analysis	ation: <u>No</u> available) <u>2</u> ote changes o less rigorous re every question.)	one or attach
Technical Reference(s): (Attach if not previously provi (including version/revision nu Proposed references to be pr Learning Objective: Question Source: Question Source: (Optional: Questions validated at th the NRC; failure to provide the infor Question Cognitive Level: 10 CFR Part 55 Content:	Lesson 6902918 ided) imber) rovided to applica 6902918 Obj. 6 Bank # Modified Bank # New Last NRC Exam be facility since 10/95 mation will necessitat Memory or Funda Comprehension of 55.41 _5 55.43	02/19/8 nts during examina (As a <u>1.1.32.18.1.9</u> <u>(No</u> parent) will generally undergo e a detailed review of amental Knowledg or Analysis	ation: <u>No</u> ation: <u>No</u> vailable) te changes c	one or attach

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Item: 1.1.32.18.1.9

59029180109

- The unit has experienced a LOCA.
- RCS pressure is 800 psig and decreasing.
- S/G pressures are 900 psig and steady.

How is core cooling being provided?

Core cooling is being provided by:

- A) the S/Gs and break flow.
 Core cooling is greater than decay heat production.
- B) the S/Gs and break flow.
 Core cooling is less than decay heat production.
- C) break flow. The S/Gs are NOT providing core cooling. Core cooling is greater than decay heat production.
- D) break flow. The S/Gs are NOT providing core cooling. Core cooling is less than decay heat production.
- CORRECT or INCORRECT feedback for item: 1.1.32.18.1.9 6900918 RCS press decreasing means adequate cooling. S/G press > RCS press - > S/Gs are heat source

Item Classification: Analysis Item difficulty: 0.00 .eywords: 009 EK2.03 Item weight: 10 Points required for mastery: 1 Correct alternative(s): C Judging values of alternatives: A=-1 B=-1 C=1 D=-1

Question 47

Unit 4 has experienced a small break LOCA.

- RCS pressure is 800 psig and decreasing
- S/G pressures are 900 psig and steady.

How is core cooling being provided and is core cooling more or less than decay heat production?

Core cooling is currently being provided by...

- A AFW to the S/Gs and break flow. Core cooling is greater than decay heat production.
- B AFW to the S/Gs and break flow.
 Core cooling is less than decay heat production.
- C break flow. AFW to the S/Gs is NOT providing core cooling. Core cooling is greater than decay heat production.
- D break flow. AFW to the S/Gs is NOT providing core cooling. Core cooling is less than decay heat production.



Question 47

K/A 061K5.02 Auxiliary/Emergency Feedwater Knowledge of the operational implications of the following concepts as they apply to the Auxiliary/Emergency Feedwater System: Decay heat sources and magnitude

Reference:

LP 6902918

RCS pressure is decreasing means adequate cooling. S/G pressure is greater than RCS pressure, so S/Gs are a heat source.

Question history: EXAMINER 1.1.32.18.1.9

Correct answer: C

A Incorrect per above discussion. Plausible; for many breaks AFW is needed for cooling.

B Incorrect per above discussion. Plausible; for many breaks AFW is needed for cooling.

C Correct per above discussion ...

D Incorrect per above discussion. Plausible; need to realize with RCS pressure decreasing that core cooling is adequate.

Cognitive level: 3 Need to analyze stem to determine that AFW is not providing cooling and that core cooling is adequate.



E3-401	Question	en examination		Form ES-401
Question 48	Question	THORASHEEL		
Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 1 062K1.02 2.8	SRO
Proposed Question:				
See attached				
Proposed Answer:				
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective:	<u>3-ONOP-004</u> vided) number) provided to app <u>6902263 Obj</u>	.3 note before step 1 (licants during examina 4 (As a	09/26/2005 ation: <u>N</u> available)	
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective: Question Source:	<u>3-ONOP-004</u> vided) number) provided to app <u>6902263 Obj</u> Bank # Modified Ban	.3 note before step 1 (licants during examina 4 (As a k # <u>1.4.25.63.1.1</u> No	09/26/2005 ation: <u>Na</u> vailable)	one
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective: Question Source:	<u>3-ONOP-004</u> vided) number) provided to app <u>6902263 Obj</u> Bank # Modified Ban New	.3 note before step 1 (licants during examina 4 (As a k # <u>1.4.25.63.1.1</u> k # <u>(No</u> parent)	09/26/2005 ation: <u>Ne</u> available)	one
Technical Reference(s): (Attach if not previously pro (including version/revision r Proposed references to be Learning Objective: Question Source: Question History: 'Optional: Questions validated at the NRC; failure to provide the inf	3-ONOP-004 vided) number) provided to app 6902263 Obj Bank # Modified Ban New Last NRC Ex the facility since 10 ormation will neces	.3 note before step 1 (licants during examina 4 (As a k # <u>1.4.25.63.1.1</u> k # <u>(No parent)</u> am 0/95 will generally undergo ssitate a detailed review of	09/26/2005 ation: <u>Na</u> vailable) te changes o	one
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Items in G:\Trng\Apps\WEXAMINE\PTN Exam\PTN Exam.xam

Item: 1.1.25.63.1.1

69022630101;

The unit is at 100% power. All Plant equipment is aligned for normal operations

Which of the following symptoms from 3/4-ONOP-004.4, "Loss of 3/4 C 4KV Bus" indicate a loss of the 3C 4KV bus?

A) "A" Main Feedwater Pump

- B) "C" Reactor Coolant Pump
- C) "B" Condensate Pump
- D) "C" Condensate Pump

Item Classification: Undefined Item difficulty: 0.50 Keywords: NONE Item weight: 10 Points required for mastery: 1 Correct alternative(s): D Judging values of alternatives: A=-1 B=-1 C=-1 D=1 Memo Field: REFERENCE: 3/4-ONOP-004.4, Section 2.0 DL: 200 App. RCO, NLO

Question 48

Initial conditions:

- Unit 3 is at 100% power.
- Unit 4 is in Mode 3 at normal operating temperature and pressure.

Subsequently:

- Unit 4 Startup Transformer lockout relay trips and both Unit 4 EDGs fail to start.
- Power is restored to the 4B 4kV Bus using the Station Blackout (SBO) Tie.
- The Turkey Point switchyard subsequently deenergizes.
- The 3A and 3B EDGs start.

What is the status of the Unit 3 4kV Buses?

	3A 4kV Bus	<u>3B 4kV Bus</u>
A	Deenergized	Deenergized
в	Deenergized	Energized
C	Energized	Deenergized
D	Energized	Energized



Question 48

K/A 062K1.02

AC Distribution System

Knowledge of the physical connections and/or cause-effect relationships between the AC Electrical Distribution System and the following system: ED/G

Reference:

3-ONOP-004.3 note prior to step 1 – "When 3B 4KV Bus is supplying power to Unit 4 and offsite power to 3B 4KV Bus is lost, 3B Emergency Diesel Generator output breaker will NOT close until the Station Blackout Breaker, 3AD07, has been manually opened."

Question history: EXAMINER 1.4.25.63.1.1

Correct answer: C

A Incorrect; 3A Bus will be energized via 3A EDG. Plausible; Use of SBO puts electrical in strange configuration and candidate need to know which bus feeds SBO.

B Incorrect; 3A Bus will be energized via 3A EDG. Plausible; Use of SBO puts electrical in strange configuration and candidate need to know which bus feeds SBO.

C Correct per note in reference. The 3B EDG will not close onto the 3B 4kV Bus.

D Incorrect; 3B Bus will be deenergized. Plausible; bus stripping does not open SBO.

Cognitive level: 2 Need to diagnose for effect of SBO being closed

	Writte Question	en Examination Worksheet		Form ES-401-
Question 49				
Examination Outline Cross	-Reference:	Level Tier # Group # K/A #	RO 2 <u>1</u> 063A4.02	SRO
Proposed Question:		Importance Rating		2.9
See attached				
Proposed Answer:	D			
MCC de-energized/One BC greater than 105 volts indef	to 4D01 will re finitely (in table >	main energized, mean > 24 hours)	ing 4D01 wil	ll remain
4D23: 4A1 BC powered fre de-energized/4D23 will rer Technical Reference(s): (Attach if not previously pro including version/revision Proposed references to be earning Objective:	om 4C MCC de- nain greater than <u>T-E-1592 she</u> ovided) <u>4-EOP-E</u> number) <u>BD-EOF</u> provided to appl 6902348 Obi	energized/4A2 BC por 105 volts for at least ets 1/2 12/22/2008 05 ECA-0.0 caution befor P-ECA-0.0 caution befor icants during examina 6 (As	wered from 3 2 hours 5/03/2006 e step 24 10/ fore step 24 0 ation: <u>No</u>	D MCC 23/2008 14/05/2009 one
4D23: 4A1 BC powered fre de-energized/4D23 will rer Technical Reference(s): (Attach if not previously pro including version/revision Proposed references to be earning Objective: Question Source:	om 4C MCC de-enain greater than <u>T-E-1592 she</u> ovided) <u>4-EOP-E</u> number) <u>BD-EOF</u> provided to appl <u>6902348 Obj.</u> Bank # Modified Bank	energized/4A2 BC por 105 volts for at least ets 1/2 12/22/2008 05 ECA-0.0 caution befor P-ECA-0.0 caution befor licants during examina 6 (As x# (No	wered from 3 2 hours 5/03/2006 e step 24 10/ fore step 24 0 ation: <u>No</u> available) te changes o	D MCC 23/2008 94/05/2009 one
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4D23: 4A1 BC powered fre de-energized/4D23 will rer Fechnical Reference(s): Attach if not previously pro including version/revision Proposed references to be earning Objective: Question Source: Question Source: Question History: Optional: Questions validated a he NRC; failure to provide the in Question Cognitive Level:	om 4C MCC de-enain greater than <u>T-E-1592 she</u> povided) <u>4-EOP-E</u> number) <u>BD-EOF</u> provided to appl <u>6902348 Obj.</u> Bank # Modified Bank New Last NRC Exa t the facility since 10 formation will necess Memory or Fu Comprehension	energized/4A2 BC por 105 volts for at least ets 1/2 12/22/2008 05 ECA-0.0 caution befor P-ECA-0.0 caution befor icants during examina 6 (As (As (As (As (No parent) X am 1/95 will generally undergo sitate a detailed review of indamental Knowledg on or Analysis	wered from 3 2 hours 5/03/2006 e step 24 10/ fore step 24 0 ation: <u>No</u> available) te changes o less rigorous re every question.) e	D MCC 23/2008 14/05/2009 one r attach
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Question 49

- The PTN switchyard deenergized.
- Only the 3B EDG started.
- The Unit 4 crew is performing 4-EOP-ECA-0.0, Loss of All AC Power.
- The Station Blackout Tie will not close.

What is the minimum time before the Unit 4 125 VDC busses will be less than 105 Volts as indicated on DCS?

	4D01	4D23
A	2 hours	2 hours
в	2 hours	greater than 24 hours
С	greater than 24 hours	2 hours
D	greater than 24 hours	greater than 24 hours



Question 49

K/A 063A4.02

DC Electrical Distribution

Ability to manually operate and/or monitor in the control room: Battery voltage indication

Reference:

4-EOP-ECA-0.0 and BD-EOP-ECA-0.0 CAUTION before step 24 states that batteries good for at least 2 hours if non-essential DC loads stripped.

T-E-1592 sheets 1 & 2

Per the stem, the battery chargers (BC) ultimately powered from the 3A, 4A, & 4B EDGs will be deenergized.

4D01:

- 4B2 BC powered from 3D MCC, remains energized
- 4B1 BC powered from 4B MCC de-energized
- One BC to 4D01 will remain energized, meaning 4D01 will remain greater than 105 volts indefinitely (in table > 24 hours)

4D23:

- 4A1 BC powered from 4C MCC de-energized
- 4A2 BC powered from 3D MCC energized
- 4D23 will remain greater than 105 volts for at least 2 hours

Question history: New

Correct answer: D

A Incorrect; 4D01 BC 4B2 will remain energized. Plausible; need to realize that 4B2 will remain energized.

B Incorrect; 4D01 BC 4B2 will remain energized and 4D23 does not have energized BC. Plausible; need to realize that 4B2 will remain energized and 4D23 doesn't have energized BC

C Incorrect; 4D 23 does not have energized BC. Plausible; need to realize 4D23 doesn't have energized BC

D Correct per above discussion

Cognitive level: 2

Need to realize which battery chargers are energized, which DC bus they feed and know how long battery will last if no energized BC.



	Writ Questio	ten Examination on Worksheet	Form ES-401-5
Question 50		Contracting an annual second	
Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO SRO <u>2</u> <u>1</u> <u>065G2.2.42</u>
Proposed Question:			
See attached			
Proposed Answer:	_ <u>C</u>		
placed on operation. Below System Description p. 33 -	85 and the EL an immersion	DG is inoperable. heater maintains the wa	ater in the LO cooler
123-135 P. No upper limit trip if not an emergency star Technical Reference(s): (Attach if not previously pro (including version/revision n Proposed references to be p	rt. <u>4-OP-023 st</u> vided) number) provided to ap	plicants during examina	ation: <u>None</u>
123-135 P. No upper limit trip if not an emergency star Technical Reference(s): (Attach if not previously pro- (including version/revision n Proposed references to be p Learning Objective:	rt. <u>4-OP-023 st</u> vided) number) provided to app <u>6902136 Ob</u>	plicants during examina (As a	ation: <u>None</u>
123-135 P. No upper limit trip if not an emergency star Technical Reference(s): (Attach if not previously pro (including version/revision n Proposed references to be p Learning Objective: Question Source:	rt. <u>4-OP-023 st</u> vided) number) provided to ap <u>6902136 Ob</u> Bank # Modified Ban New	plicants during examina plicants during examina 0. 15 (As a nk # (No parent) X	ation: <u>None</u>
123-135 P. No upper limit trip if not an emergency star Technical Reference(s): (Attach if not previously pro (including version/revision n Proposed references to be p Learning Objective: Question Source: Question History: (Optional: Questions validated at the NRC; failure to provide the info	rt. <u>4-OP-023 st</u> vided) number) provided to app <u>6902136 Ob</u> Bank # Modified Ban New Last NRC Ex- the facility since ormation will nece	plicants during examina plicants during examina <u>j. 15</u> (As a nk # (No parent) X xam 10/95 will generally undergo passitate a detailed review of	ation: <u>None</u> available) Note changes or attach
125-155 P. No upper limit trip if not an emergency star Technical Reference(s): (Attach if not previously pro (including version/revision n Proposed references to be p Learning Objective: Question Source: Question Source: (Optional: Questions validated at the NRC: failure to provide the info Question Cognitive Level:	rt. <u>4-OP-023 st</u> vided) number) provided to apl <u>6902136 Ob</u> Bank # Modified Ban New Last NRC Ex the facility since the facility since Memory or F Comprehens	plicants during examina plicants during examina <u>bi. 15</u> (As a nk # (No parent) X xam 10/95 will generally undergo passitate a detailed review of Fundamental Knowledg sion or Analysis	ation: <u>None</u> None Non
125-155 P. No upper limit trip if not an emergency star Technical Reference(s): (Attach if not previously pro (including version/revision n Proposed references to be p Learning Objective: Question Source: Question Source: Question History: (Optional: Questions validated at the NRC: failure to provide the info Question Cognitive Level: 10 CFR Part 55 Content:	t. <u>4-OP-023 st</u> vided) number) provided to ap <u>6902136 Ob</u> Bank # Modified Ban New Last NRC Ex- the facility since ormation will nece Memory or F Comprehens 55.4110 55.43	ature in the P&LS, but 2 iep 4.33 01/29/2009 plicants during examina b) 15 (As a nk # (No parent) X xam 10/95 will generally undergo essitate a detailed review of Fundamental Knowledg sion or Analysis	230° will give an EDG

6/25/2009

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Question 50

Both units are at 100% power. The ANPO reports the following EDG lube oil temperatures:

- ➢ 4A EDG 160°F
- ➢ 4B EDG 80°F

Which one of the following correctly identifies the operability of the Unit 4 EDGs?

	4A EDG	<u>4B EDG</u>
A	OPERABLE	OPERABLE
в	INOPERABLE	OPERABLE
с	OPERABLE	INOPERABLE
D	INOPERABLE	INOPERABLE

Question 50

K/A 064G2.2.42 Emergency Diesel Generator Ability to recognize system parameters that are entry-level conditions for Technical Specifications

Reference:

4-OP-023 step 4.33

Lube oil between 85 and 100, the EDG can still be considered operable. Limitations are placed on operation. Below 85 and the EDG is inoperable.

System Description p. 33 – an immersion heater maintains the water in the LO cooler 125-155°F. No upper limit on LO temperature in the P&Ls, but 230° will give an EDG trip if not an emergency start.

Question history: New

Correct answer: C

A Incorrect per above. Plausible; 100°F puts limits on EDG and 160°F above normal shutdown operations.

B Incorrect per above. Plausible; 100°F puts limits on EDG and 160°F above normal shutdown operations.

C Correct per above reference.

D Incorrect per above. Plausible; 100°F puts limits on EDG and 160°F above normal shutdown operations.

Cognitive level: 1



	Writter Question	n Examination Worksheet		Form ES-401-5
Question 51 Examination Outline Cross-Re	ference:	Level Tier # Group # K/A # Importance Rating	RO 2 1 064K6.08 3.2	SRO
Proposed Question:				
See attached				
Proposed Answer: _	C			
Explanation (Optional):				
(including version/revision num Proposed references to be pro	vided to applic	cants during examina	ation: <u>Nor</u>	ne
Learning Objective: 6		1.0	undbroj	
Learning Objective: 6 Question Source: E N	Bank # Nodified Bank Iew	# (No parent) X	te changes or	attach
Learning Objective: 6 Question Source: E N Question History: L (Optional: Questions validated at the the NRC; failure to provide the inform	Bank # Modified Bank Iew ast NRC Exar facility since 10/9 ation will necessi	# (No parent) X m 95 will generally undergo tate a detailed review of e	te changes or less rigorous rev every question.)	attach iew by
Learning Objective: 6 Question Source: E N Question History: L (Optional: Questions validated at the the NRC; failure to provide the inform Question Cognitive Level: N C	Bank # Modified Bank Iew ast NRC Exar facility since 10/8 ation will necessi Memory or Fur Comprehension	# (No parent) X m 95 will generally undergo tate a detailed review of a ndamental Knowledg n or Analysis	te changes or less rigorous rev every question.) e <u>X</u>	attach iew by
Learning Objective: 6 Question Source: E M Question History: L (Optional: Questions validated at the the NRC; failure to provide the inform Question Cognitive Level: M C 10 CFR Part 55 Content: 5 5	Bank # Modified Bank lew ast NRC Exar facility since 10/9 ation will necessi Memory or Fur comprehension 5.417 5.43	# (No parent) X 95 will generally undergo tate a detailed review of e ndamental Knowledg n or Analysis	te changes or less rigorous rev every question.) e <u>X</u>	attach iew by

Question 51

- Unit 3 is at 100% power.
- The 3A Emergency Diesel Fuel Oil Transfer Pump is out of service.

Which one of the following statements is correct?

With local actions, the 3A EDG Fuel Oil Day Tank ...

- A can be filled by the 3B Emergency Diesel Fuel Oil Transfer Pump. The 3A EDG is OPERABLE in accordance with Tech Specs.
- B can NOT be filled by the 3B Emergency Diesel Fuel Oil Transfer Pump. The 3A EDG is OPERABLE in accordance with Tech Specs.
- C can be filled by the 3B Emergency Diesel Fuel Oil Transfer Pump. The 3A EDG is **NOT** OPERABLE in accordance with Tech Specs.
- D can NOT be filled by the 3B Emergency Diesel Fuel Oil Transfer Pump. The 3A EDG is **NOT** OPERABLE in accordance with Tech Specs.



Page 101 of 200

Question 51

K/A 064K6.08 Emergency Diesel Generator Knowledge of the effect of a loss or malfunction on the following will have on the Emergency Diesel Generators: Fuel oil storage tanks

Reference: 3-OP-022 section 5.0 T.S. 3.8.1.1.b

Question history: New

Correct answer: C

A Incorrect; the 3A EDG FODT can be filled by the 3B EDG FOTP, but the EDG is not OPERABLE per T.S. Plausible; with FODT capable of being filled, the EDG could be considered OPERABLE.

B Incorrect; the 3A EDG FODT can be filled by the 3B EDG FOTP, but the EDG is not OPERABLE per T.S. Plausible; with FODT capable of being filled, the EDG could be considered OPERABLE.

C Correct; the 3A EDG FODT can be filled by the 3B EDG FOTP and the EDG is not OPERABLE per T.S.

D Incorrect: the 3A EDG FODT can be filled by the 3B EDG FOTP. Plausible; unit separation would prevent this and the EDG is not OPERABLE.

Cognitive level: 1



Question #52				6/25/2009	
ES-401 V Ques		ritten Examination tion Worksheet		Form ES-401-5	
Question 52					
Examination Outline Cross-I	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 <u>1</u> 073K5.01 2.5	SRO 	
Proposed Question:					
See attached					
Proposed Answer:	D				
Explanation (Optional): Visual observation of display Increased iodine and 100/Eb	y ar is increase	d fission fragments.			
Technical Reference(s): (Attach if not previously prov (including version/revision n	Lesson 690 vided) umber)	2168 section 2.3.3.7 03	8/17/08		
Proposed references to be p Learning Objective:	provided to ap 6902168 OI	plicants during examination bj. 7 (As a	ation: <u>N</u> available)	one	
Question Source:	Bank # Modified Ba	nk # (No	ote changes o	or attach	
	New	<u> </u>			
Question History: (Optional: Questions validated at the NRC; failure to provide the info	Last NRC E the facility since ormation will nec	xam 10/95 will generally undergo essitate a detailed review of	less rigorous re every question.	eview by)	
Question Cognitive Level:	Memory or Comprehen	Fundamental Knowledg sion or Analysis	je;	x	
10 CFR Part 55 Content:	55.41 <u>5</u> 55.43 <u></u>	2			
Comments:					

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Question 52

• Chemistry reports an increase in gross equivalent iodine and 100/Ebar activity.

Based on the above report, complete the following.

Process Radiation Monitor PRMS-3-20, Reactor Coolant Letdown Monitor, will display increased _______.

	_(1)	(2)
A	cpm	Crud
в	cpm	Fission products
С	mR/hr	Crud
D	mR/hr	Fission products



Question 52

K/A 073K5.01

Process Radiation Monitoring

Knowledge of the operational implications of the following concepts as they apply to the Process Radiation Monitoring System: Radiation theory, including sources, types, units and effects

Reference: Visual observation of display Increased iodine and 100/Ebar is increased fission fragments.

Question history: New

Correct answer: D

A Incorrect; display in mR/hr and crud hasn't changed. Plausible; several PRMS channels are cpm and need to realize stem indicates fission products.

B Incorrect; display in mR/hr. Plausible; several PRMS channels are cpm.

C Incorrect; crud hasn't changed. Plausible; need to realize stem indicates fission products.

D Correct; display is in mR/hr and fission products have increased.

Cognitive level: 2 Need to determine cause of R-20 increase with fuel failure.



ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 53** Examination Outline Cross-Reference: Level RO SRO Tier # 2 Group # 1 076A2.01 K/A # Importance Rating 3.7 3.5 Proposed Question: See attached Proposed Answer: Explanation (Optional): Technical Reference(s): 3-ARP-097.CR E 2/2 05/08/2009 (Attach if not previously provided) 3-ONOP-019 FOP 09/14/2008 (including version/revision number) Proposed references to be provided to applicants during examination: None Learning Objective: 6902277 Obj. 7 (As available) Question Source: Bank # See comments Modified Bank # (Note changes or attach parent) New **Question History:** Last NRC Exam Class 21 (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) **Question Cognitive Level:** Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 5 55.43 Comments: PTN License exam for class 21 question 77
77. 076A2.012

Unit 3 is at 100% power with the '3C' ICW Pump out of service. Annunciator E-2/2, TURB BEARING HI TEMP, is in alarm.

The SNPO reports a massive grass influx has resulted in ICW/CCW and ICW/TPCW basket strainer clogging.

The following conditions exist:

- Component Cooling Water heat exchanger outlet temperature is currently 118 ^oF and stable.
- Turbine bearing temperatures are 181 ^oF and slowly increasing.
- '3A' and '3B' TPCW heat exchangers are at 4200 gpm ICW flow.
- '3A', '3B, and '3C' CCW heat exchangers are at 3000 gpm ICW flow each.

Which ONE of the following describes the actions that should be taken due to the above conditions?

- A. Trip the reactor and turbine and enter EOP-E-0, Reactor Trip or Safety Injection.
- B. Reduce turbine load as necessary to return temperatures within normal bands and implement ONOP-011, Screen Wash System/Intake Malfunction.
- C. Increase cooling water flow to the turbine lube oil cooler to reduce bearing temperatures and implement ONOP-011, Screen Wash System/Intake Malfunction.
- D. Enter into Technical Specification 3.0.3 and commence a reactor shutdown per GOP-103, Power Operation to Hot Standby.

Question 53

- Unit 3 is at 100% with the 3C ICW Pump out of service.
- A massive grass influx has resulted in ICW/CCW and ICW/TPCW basket strainer clogging.
- The following conditions exist:
 - > CCW Heat Exchanger outlet temperature is currently 118°F and stable.
 - Annunciator E 2/2, TURB BEARING HI TEMP, is in alarm.
 - Turbine bearing temperatures are 181°F and slowly increasing.
 - ➢ 3A and 3B TPCW Heat Exchangers are at 4200 gpm ICW flow.
 - > 3A, 3B, and 3C CCW Heat Exchangers are at 3000 gpm ICW flow each.

Which one of the following describes the actions that should be taken in accordance with 3-ONOP-019, Intake Cooling Water Malfunction, due to the above conditions?

- A Trip the reactor and turbine and enter 3-EOP-E-0, Reactor Trip or Safety Injection.
- B Reduce turbine load as necessary to return temperatures within bands and implement 3-ONOP-011, Screen Wash System/Intake Malfunction.
- C Increase cooling water flow to the turbine oil cooler and implement 3-ONOP-011, Screen Wash System/Intake Malfunction.
 - D Enter into Technical Specifications 3.0.3 and commence a reactor shutdown per 3-ONOP-100, Fast Load Reduction.

Question 53

K/A 076A2.01

Service Water

Ability to (a) predict the impacts of the following malfunctions or operations on the Service Water System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of SWS

Reference: 3-ARP-097.CR E 2/2 3-ONOP-019 FOP trip criteria

Question history: PTN License exam for class 21 question 77

Correct answer: A

A Correct; conditions on the turbine bearing are degrading and Annunciator E 2/2 trip criteria has been met due to bearing temperatures unable to be maintained below 180°F.

B Incorrect; reactor trip is required. Plausible; correct action if temperature problem was with the TPCW and maintainable below 180°F

C Incorrect; reactor trip is required. Plausible; this is the action to reduce the turbine bearing temperature and should be initiated if the temperature were able to be maintained less than the trip criteria.

D Incorrect, reactor trip is required. Plausible; correct for total flow of ICW dropping below minimum flow rate of 12,400 gpm for more than 5 minutes.

Cognitive level: 2 Need to diagnose situation and apply actions in ONOP-019



ES-401	Written	Examination		Form ES-401-5
	Question V	Norksheet		
Question 54				
Examination Outline Cross-Re	eference:	Level Tier # Group # K/A # Importance Rating	RO <u>2</u> <u>1</u> <u>078K2.02</u> <u>3.3</u>	SRO
Proposed Question:				
See attached				
Proposed Answer:	D			
2CM breaker is 24104 2EL			0.00.00	
All of these LCs are de-energi Technical Reference(s): (Attach if not previously provid (including version/revision nur	C. Service air c ized on LOOP. <u>3-OP-013 Att. 4</u> ded) <u>0-NOP-01</u> mber)	compressors are on L 4 03/21/2009 p. 2 of 3.1 Att 2 p. 2 of 2 03	2 3/25/2009	
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All of these LCs are de-energi Technical Reference(s): (Attach if not previously provid (including version/revision nur Proposed references to be pro Learning Objective: Question Source:	C. Service air c ized on LOOP. <u>3-OP-013 Att. 4</u> ded) <u>0-NOP-01</u> mber) ovided to applic <u>6902179 Obj. 4</u> Bank # Modified Bank #	tompressors are on L $\frac{4 \ 03/21/2009 \ p. 2 \ of}{3.1 \ Att 2 \ p. 2 \ of 2 \ 03}$ cants during examination $\frac{1}{6902145 \ Obj. 5} (As)$ $\# \qquad \qquad$	2 3/25/2009 ation: <u>No</u> s available) te changes o	one
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Question 54

- PTN has experienced a dual-unit loss of off-site power.
- The 3B EDG did not start.

What is the availability of the following air compressors?

- A 3CM, Unit 3 Instrument Air Motor Compressor, is available 0CM1, Service Air Compressor, is available
- B 3CM, Unit 3 Instrument Air Motor Compressor, is available 0CM1, Service Air Compressor, is NOT available
- C 3CM, Unit 3 Instrument Air Motor Compressor, is NOT available 0CM1, Service Air Compressor, is available
- D 3CM, Unit 3 Instrument Air Motor Compressor, is NOT available 0CM1, Service Air Compressor, is NOT available

Page 107 of 200

Question 54

K/A 078K2.02 Instrument Air Knowledge of bus power supplies to the following: Emergency air compressor

Reference: 3-OP-013 Attachment 4 p. 2 of 2 - 3CM breaker is 34104 - 3E LC 0-NOP-013.01 Attachment 2 p. 2 of 2 - the service air compressors are on LC 3E & 3G All of these LCs are de-energized on LOOP.

Question history: New

Correct answer: D

A Incorrect; neither is available. Plausible; need to know power supplies and what is energized on LOOP.

B Incorrect; 3CM is not available. Plausible; need to know power supplies and what is energized on LOOP.

C Incorrect; 0CM1/2 are not available. Plausible; need to know power supplies and what is energized on LOOP.

D Correct; neither is available

Cognitive level: 1 Need to compare power supplies to what is energized on LOOP.



Page 108 of 200

Question #55

ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 55** Examination Outline Cross-Reference: Level RO SRO Tier# 2 Group # 1 K/A # 103A1.01 Importance Rating 3.7 4.1 Proposed Question: See attached С Proposed Answer: Explanation (Optional): Minimum pressure is negative 2.0 psig. Maximum temperature is 120°F. Technical Reference(s): T.S. 3.6.1.4/5 (Attach if not previously provided) (including version/revision number) Proposed references to be provided to applicants during examination: None Learning Objective: 6902126 Obj 9.e (As available) Question Source: Bank # 1.1.28.26.1.3 Modified Bank # (Note changes or attach parent) New Last NRC Exam Question History: (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 55.41 <u>5</u> 55.43 <u></u> 10 CFR Part 55 Content: Comments:

6/25/2009



Item: 1.1.28.26.1.3

9025260103;

- Unit 3 is in Mode 1
- Initially, Containment temperature was 127°F
- Containment temperature has been reduced to 118°F
- Containment pressure is now a negative 2.2 psig

Which of the following is required by Tech Specs?

(Disregard the equivalent hours specification for temperature.)

- A) Containment temperature should be reduced. Containment pressure is OK at present value.
- B) Containment pressure should be increased. Containment temperature is OK at present value.
- C) Containment temperature and pressure are OK at present values.
- D) Containment temperature should be reduced. Containment pressure should be increased.

Item Classification: Knowledge Item difficulty: 0.50 Keywords: LOP, 103 A1.01, RCO Audit Exam Item weight: 10 Points required for mastery: 1 orrect alternative(s): B Judging values of alternatives: A=-1 B=1 C=-1 D=-1 Memo Field: Reference: Tech Spec 3.6.1.4/5

SRO-20 Pre-License Audit Exam #2

Question 55

- Unit 3 is in Mode 1.
- Containment temperature is 118°F.
- Containment pressure is a negative 2.2 psig.

Which one of the following is required to meet Technical Specifications LCO?

- A Containment temperature should be reduced. Containment pressure should be increased.
- B Containment temperature should be reduced. Containment pressure is within limits at the present value.
- C Containment temperature is within limits at the present value. Containment pressure should be increased.
- D Containment temperature is within limits at the present value Containment pressure is within limits at the present value.

Question 55

K/A 103A1.01

Containment

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the Containment System controls including: Containment pressure, temperature and humidity

Reference: Tech Specs 3.6.1.4/5 Minimum pressure is negative 2.0 psig. Maximum temperature is 120°F.

Question history: EXAMINER 1.1.28.26.1.3

Correct answer: C

A Incorrect; temperature does not need to be reduced. Plausible; near the limit of 120°F.

B Incorrect; temperature does not need to be reduced and pressure needs to be increased. Plausible; near the limit of 120°F and 2.0 psig.

C Correct per above reference

D Incorrect; pressure needs to be increased. Plausible; near the limit of 2.0 psig.

Cognitive level: 1



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ES-401	Writ Questio	ten Examination n Worksheet		Form ES-401
Question 56				
Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 011K6.06 2.5	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u>B</u>			
Explanation (Optional): HCV-4-121 is normally ful	ly open. The d	emand for fully open is	s 0. To increa	se flow
means demand will be incr pumps and demand is not c changed.	HCV-4-121 m eased above 0. hanged by thro	ust be throttled in the c The charging pumps a ttling HCV-4-121; ther	losed directio re positive dis refore flow is	n. This splacement not
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Question 56

- Unit 4 is at 40% power with Pressurizer level above program.
- The following alarms have actuated:
 > A 6/5 RCP LABYRINTH SEAL LO ΔP
 > C 1/1 CHARCENIC PUMP LO SPEED
 - ➢ G 1/1, CHARGING PUMP LO SPEED

How should HCV-4-121, be adjusted to increase the RCP Labyrinth seal ΔP and how will this effect the charging pump flow rate?

- A Increase HCV-4-121 demand from 0%. Total flow through the charging pump will decrease.
- B Increase HCV-4-121 demand from 0%.
 Total flow through the charging pump will NOT change.
- C Decrease HCV-4-121 demand from 100%. Total flow through the charging pump will decrease.
- D Decrease HCV-4-121 demand from 100%.
 Total flow through the charging pump will NOT change.



Question 56

K/A 011K6.06

Pressurizer Level Control

Knowledge of the effect of a loss or malfunction on the following will have on Pressurizer Level Control: Correlation of demand signal indication on charging pump flow valve controller to the valve position

Reference:

4-ARP-097.CR pp. 55 & 345 5614-M-3047 sheet 2 HCV-4-121 is normally fully open. The demand for fully open is 0. To increase flow through the labyrinth seals, HCV-4-121 must be throttled in the closed direction. This means demand will be increased above 0. The charging pumps are positive displacement pumps and demand is not changed by

throttling HCV-4-121; therefore, flow is not changed.

Question history: New

Correct answer: B

A Incorrect; total flow will not change. Plausible; flow through HCV-4-121 will decrease.

B Correct; need to increase demand from 0% and flow will not change.

C Incorrect; need to increase from 0% and total flow will not change. Plausible; HCV-4-121 is fully open and flow through HCV-4-121 will decrease.

D Incorrect; total flow will not change. Plausible; flow through HCV-4-121 will decrease.

Cognitive level: 2

Need to realize that demand for HCV-4-121 fully open is 0, so must increase demand and that charging pumps are positive displacement and HCV-4-121 changing does not change charging pump demand.

Question #57

6/25/2009

	Writ Questio	ten Examination n Worksheet		Form ES-401-
Question 57 Examination Outline Cross	-Reference:	Level Tier # Group # K/A #	RO 2 2 016G2.4.3	SRO
Proposed Question:		Importance Rating		3.9
See attached				
Proposed Answer:	<u> </u>			
Explanation (Optional):				
Fechnical Reference(s): Attach if not previously pro including version/revision r Proposed references to be earning Objective:	0-ADM-209 wided) number) provided to ap 6902008 Ob	step 4.6 03/11/2009 plicants during examina j 1.e (As a	ation: <u>No</u> available)	
Question Source:	Bank # Modified Bai New	nk # <u>1.1.24.28.2.6</u> parent)	ote changes or	attach
Question History: Optional: Questions validated al he NRC; failure to provide the inf	Last NRC Ex the facility since	xam 10/95 will generally undergo ssitate a detailed review of	less rigorous rev every question.)	view by
Question Cognitive Level:	Memory or F Comprehens	Fundamental Knowledg sion or Analysis	ie <u>X</u>	-
0 CFR Part 55 Content:	55.41 <u>6</u> 55.43 <u></u>	-		

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Item: 1.1.24.28.2.6

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How is Control Room instrumentation identified that may be relied upon in a post-accident situation?

- A) Red vinyl tape
- B) Purple vinyl tape
- C) Red with white letters
- D) Yellow with black letters
- CORRECT or INCORRECT feedback for item: 1.1.24.28.2.6 ADM 209 4.6

Item Classification: Knowledge Item difficulty: 0.00 Keywords: 2.4.3 Item weight: 10 Points required for mastery: 1 Correct alternative(s): B Judging values of alternatives: A=-1 B=1 C=-1 D=-1







Question 57

In accordance with 0-ADM-209, Equipment Tagging and Labeling, how can postaccident instrumentation be identified?

Red	vinyl	tap
Red	vinyl	taj

- B Purple vinyl tape
- C Red placard with white letters
- D Yellow placard with black letters



Question 57

K/A 016G2.4.3 Non-nuclear instrumentation Ability to identify post-accident instrumentation

Reference: 0-ADM 209 step 4.6

Question history: EXAMINER 1.1.24.28.2.6

Correct answer: B

A Incorrect; wrong color. Plausible; vinyl tape

B Correct IAW 0-ADM-209

C Incorrect; not in agreement with ADM-209. Plausible; per ADM-209 Enclosure 3 this is the requirement for permanent danger tags.

D Incorrect; not in agreement with ADM-209. Plausible; per ADM-209 Enclosure 3 this is the requirement for alternate shutdown components.

Cognitive level: 1



Question #58

ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 58** Examination Outline Cross-Reference: Level RO SRO Tier # 2 Group # 2 K/A # 029A2.03 Importance Rating 3.1 2.7 Proposed Question: See attached C Proposed Answer: Explanation (Optional): Technical Reference(s): 3-NOP-053 step 2.1.4 12/19/2008 (Attach if not previously provided) (including version/revision number) Proposed references to be provided to applicants during examination: None Learning Objective: 6902129 Obj. 9.a (As available) Question Source: Bank # 1.1.24.39.3.1 Modified Bank # (Note changes or attach parent) New Last NRC Exam Question History: (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 5 55.43

6/25/2009

Comments:

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Item: 1.1.24.39.3.1

69021390301;

Each of the station batteries is sized to carry its expected shutdown loads following a plant trip and loss of all AC power fc a period of:

A) 1 hour

- B) 2 hours
- C) 4 hours
- D) 8 hours

Item Classification: Knowledge Item difficulty: 0.50 Keywords: LOP, NPO, STA, 063 A1.01, NSO Item weight: 10 Points required for mastery: 1 Correct alternative(s): B Judging values of alternatives: A=-1 B=1 C=-1 D=-1 Memo Field: REFERENCE: SD-144





Question 58

Initial conditions:

- Unit 3 was at 100% power.
- A Containment purge has been initiated in accordance with 3-NOP-053, Containment Purge System.
- The following fans are started:
 - 4V20, Unit 4 Containment Purge Exhaust Fan
 - > 3V9, Unit 3 Containment Purge Supply Fan

Subsequently:

PRMS-R-3-11, Particulate Radiation Monitor, alarms.

In accordance with 3-NOP-053, what is the effect of the R-11 alarm?

- A Both fans will trip. Containment isolation is achieved only if the dampers close.
- B Both fans will trip. Containment isolation is achieved even if the dampers fail to close.
- C Only 3V9 will trip. Containment isolation is achieved by the purge dampers. 4V20 is stopped to prevent damage to the fan.
- D Only 3V9 will trip. 4V20 must be stopped to achieve Containment isolation.

Question 58

K/A 029A2.03

Containment Purge

Ability to (a) predict the impacts of the following malfunctions or operations on the Containment Purge System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Startup operations and the associated required valve lineups

Reference: 3-NOP-053 step 2.1.4

Question history: EXAMINER 1.1.24.39.3.1

Correct answer: C

A Incorrect; only 3V9 will trip. Plausible; expect CVI signal to isolate Containment.

B Incorrect; only 3V9 will trip. Plausible; expect CVI signal to isolate Containment.

C Correct; only 3V9 trips and Containment isolated. 4V20 stopped to protect fan.

D Incorrect; 4V20 stopped to protect fan. Plausible; stopping purge exhaust fan part of CVI.

Cognitive level: 1



Question #59 6/25/2009 ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 59** Examination Outline Cross-Reference: Level RO SRO Tier# 2 Group # 2 K/A # 033A1.01 Importance Rating 3.3 2.7 Proposed Question: See attached Proposed Answer: D Explanation (Optional): Transfer tube gate is closed and off-load just completed so at same level R-14 is not increasing - no assembly failure SFP cooling leak would lower level, increasing ARM level 5610-M-3060 sheet 1 10/16/2008 Technical Reference(s): (Attach if not previously provided)_ (including version/revision number) Proposed references to be provided to applicants during examination: None (As available) Learning Objective: Question Source: Bank # 1.1.25.40.2.4 Modified Bank # (Note changes or attach parent) New Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Memory or Fundamental Knowledge Question Cognitive Level: Comprehension or Analysis 10 CFR Part 55 Content: 55.41 5 55.43 Comments:

Item: 1.1.25.40.2.4

69022400204

- A refueling outage is in progress on Unit 4.
- Core off-load was completed several hours ago and the fuel transfer tube gate is closed.
- ARM -R-1408B (Unit 4 SFP Canal Area) and ARM-R-1422B (Unit 4 SFP South Wall) are indicating increasing
 radiation level trends, higher than expected.
- PRMS-4-14, Plant Vent Gaseous Monitor, shows no change in radiation level.

What is the most likely cause of this condition?

- A) One of the fuel assemblies was damaged during off-load
- B) One of the fuel assemblies is leaking gases from a cladding penetration.
- C) Spent Fuel Pit level is decreasing due to a refueling cavity seal leak
- D) Spent Fuel Pit level is decreasing due to a Spent Fuel Pit Cooling System leak.

CORRECT or INCORRECT feedback for item: 1.1.25.40.2.4 Transfer tube gate closed - no seal leak R-14 not increasing - no assembly failure SFP cooling leak would lower level, increasing ARM levels

Item Classification: Analysis Item difficulty: 0.00 Keywords: 2.3.11 Item weight: 10 oints required for mastery: 1 Correct alternative(s): D Judging values of alternatives: A=-1 B=-1 C=-1 D=1

Question 59

- A refueling outage is in progress on Unit 4.
- · Core off-load has just been completed.
- The fuel transfer tube gate is closed.
- ARM-R-1408B (Unit 4 SFP Canal Area) and ARM-R-1422B (Unit 4 SFP South Wall) are indicating increasing radiation trends, higher than expected.
- PRMS-R-14, Plant Vent Gaseous Monitor, shows no change in radiation level.

What is the most likely cause of this condition?

- A One of the fuel assemblies was damaged during off-load.
- B One of the fuel assemblies is leaking gases from a cladding penetration.
- C Spent Fuel Pit level is decreasing due to leakage by the fuel transfer tube gate.
 - D Spent Fuel Pit level is decreasing due to a Spent Fuel Pit Cooling System leak.

Question 59

K/A 033A1.01

Spent Fuel Pool Cooling

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the Spent Fuel Pool Cooling controls including: Spent fuel pool water level

Reference: 5610-M-3060 sheet 1 Transfer tube gate is closed and off-load just completed so at same level R-14 is not increasing - no assembly failure SFP cooling leak would lower level, increasing ARM level

Question history: EXAMINER 1.1.25.40.2.4

Correct answer: D

A Incorrect per above discussion. Plausible; fuel damage would increase ARMs.

B Incorrect per above discussion. Plausible; fuel damage would increase ARMs.

C Incorrect per above discussion. Seal cavity leak would cause above.

D Correct per above discussion.

Cognitive level: 2 Have to analyze to determine failure. Question #60

6/25/2009

Question 60 Examination Outline Cross-Reference: Level RO SRO Tier # 2	ES-401	Writ Questio	ten Examination on Worksheet		Form ES-401
Proposed Question: See attached Proposed Answer:	Question 60 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 035A4.02 2.7	SRO
See attached Proposed Answer: _A	Proposed Question:				
Proposed Answer:	See attached				
Explanation (Optional): Technical Reference(s): 5613-M-3074 sheets 2 & 3 03/27/2007 & 04/09/2009 (Attach if not previously provided) 5613-M-3075 sheet 2 03/06/2000 (including version/revision number) 0::: SEOP-FR-H.1 caution before step 4 12/12/2008 BD-EOP-FR-H.1 caution before step 4 12/12/2008 Proposed references to be provided to applicants during examination: None (As available) Question Source: Bank # Modified Bank # Learning Objective: (Note changes or attach parent) New X Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis X 10 CFR Part 55 Content: 55.41 7 55.43 7 55.43 Comments: State Sta	Proposed Answer:	A			
Technical Reference(s): 5613-M-3074 sheets 2 & 3 03/27/2007 & 04/09/2009 (Attach if not previously provided) 5613-M-3075 sheet 2 03/06/2000 (including version/revision number) 3-EOP-FR-H.1 caution before step 4 12/12/2008 BD-EOP-FR-H.1 caution before step 4 12/12/2008 BD-EOP-FR-H.1 caution before step 4 12/12/2008 Proposed references to be provided to applicants during examination: None Learning Objective: 6902337 Obj. 4 (As available) Question Source: Bank # (As available) Question History: Last NRC Exam (Note changes or attach parent) New X (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis X 10 CFR Part 55 Content: 55.41 7 55.43	Explanation (Optional):				
Question Source: Bank #	(Attach if not previously pro (including version/revision r	vided) <u>5613-M</u> number) <u>3-EO</u> <u>BD-E</u>	1-3075 sheet 2 03/06/2 P-FR-H.1 caution befor EOP-FR-H.1 caution be	000 re step 4 12 fore step 4	/ <u>12/2008</u> 12/12/2008
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Question 60

- The Unit 3 crew is performing 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink.
- The BOP is preparing to feed the S/Gs using the B Standby Steam Generator Feedpump.
- All wide range S/G levels are less than 3% and steady.
- RCS hot leg temperatures are 580°F and increasing.

How should the BOP control feed flow to the Steam Generators?

The BOP should initially ...

- A use change in Thots. Feed flow indication is not accurate in the range required.
- B use change in Thots.
 Bypass Feed flow is not seen by feed flow transmitters.
- C establish less than 100 gpm flow to each S/G using AFW flow indication. Main Feed flow indication is not accurate in the range required.
- D establish less than 100 gpm flow to each S/G using AFW flow indication. Bypass Feed flow is not seen by the Main Feed flow transmitters.



Question 60

K/A 035A4.02 Steam Generator Ability to manually operate and/or monitor in the control room: Fill of dry S/G

Reference: 5613-M-3074 sheets 2 & 3 5613-M-3075 sheet 2 3-EOP-FR-H.1 CAUTION before step 4 BD-EOP-FR-H.1 CAUTION before step 4

Question history: New

Correct answer: A

A Correct; per CAUTION – low flows not accurate on MFW flow indications and use change in RCS temperatures and S/G level.

B Incorrect; bypass flow seen by MFW flow transmitters. Plausible; need to know flow schematic.

C Incorrect; need to use MFW flow indications. Plausible; normally use AFW flow indications and procedure calls for less than 100 gpm to dry S/G.

D Incorrect; MFW flow indications not accurate at low flow and should use Thot or S/G changes. Plausible; procedure sets limit.

Cognitive level: 2 Need to apply CAUTION

Quest	tion	#61

6/25/2009

	Question	ten Examination n Worksheet		Form ES-401-
Question 61				
Examination Outline Cross	-Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 045K4.44 2.5	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u>D</u>			
IAW PCB, Tavg at 40% po	wer is 557.9°F	F will fast open two va	lves.	
Turbine trip with Tavg great Turbine trip with Tavg great Technical Reference(s):	ater than 561.5° 5610-T-L1 sl	F will fast open four van	alves. 998 & 08/24/	2006
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Item: 1.1.24.18.5.7

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- Unit 3 reactor power is steady at 40%.
- Turbine First Stage Pressure Transmitter PT-3-447 has just failed high.
- The turbine subsequently trips.

How will the steam dumps to condenser operate?

- A) None of the valves will open
- B) All four valves will trip full open
- C) All four valves will modulate open
- D) Two valves will trip full open and two valves will modulate open

CORRECT or INCORRECT feedback for item: 1.1.24.18.5.7

Tavg for 40% power is approx 558F. This fast opens two valves. (4 fast open if Tavg > 561F) Arming signal from turbine trip, not affected by 447 failure

Item Classification: Analysis Item difficulty: 0.00 Keywords: 041 A4.08 Item weight: 10 Points required for mastery: 1 Correct alternative(s): D !udging values of alternatives: A=-1 B=-1 C=-1 D=1

Question 61

- Unit 3 is steady at 40% power.
- Turbine First Stage Pressure Transmitter PT-3-447 has just failed high.
- The turbine subsequently trips.

How will the Steam Dumps to Condenser operate?

- A None of the valves will open.
- B All four valves will trip full open.
- C Two valves will trip full open and two valves will remain shut.
- D Two valves will trip full open and two valves will modulate open.

Question 61

K/A 045K4.44 Main Turbine Generator: Knowledge of Main Turbine Generator design features and/or interlocks which provide for the following: Impulse pressure mode control of steam dumps

Reference: 5610-T-L1 sheets 22A/B Plant Curve Book (PCB) Section IV Figure 5 IAW PCB, Tavg at 40% power is 557.9°F Turbine trip with Tavg greater than 554.5°F will fast open two valves. Turbine trip with Tavg greater than 561.5°F will fast open four valves.

Question history: EXAMINER 1.1.24.18.5.7

Correct answer: D

A Incorrect per reference and discussion. Plausible; 447 failing high prevents 447 arming, but arming is from turbine trip.

B Incorrect; two valves will trip open and two will modulate in open direction. Plausible; four valves will trip open if Tavg greater than 561°F.

C Incorrect; two valves will trip open and two will modulate in open direction. Plausible; error signal is high enough to modulate valves open.

D Correct per above reference and discussion.

Cognitive level: 3 Need to calculate Tave for 40% power, realize turbine trip effect, and determine number of valves that will trip open.



Question #62

6/25/2009

	Questic	tten Examination on Worksheet		Form ES-401-
Question 62 Examination Outline Cross-F	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 055K3.01 2.5	SRO
Proposed Question:				
See attached				
Proposed Answer:	<u>A</u>			
Explanation (Optional):				
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Technical Reference(s): (Attach if not previously prov (including version/revision nu Proposed references to be p Learning Objective:	4-ONOP-01 ided) 4-NOP umber) LP 69 rovided to ap 6902131 Ot	4 Enclosure 1 03/06/20 2-073.01 04/17/2009 902131 pp. 33 & 63 07/ oplicants during examina bj. 10 (As a	008 31/2007 ation: <u>N</u> e available)	one
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Question 62

- Unit 4 was initially at 100% power.
- A leak developed on the steam supply to the Steam Jet Air Ejectors.
- The crew placed the hogging jet in service and isolated the leak.

In accordance with 4-ONOP-014, Main Condenser Loss of Vacuum, how will plant operations be affected by the above incident?

- A The unit can remain at 100% reactor power. Generated megawatts will be less.
- B The unit can remain at 100% reactor power. Generated megawatts will be the same.
- C The crew shall reduce load and stabilize power at a lower value.
- D The crew shall trip the reactor and turbine.

Question 62

K/A 055K3.01 Condenser Air Removal Knowledge of the effects that a loss or malfunction of the Condenser Air Removal System will have on the following: Main Condenser

Reference: 4-ONOP-014 Enclosure 1 4-NOP-073.1 LP 6902131 pp. 33 & 63

Question history: New

Correct answer: A

A Correct; IAW LP 6902131 the hogging jets can maintain 25" vacuum, which is within 4-ONOP-014 Enclosure 1.

B Incorrect; vacuum will be less, so MWe will be less. Plausible; need to realize vacuum will be less and effect.

C Incorrect; within values of Enclosure 1. Plausible; lost SJAEs.

D Incorrect; within values of Enclosure 1. Plausible; lost SJAEs.

Cognitive level: 2

Need to analyze for effect of losing SJAEs and placing hogging jet in service. Then need to compare vacuum can maintain to Enclosure 1

0-0-0				6/25/2009
ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 63				
Examination Outline Cross	-Reference:	Level Tier # Group # K/A #	RO 2 068A3.02	SRO
		Importance Rating	_3.6_	
Proposed Question:				
See attached				
Proposed Answer:	D			
R-014 high seals in. R-018	does not seal i	n. RCV-014 cannot be	re-opened un	til hand
Technical Reference(s):	5613-E-25 s	sheet 88A 08/12/1997		
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>5613-E-25 s</u> ovided) <u>5610-M</u> number)	sheet 88A 08/12/1997 -420-165 03/09/1991		
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Item: 1.1.24.49.6.10

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- A liquid release and a gas release are in progress.
- The power supply breaker to PRMS Rack 3QR66 is opened due to a clearance error and the SM authorizes reclosure
 of the breaker to re-energize the rack.

How will RCV-014 and RCV-018 respond when the RCO resets the Hi Alarm on the respective PRMS drawers? (Assume no actions were taken prior to resetting the alarms)

NOTE: RCV-014 is Gaseous Release Header Isolation Valve RCV-018 is Liquid Release Header Isolation Valve

- A) Both RCV-014 and RCV-018 will reopen
- B) Both RCV-014 and RCV-018 will remain closed
- C) RCV-014 will reopen and RCV-018 will remain closed
- D) RCV-014 will remain closed and RCV-018 will reopen

Item Classification: Comprehension Item difficulty: 0.00 Keywords: RCO, SRO Item weight: 1 Points required for mastery: 1 Correct alternative(s): D Iudging values of alternatives: --1 B=-1 C=-1 D=1

Question 63

- A liquid release and a gas release are in progress.
- The power supply breaker to PRMS Rack 3QR66 is opened due to a clearance error.
- The Shift Manager authorizes reclosure of the breaker to reenergize the rack.

How will RCV-014 and RCV-018 respond when the RO resets the Hi Alarm on the respective PRMS drawers?

NOTE:RCV-014 is Gaseous Release Header Isolation Valve RCV-018 is Liquid Release Header Isolation Valve

	<u>RCV-014</u>	<u>RCV-018</u>
A	Re-opens	Re-opens
в	Remains closed	Remains closed
С	Re-opens	Remains closed
D	Remains closed	Re-opens

Question 63

K/A 068A3.02 Liquid Radwaste Ability to monitor automatic operation the Liquid Radwaste System including: Automatic isolation NOTE: This is a substitute K/A

Reference: 5613-E-25 sheet 88A – R-014 high seals in 5610-M-420-165 – R-018 does not seal in RCV-014 cannot be re-opened until hand loader on WPB set to zero.

Question History: EXAMINER 1.1.24.49.6.10

Correct answer: D

A Incorrect; RCV-014 will not re-open. Plausible; need to know that RCV-014 requires hand loader set to zero.

B Incorrect R-018 will re-open. Plausible; this is the safe mode

C Incorrect this is the reverse of what happens. Plausible; confusing RCV-014 with RCV-018

D Correct per above reference and discussion

Question #64

6/25/2009

E3-401	Writte Question	en Examination Worksheet		Form ES-401-
Question 64 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 2 072K1.04 3.3	SRO
Proposed Question:				
See attached				
Proposed Answer:	A			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously prov (including version/revision n Proposed references to be p Learning Objective:	<u>5610-T-L1 sh</u> vided) <u>3-ONOF</u> umber) provided to appl <u>6902168 Obj</u> .	eet 11 04/09/2009 2-067 Att. 1 09/27/200 licants during examina .7 (As a	7 ation: <u>N</u> ivailable)	one
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Item: 1.1.24.68.6.14

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39021680614;

Which one of the following describes the response of the Control Room Ventilation System to a high radiation alarm on the Control Room Ventilation System Radiation Monitors, RAD-6642 or RAD-6643?

	Air Dampers D-1A & D-1B	Kitchen and Lavatory Fans	Emerg. Recirc. Fan SF-1B	
A)	Close	Stop	Start	
B)	Close	Start	Start	
C)	Open	Stop	Stop	
D)	Open	Start	Stop	

Item Classification: Comprehension Item difficulty: 0.50 Keywords: NLOCT, SNPO Item weight: 10 Points required for mastery: 1 Correct alternative(s): A Judging values of alternatives: A=1 B=-1 C=-1 D=-1 Memo Field: REFERENCE: SD-068 KA: 072000K104 [3.3/3.5] DL: 200

Question 64

In accordance with 3-ONOP-067, Radioactive Effluent Release, which one of the following describes the response of the Control Room Ventilation System to a high radiation alarm on the Control Room Ventilation System Radiation Monitors, RAD-6642 or RAD-6643?

	Kitchen and Lavatory Fans	Emerg. Ventilation Supply Fan
A	Stop	Start
В	Start	Start
С	Stop	Stop
D	Start	Stop

Page 127 of 200

Question 64

K/A 072K1.04 Area Radiation Monitoring Knowledge of the physical connections and/or cause-effect relationships between the Area Radiation Monitoring System and the following system: Control Room Ventilation

Reference: 5610-T-L1 sheet 11 3-ONOP-067 Attachment 1

Question history: EXAMINER 1.1.24.68.6.14 modified

Correct answer: A

A Correct per reference

B Incorrect per reference. Plausible; need to determine which fans start and stop.

C Incorrect per reference. Plausible; need to determine which fans start and stop.

D Incorrect per reference. Plausible; need to determine which fans start and stop.



Question #65

Written Examination ES-401 Form ES-401-5 **Question Worksheet Question 65** Examination Outline Cross-Reference: RO Level SRO Tier # Group # 2 K/A # 075K2.03 Importance Rating 2.7 2.6 Proposed Question: See attached Proposed Answer: C Explanation (Optional): Technical Reference(s): 5610-T-E-1591 sheet 1 7/6/06 (Attach if not previously provided) 5613-T-L1 sheets 12/12A/12B 10/03/96 (including version/revision number)_ Proposed references to be provided to applicants during examination: None Learning Objective: 6902956 Obj. 2 (As available) Question Source: Bank # 1.1.24.54.6.5 Modified Bank # (Note changes or attach parent) New Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 7 55.43

6/25/2009

Comments:

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Item: 1.1.24.54.6.5

39021540605;

- Unit 3 is in Mode 1, 100% power
- 3D 4kV bus aligned to 3B 4kV bus.
- All equipment is operable.
- 3A & 3C ICW pumps are running.
- The unit undergoes a Safety Injection initiation with a loss of voltage on 3B 4KV Bus only.

Which ONE of the following is correct?

- A) 3A and 3C ICW pumps will be stripped. 3A and 3B ICW pumps will receive start signals from the Sequencers.
- B) 3A and 3C ICW pumps will be stripped. 3A and 3C ICW pumps will receive start signals from the Sequencers.
- C) Only 3C ICW pump will be stripped. 3A and 3B ICW pumps will receive start signals from the Sequencers.
- D) Only 3C ICW pump will be stripped. 3A and 3C ICW pumps will receive start signals from the Sequencers.

Item Classification: Comprehension Item difficulty: 0.50 Keywords: LOP, NLOCT, STA, 076 K4.02 Item weight: 10 Points required for mastery: 1 Correct alternative(s): C Judging values of alternatives: A=-1 B=-1 C=1 D=-1 emo Field: REFERENCE: SD-165 and SD-170

Question 65

Initial conditions:

- Unit 3 is at 100% power.
- 3A and 3C ICW Pumps are running.

Subsequently:

 Unit 3 experiences a safety injection actuation with a loss of voltage on the 3B 4kV Bus only.

How will the ICW Pumps be affected?

- A 3A and 3C ICW Pumps will be stripped.
 3A and 3B ICW Pumps will receive start signals from the Sequencers.
- B 3A and 3C ICW Pumps will be stripped.
 3A and 3C ICW Pumps will receive start signals from the Sequencers.
- C Only 3C ICW Pump will be stripped.
 3A and 3B ICW Pumps will receive start signals from the Sequencers.
- D Only 3C ICW Pump will be stripped.
 3A and 3C ICW Pumps will receive start signals from the Sequencers.



Question 65

K/A 075K2.03 Circulating Water Knowledge of the bus power supplies to the following: Emergency/essential SWS pumps

Reference: 5610-T-E-1591 sheet 1 5613-T-L1-12, 12A, 12B

Question history: EXAMINER 1.1.24.54.6.5

Correct answer: C

A Incorrect; stripping signal only goes to bus with loss of voltage. Plausible; need to realize only busses with LOOP receive stripping signal.

B Incorrect; stripping signal only goes to bus with loss of voltage and 3A & 3B Pumps will receive start signals. Plausible; need to realize only busses with LOOP receive stripping signal and start goes to 3A & 3B unless racked out.

C Correct per above references. 3C ICW Pump on bus with low voltage and 3A & 3B will receive start signals.

D Incorrect; 3A and 3B ICW Pumps will receive start signals. Plausible; need to realize start goes to 3A & 3B unless racked out

Question #66 6/25/2009 ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 66** Examination Outline Cross-Reference: RO Level SRO Tier# 3 Group # G2.1.21 K/A # Importance Rating 3.6 3.5 Proposed Question: See attached Proposed Answer: D Explanation (Optional): OTSC check required if more than 24 hours 0-ADM-100 step 5.8.6 04/30/2009 Technical Reference(s): (Attach if not previously provided) (including version/revision number) Proposed references to be provided to applicants during examination: None Learning Objective: 6902010 Obj. 3 (As available) Question Source: Bank # 1.1.23.10.5.3 Modified Bank # (Note changes or attach parent) New Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 10 55.43

Comments:



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Item: 1.1.23.10.5.3

69020100503:

Per 0-ADM-100 Preparation, Revision, Review, Approval and Use of Procedures and Forms, all personel shall verify procedures to be current prior to initial use in any activity affecting quality. If the activity continues for more than ______ hours, the procedure should be verified ______.

A)	12	every 12 hours thereafter.
B)	12	every 24 hours thereafter.
C)	24	every 24 hours thereafter.
D)	24	every 48 hours thereafter.

CORRECT or INCORRECT feedback for item: 1.1.23.10.5.3 ref: 0-ADM-100 step 5.8.6

Item Classification: Undefined Item difficulty: 0.00 Keywords: NSO Item weight: 1 Points required for mastery: 1 Correct alternative(s): C Judging values of alternatives: A=-1 B=-1 C=1 D=-1

Question 66

- The Turbine Operator (TO) is performing valve lineups in accordance with 3-OP-081.1, Feedwater Heaters, Extraction Steam Vents, and Drains Valve Alignment.
- The TO has performed the initial OTSC check for 3-OP-081.1.

Complete the following:

In accordance with 0-ADM-100, Preparation, Revision, Review, Approval and Use of Procedures, if the valve lineup exceeds ______ hours, the TO is required to perform a second OTSC check by use of ______.

	_(1)	(2)
A	8	Document Control Hard Copy Index
в	8	Lotus Notes
C	24	Document Control Hard Copy Index
D	24	Lotus Notes

Question 66

K/A G2.1.21 Ability verify the controlled procedure copy

Reference: 0-ADM-100 5.8.6 OTSC check required if more than 24 hours

Question history: EXAMINER 1.1.23.10.5.3 modified

Correct answer: D

A Incorrect; correct time is 24 hours and use Lotus Notes. Plausible - bargaining unit shift and Document Control should be able to provide this information

B Incorrect; correct time is 24 hours. Plausible - bargaining unit shift

C Incorrect; use Lotus Notes. Plausible – Document Control should be able to provide this information

D Correct; 24 hours and Lotus Notes



Question #67				6/25/2009
ES-401	Writ Questio	Written Examination Question Worksheet		Form ES-401-5
Question 67 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO 3 <u>G2.1.42</u> 2.5	SRO
Proposed Question:				
See attached				
Proposed Answer:	A			
Explanation (Optional): 6/hr accumulative and no m	ore than 8 in a	ny hour.		
Technical Reference(s): (Attach if not previously pro- (including version/revision r	_4-NOP-040 vided) number)	0.02 notes before step 2	20	
Proposed references to be p	provided to ap 6902144 Ob	plicants during examina	ation: <u>N</u>	one
Learning Objective.	000211102	(AS a	ivailable)	
Question Source:	Bank # Modified Bai	nk # <u>1.1.34.44.10</u> parent)	ivailable) <u>.1</u> ote changes o	or attach
Question Source: Question History: (Optional: Questions validated at the NRC; failure to provide the info	Bank # Modified Bai New Last NRC E: the facility since	nk # <u>1.1.34.44.10</u> nk # <u>1.1.34.44.10</u> parent) xam 10/95 will generally undergo	ivailable) . <u>1</u> ote changes o Tess rigorous re every question.	or attach eview by
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Question Source: Question History: (Optional: Questions validated at the NRC; failure to provide the info Question Cognitive Level: 10 CFR Part 55 Content:	Bank # Modified Ba New Last NRC E: the facility since ormation will nece Memory or F Comprehens 55.41 <u>10</u> 55.43 <u></u>	nk # <u>1.1.34.44.10</u> nk # <u>1.1.34.44.10</u> parent) xam 10/95 will generally undergo essitate a detailed review of Fundamental Knowledg sion or Analysis	ivailable) <u>1</u> te changes of <i>less rigorous re</i> <i>every question</i> . te	or attach

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Item: 1.1.34.44.10.1

0021441001;

Operators are performing core off-load on Unit 4.

- It is 0745 and seven assemblies have been off loaded since 0700.
- Spent Fuel Pool (SFP) temperature is 129°F.

May the core offload continue?

- A) No. The procedural limit on the number of assemblies moved in one hour will be violated.
- B) No. The procedural limit of high SFP temperature has been violated.
- C) Yes. But only one more assembly may be sent over before 0800.
- D) Yes. But the SFP temperature must be maintained less than 130°F.

CORRECT or INCORRECT feedback for item: 1.1.34.44.10.1 RCO Group 19 Audit Exam 4-OP-040.2 steps 4.4, 4.5

Item Classification: Application Item difficulty: 0.50 Keywords: 2.2.28 Item weight: 10 Points required for mastery: 1 Correct alternative(s): C Judging values of alternatives: A=-1 B=-1 C=1 D=-1

Question 67

Operators are performing core off-load on Unit 4.

- Core off-load started at 0600.
- Three assemblies were moved between 0600 and 0645.
- No assemblies were moved between 0645 and 0700.
- It is 0745 and seven assemblies have been off-loaded since 0700.

In accordance with 4-NOP-040.02, Refueling Core Shuffle, may the core off-load continue?

- A Yes; one more assembly may be sent over before 0800.
- B Yes; two more assemblies may be sent over before 0800.
- C No; the cumulative average fuel transfer rate will be violated.
- D No; the number of assemblies moved in one hour will be violated.

Question 67

K/A G2.1.42 Knowledge of new and spent fuel movement procedures

Reference: 4-NOP-040.02 NOTES before step 20 - 6/hr accumulative and no more than 8 in any hour.

Question history: EXAMINER 1.1.34.44.10.1 - modified

Correct answer: A

A Correct IAW 4-NOP-040.02.

B Incorrect; only allowed 8 in any hour, so cannot move two. Plausible; this is IAW the 6/hr criteria.

C Incorrect; does not violate the transfer rate. Plausible; moved 10 total for a transfer rate of 5/hr.

D Incorrect; allowed to move 8 in an hour. Plausible; already moved 7.

Cognitive level: 3

Need to compare number moved with number allowed.



Question #68

ES-401 Written Examination Form ES-401-5 **Question Worksheet Question 68** Examination Outline Cross-Reference: RO Level SRO Tier # 3 Group # K/A # G2.2.11 3.3 Importance Rating 2.3 Proposed Question: See attached Proposed Answer: В Explanation (Optional): Step 4.13.5.1 lists lifted leads as requiring TSA. Step 5.1.1 lists the exceptions to TSA. 5.1.1.5 exempts tripping B/S. 5.1.1.4.c exempts hose drains & power cords Technical Reference(s): 0-ADM-503 steps 4.13.5 & 5.1.1 04/27/2009 (Attach if not previously provided) (including version/revision number) Proposed references to be provided to applicants during examination: None Learning Objective: 6902029 Obj. 4 (As available) Question Source: Bank # 1.1.23.29.3.3 Modified Bank # (Note changes or attach parent) New Last NRC Exam Question History: (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 10 55.43 Comments:

6/25/2009



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Item: 1.1.23.29.3.3

9020290303;

Per 0-ADM-503, Control and Use of Temporary System Alterations:

Which ONE of the following conditions requires a Temporary System Alteration (TSA) for configuration control?

A) Hose installed to direct flow from drain lines to a floor drain.

B) Temporary removal of motor heater fuses under an ECO.

- C) Temporary electrical equipment connected to existing receptacles.
- D) Lifting leads on a faulty component to allow continued safe plant operation.

CORRECT or INCORRECT feedback for item: 1.1.23.29.3.3 REFERENCE: ADM-503 4.1

Item Classification: Knowledge Item difficulty: 0.50 Keywords: RCO, 2.2.11 Item weight: 10 Points required for mastery: 1 Correct alternative(s): D Judging values of alternatives: A=-1 B=-1 C=-1 D=1 Memo Field: DL: 300 NAnna 1993 NRC RO exam

Question 68

In accordance with 0-ADM-503, Temporary System Alteration, which one of the following requires a Temporary System Alteration (TSA) for configuration control?

- A Hose installed to direct flow from a drain line to a floor drain
- B Installing temporary ventilation in the 4B MCC Room to maintain its temperature below design limits.
- C A temporary electrical heater plugged into a 120V outlet to maintain the Unit 3 Charging Pump Room above 65°F.
- D Tripping bistables in accordance with 3/4-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels

Question 68

K/A G2.2.11 Knowledge of the process for controlling temporary design changes

Reference: 0-ADM-503 sections 4.13.5, & 5.1.1 Step 5.1.1 lists the exceptions to TSA. 5.1.1.5 exempts tripping B/S 5.1.1.4.c exempts hose drains & power cords

Question history: EXAMINER 1.1.23.29.3.3 modified

Correct answer: B

A Incorrect IAW above reference. Plausible; temporary change to system

B Correct IAW above reference

C Incorrect IAW above reference. Plausible; need to realize use of existing 120V outlets does not require TSA

D Incorrect IAW above reference. Plausible; temporary change to system



Question #69

Written Examination ES-401 Form ES-401-5 **Question Worksheet Question 69** Examination Outline Cross-Reference: RO Level SRO Tier # 3 Group # G2.2.4 K/A # Importance Rating 3.6 3.6 Proposed Question: See attached Proposed Answer: A Explanation (Optional): Technical Reference(s): 3-ONOP-003.8 step 4 & cautions & notes 06/27/2008 (Attach if not previously provided)4-ONOP-003.8 step 4 & notes 06/27/2008 (including version/revision number)3-ONOP-003.9 caution before step 5 04/27/2009 4-ONOP-003.9 caution before step 5 06/27/2008 Proposed references to be provided to applicants during examination: None Learning Objective: 6902111A Obj. 6 (As available) **Question Source:** Bank # Modified Bank # (Note changes or attach parent) New Х Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 55.43 Comments:

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6/25/2009

Question 69

Units 3 and 4 have both simultaneously lost 120V Panel P08.

How will the Feed Regulating Valves (FRVs) respond on each unit?

		Unit 3	Unit 4
А	A S/G	Lock up	Auto
	B S/G	Auto	Auto
	C S/G	Manual	Manual
В	A S/G	Auto	Lock up
	B S/G	Auto	Auto
	C S/G	Manual	Manual
С	A S/G	Auto	Lock up
	B S/G	Lock up	Lock up
	C S/G	Auto	Lock up
D	A S/G	Lock up	Auto
	B S/G	Lock up	Lock up
	C S/G	Lock up	Auto



Question 69

K/A G2.2.4 (multi-unit) Ability to explain the variations in control board layouts, systems, instrumentation and procedural actions between units at a facility.

Reference: 3-ONOP-003.8 CAUTIONS & NOTE before step 4 4-ONOP-003.8 NOTEs before step 4 3-ONOP-003.9 CAUTION before step 5 4-ONOP-003.9 CAUTION before step 5

Question history: New

Correct answer: A

A Correct per above references

B Incorrect per above references. Plausible; this is 3P09 and 4P08.

C Incorrect per above references. Plausible; this is 3P09 and 4P09.

D Incorrect per above references. Plausible; this is 3P08 and 4P09.

Question #70				6/25/2009
ES-401	Writ Questic	tten Examination on Worksheet		Form ES-401-5
Question 70 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO <u>3</u> <u>G2.2.44</u> <u>4.2</u>	SRO
Proposed Question:				
See attached				
Proposed Answer:	D			
Explanation (Optional):				
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>4-NOP-041</u> vided) <u>4-ARP</u> number) <u>5610</u> provided to ap	.04 section 4.2 12/09/20 2-097.CR A 3/1 03/20/20 -T-D-16A 04/29/2009	008 009 ation: N	
Learning Objective:	6902409 Ot	<u>oj. 6.g</u> (As a	vailable)	
Question Source:	Bank # Modified Ba	nk # (No	ote changes	or attach
	New	<u>x</u>		
Question History: (Optional: Questions validated at the NRC; failure to provide the infi	Last NRC E the facility since ormation will nec	xam 10/95 will generally undergo essitate a detailed review of	less rigorous r every question.	eview by)
Question Cognitive Level:	Memory or I	Fundamental Knowledg	e	

Level: Memory or Fundamental Knowledge Comprehension or Analysis

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10 CFR Part 55 Content:

55.41 <u>5</u> 55.43 <u></u>

Comments: Robinson exam June, 2007

Question 70

- A plant cooldown is in progress on Unit 4.
- RCS temperature is 290°F and lowering.
- RCS pressure is 370 psig and lowering.
- Shortly after the OMS switches are placed in LO PRESS OPS the following alarm is received:
 - ➤ A 3/1, OMS LO PRESS OPERATION

Which one of the following is the cause of the above alarm?

- A PORV-4-456 is open
- B RCS pressure is too high to place OMS in service
- C RCS temperature is too high to place OMS in service
- D MOV-4-535, PORV Block Valve, is de-energized

Question 70

K/A G2.2.44

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

Reference: 4-NOP-041.04 section 4.2 4-ARP-097.CR A 3/1 5610-T-D-16A

Question history: Robinson exam June, 2007

Correct answer: D

A Incorrect; PORV open doesn't cause this alarm. Plausible; OMS opens PORV and PORV switch in close position will actuate this alarm

B Incorrect; pressure input to this alarm is less than 360 psig. Plausible; above the 360 psig setpoint.

C Incorrect; temperature not input to this alarm. Procedure requirement for placing OMS in service at 300°F.

D Correct; pressure going below 360# and PORV block breaker not closed will cause this alarm.

Cognitive level: 2 Need to compare conditions to what will actuate alarm.



ES 404	10/-:++	on Examination		Form ES 401
E3-401	Question Worksheet			FOR ES-401-
Question 71				
Examination Outline Cross-Re	eference:	Level Tier # Group # K/A # Importance Rating	RO 3 <u>G2.3.11</u> <u>3.8</u>	SRO
Proposed Question:				
See attached				
Proposed Answer:	С			
Euclose Kar In It				
Explanation (Optional): R-18 is set in Control Room by by Valve 1269	y RO. RCV-	018 is not adjusted for	flow - flow	adjustment
Explanation (Optional): R-18 is set in Control Room b by Valve 1269 Technical Reference(s): (Attach if not previously provid (including version/revision nur	y RO. RCV- 0-OP-061.11 led) <u>5610-M</u> nber)	018 is not adjusted for 04/02/2004 -3061 sheet 4 06/01/2	flow - flow 007	adjustment
Explanation (Optional): R-18 is set in Control Room b by Valve 1269 Technical Reference(s): ((Attach if not previously provid (including version/revision nur Proposed references to be pro Learning Objective: (y RO. RCV- 0-OP-061.11 led) <u>5610-M</u> nber) ovided to app 6902149 Obj	018 is not adjusted for 04/02/2004 -3061 sheet 4 06/01/2 plicants during examina . 10 (As a	flow - flow 007 ation: <u>N</u> wailable)	adjustment
Explanation (Optional): R-18 is set in Control Room b by Valve 1269 Technical Reference(s): ((Attach if not previously provid (including version/revision nur Proposed references to be pro Learning Objective: (Question Source: 1	y RO. RCV- 0-OP-061.11 ded) <u>5610-M</u> mber) ovided to app 6902149 Obj Bank # Modified Ban	018 is not adjusted for 04/02/2004 -3061 sheet 4 06/01/2 blicants during examina . 10 (As a 1.1.24.49.4.1 ik # (No	flow - flow 007 ation: <u>N</u> available)	adjustment
Explanation (Optional): R-18 is set in Control Room b by Valve 1269 Technical Reference(s): ((Attach if not previously provid (including version/revision nur Proposed references to be pro Learning Objective: (Question Source: 1	y RO. RCV- 0-OP-061.11 ded) <u>5610-M</u> mber) ovided to app 6902149 Obj Bank # Modified Ban New	018 is not adjusted for 04/02/2004 -3061 sheet 4 06/01/2 olicants during examina . 10 (As a . 10 (No parent) 	flow - flow	adjustment
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Item: 1.1.24.49.4.1

9021490401

A Waste Monitor Tank is to be released.

Which one of the following correctly states how PRMS-R-18 will be set and how the flow rate will be established?

- A) The SNPO will set the High and Warning values for PRMS-R-18. The SNPO will locally adjust the flow rate using a manual throttle value.
- B) The SNPO will set the High and Warning values for PRMS-R-18. RCV-018, Liquid Waste Discharge Valve, will control the flow rate at a value set by the SNPO.
- C) The RCO will set the High and Warning values for PRMS-R-18. The SNPO will locally adjust the flow rate using a manual throttle value.
- D) The RCO will set the High and Warning values for PRMS-R-18. RCV-018, Liquid Waste Discharge Valve, will control the flow rate at a value set by the SNPO.

CORRECT or INCORRECT feedback for item: 1.1.24.49.4.1 0-op-061.11

Item Classification: Knowledge Item difficulty: 0.00 Keywords: 068 A4.02 Item weight: 10 Points required for mastery: 1 Correct alternative(s): C Judging values of alternatives: A=-1 B=-1 C=1 D=-1

Question 71

A Waste Monitor Tank is to be released.

In accordance with 0-OP-061.11, Waste Disposal System Controlled Radiological Liquid Release, how will PRMS-R-18, Waste Disposal Liquid Effluent Monitor, be set and how will the flow rate be established?

- A The SNPO will locally set the High and Warning values for PRMS-R-18. The SNPO will locally adjust he flow rate using a manual throttle value.
- B The SNPO will locally set the High and Warning values for PRMS-R-18. RCV-018, Liquid Waste Discharge Valve, will control the flow rate at a value set by the SNPO.
- C The RCO will set the High and Warning values for PRMS-R-18. The SNPO will locally adjust the flow rate using a manual throttle valve.
- D The RCO will set the High and Warning values for PRMS-R-18. RCV-018, Liquid Waste Discharge Valve, will control the flow rate at a value set by the SNPO.

Question 71

K/A G2.3.11 Ability to control radiation releases

Reference: 0-OP-061.11 5610-M-3061 sheet 4 R-18 is set in Control Room by RO. RCV-018 is not adjusted for flow - flow adjustment by Valve 1269

Question history: EXAMINER 1.1.24.49.4.1

Correct answer: C

A Incorrect; R-18 set by RO. Plausible; RCV-018 is controlled from WBP

B Incorrect; R-18 set by RO and flow set by manual valve. Plausible; RCV-018 is controlled from WBP and RCV-018 will stop flow.

C Correct; RCO sets R-18 and flow by manual valve

D Incorrect; flow set by manual valve. Plausible; RCV-018 will stop flow



Question #72 6/25/2009 Written Examination ES-401 Form ES-401-5 **Question Worksheet Question 72** Examination Outline Cross-Reference: RO Level SRO Tier # 3 Group # K/A # G2.3.13 Importance Rating 3.8 3.4 Proposed Question: See attached Proposed Answer: А Explanation (Optional): Technical Reference(s): 0-ADM-600 5.1.1.1/5.1.1.2/Att 1 08/21/2008 (Attach if not previously provided) (including version/revision number) Proposed references to be provided to applicants during examination: None Learning Objective: 6902970 Obj. 14 (As available) Bank # Question Source: See comment Modified Bank # (Note changes or attach parent) New Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 12 55.43 Comments: PTN SRO 22 Audit examination question #1

QUESTION 1

Which one of the following would maintain station exposure as low as reasonably achievable and comply with station admin requirements?

- The general area dose rate is 100 mrem/hr.
- A. A qualified worker who has previously performed this task and can complete the job in 20 minutes. This worker has received 800 mrem of exposure this year.
- Β. A qualified worker who has previously performed this task and can complete the job in 30 minutes. This worker has received 500 mrem of exposure this year.
- C. A team of a female worker who is qualified to perform the task and a male worker who needs to qualify to this task. The female is a declared pregnant worker. The team will need 15 minutes to complete the task. The female has no dose and the male worker has 200 mrem for the year.

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A team of a male and female both are qualified to perform the task but will take D. 20 minutes to complete the task. The female is NOT a declared pregnant worker. Each has less than 100 mrem this year.

4. ¹ uirements for turn	ANSWER: A	a TS ie rei
O without a TSA rements for running	ADM-600 5.7.1	चार्फ्स् - ≥क्ष्यूद
the requirement	K/A: 2.3.2 HISTORY: Ed Roberts bank	n TS. Satīs
X. Yake Sec.	2	1. S

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1.1.1



Question 72

- An OSP is to be performed in the Auxiliary Building.
- The general area dose rate is 100 mrem/hr.

In accordance with 0-ADM-600, Radiation Protection Manual, which one of the following will maintain station exposure as low as reasonably achievable and comply with station administrative requirements?

- A A qualified worker who has previously performed this task and can complete the job in 20 minutes. This worker has received 800 mrem of exposure this year.
- B A qualified worker who has previously performed this task and can complete the job in 30 minutes. This worker has received 500 mrem of exposure this year.
- C A team of a male and a female worker, both qualified to perform the task. The female is NOT a declared pregnant worker. The team will need 20 minutes to complete the task. Each worker has less than 100 mrem this year.
- D A team of a female worker who is qualified to perform the task and a male worker who needs to qualify to this task. The female is a declared pregnant worker. The team will need 15 minutes to complete the task. The female has no dose and the male worker has 200 mrem for the year.
Question 72

K/A G2.3.13 Knowledge of radiological safety procedures pertaining to licensed operator duties

Reference: 0-ADM-600 steps 5.1.1.1, 5.1.1.2, and Attachment 1

Question history: PTN SRO 22 Audit examination question #1

Correct answer: A

A Correct; this scenario has least total dose.

B Incorrect; more dose than A. Plausible; worker's accumulated dose is less

C Incorrect; more dose than A. Plausible; worker's accumulated dose is less – common misconception is that worker's accumulated dose counts more than site accumulated dose.

C Incorrect; more dose than A. Plausible; worker's accumulated dose is less – common misconception is that worker's accumulated dose counts more than site accumulated dose.

Cognitive level: 3 Need to apply ALARA and calculate doses



Question #73

Written Examination Form ES-401-5 ES-401 **Question Worksheet Question 73** Examination Outline Cross-Reference: RO Level SRO Tier# 3 Group # G2.4.2 K/A # Importance Rating 4.6 4.5 Proposed Question: See attached Proposed Answer: D Explanation (Optional): 2/4 channels above 108% is RPS trips setpoint Technical Reference(s): 5610-T-L1 sheet 2 10/31/00 (Attach if not previously provided) (including version/revision number) Proposed references to be provided to applicants during examination: None 6902204 Obj. 6 Learning Objective: (As available) Question Source: Bank # Modified Bank # (Note changes or attach parent) New Х Question History: Last NRC Exam (Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.) Question Cognitive Level: Memory or Fundamental Knowledge Comprehension or Analysis 10 CFR Part 55 Content: 55.41 7 55.43 Comments:

6/25/2009

Question 73

- A steam leak has occurred on Unit 4
- The power range nuclear instruments indicate the following:
 - ▶ N-41 109.0%
 - ▶ N-42 107.0%
 - ▶ N-43 108.5%
 - ▶ N-44 106.0%

Which of the following is correct?

- A Reduce turbine load to restore the unit to 100% power.
- B Insert control rods to restore the unit to 100% power.
- C Enter 4-ONOP-100, Fast Load Reduction, and commence load reduction.
- D Trip the reactor and enter 4-EOP-E-0, Reactor Trip or Safety Injection.

Question 73

K/A G2.4.2

Knowledge of system setpoints, interlocks and automatic actions associated with EOP entry conditions

Reference: 5610-T-L1 sheet 2 2/4 channels above 108% is RPS trips setpoint

Question history: New

Correct answer: D

A Incorrect; 2/4 channels above 108%. Plausible; average is less than 108% and would reduce to less than 100%.

B Incorrect; 2/4 channels above 108%. Plausible; average is less than 108% and would reduce to less than 100%.

C Incorrect; 2/4 channels above 108%. Plausible; average is less than 108% and would reduce to less than 100%.

D Correct per above reference

Cognitive level: 1



Question #74				6/25/2009	
ES-401	Written Examination Question Worksheet		Form ES-401-5		
Question 74 Examination Outline Cross-	Reference:	Level Tier # Group # K/A # Importance Rating	RO <u>3</u> <u>G2.4.45</u> <u>4.1</u>	SRO	
Proposed Question:					
See attached					
Proposed Answer:	D				
Explanation (Optional): All alarms would come in o	n N-44 failure				
Technical Reference(s): (Attach if not previously pro (including version/revision r	<u>3-ONOP-05</u> vided) number)	9.8 11/14/2007			
Proposed references to be Learning Objective:	provided to ap 6902253 C	pplicants during examin Dbj. 4 (As a	ation: <u>N</u> available)	one	
Question Source:	Bank # Modified Ba	nk # (No	ote changes o	or attach	
	New				
Question History: (Optional: Questions validated at the NRC; failure to provide the inf	Last NRC E the facility since ormation will nec	xam 10/95 will generally undergo essitate a detailed review of	less rigorous re every question.	eview by)	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or AnalysisX				
10 CFR Part 55 Content:	55.41 <u>10</u> 55.43 <u></u>	<u>)</u>			
Comments:					

Question 74

Unit 3 is operating at 100% power when the following alarms occur:

- ➢ A 9/2, PZR CONTROL HI/LO PRESS
- ➢ B 6/3, POWER RANGE OVERPOWER ROD STOP
- ➢ B 6/4, POWER RANGE CHANNEL DEVIATION
- ➢ C 6/2, SG B LEVEL DEVIATION
- ➢ G 4/3, RCS METAL IMPACT
- ➢ G 5/2, AXIAL FLUX ADMIN LIMIT EXCEEDED

What action should the crew take based on the above alarms?

- A Transfer 1st Stage Pressure Controller to operable channel
- B Place Pressurizer Pressure Controller in MANUAL
- C Place 3B FRV in MANUAL
- D Place rods in MANUAL



Question 74

K/A G2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm

Reference: 3-ONOP-059.8 – all alarms would come in on N-44 failure.

Question history: New

Correct answer: D

A Incorrect; failure not related to PT-446/447. Plausible; could diagnose rod insertion due to 446/447 failure.

B Incorrect; Pressurizer control failure would not bring in other alarms. Plausible; could diagnose Pressurizer control failure.

C Incorrect; not a FRV failure. Plausible; could diagnose FRV failure

D Correct; all alarms would come in on N-44 failure.

Cognitive level: 2 Need to analyze failure and determine what procedure to use.

3.8.1				
ES-401	Written Examination Question Worksheet			Form ES-401-5
Question 75				
Examination Outline Cross-Re	eference:	Level Tier # Group # K/A # Importance Rating	RO <u>3</u> <u>G2.4.6</u> <u>3.7</u>	SRO
Proposed Question:				
See attached				
Proposed Answer:	B			
Explanation (Optional): 3-EOP-E-0 would isolate AFV	V to a fault	ING MI FOR N		
performance of the IOAs and t	he FOP is t	ed S/G off the FOP. Not the first performed optio	n listed.	ring
performance of the IOAs and t Technical Reference(s):	he FOP is 1 3-EOP-E-0 led) nber)	ed S/G off the FOP. Not the first performed optio 04/09/2009	n listed.	ring
performance of the IOAs and t Technical Reference(s): (Attach if not previously provid (including version/revision num	he FOP is 1 <u>3-EOP-E-0</u> led) nber)	ed S/G off the FOP. Not the first performed optio 04/09/2009	n listed.	ring
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Question 75

- The Unit 4 reactor has tripped.
- The 4A S/G is faulted.

When should the BOP initially isolate AFW to the 4A S/G?

- A In 4-EOP-E-0, Reactor Trip or Safety Injection, during performance of the main body of the procedure.
- B In 4-EOP-E-0, Reactor Trip or Safety Injection, when the Fold Out Page is directed.
- C In 4-EOP-E-2, Faulted Steam Generator Isolation, during performance of the main body of the procedure.
- D In 4-EOP-E-2, Faulted Steam Generator Isolation, when the Fold Out Page is directed.



Question 75

K/A G2.4.6 Knowledge of symptom based EOP mitigation strategies

Reference: 3-EOP-E-0 would isolate AFW to a faulted S/G off the FOP. Not isolated during performance of the IOAs and the FOP is the first performed option listed.

Question history: New

Correct answer: B

A Incorrect per above discussion. Plausible; would isolate feed to stop cooldown during performance of two-column part of procedure.

B Correct per above discussion.

C Incorrect per above discussion. Plausible; would isolate feed to stop cooldown during performance of two-column part of procedure.

D Incorrect per above discussion. Plausible; although E-2 doesn't have a FOP, someone without knowledge of the procedure format could assume it does since all of the other major EOPs do.

Cognitive level: 1

