

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

1

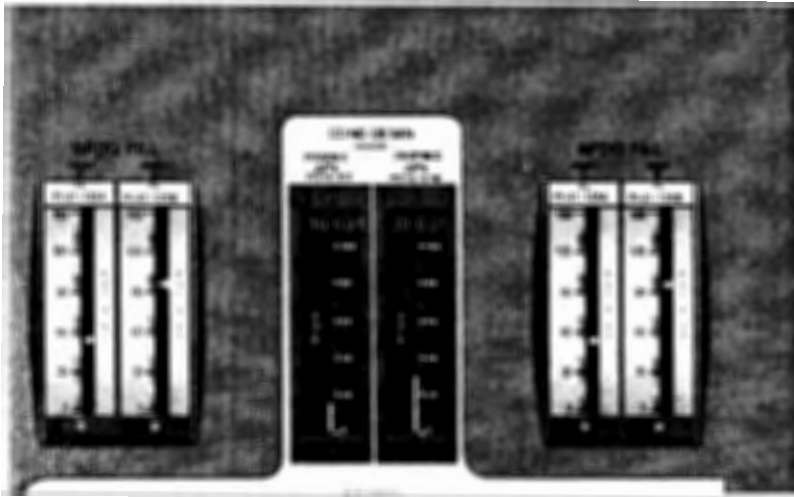
ID: 1151829

Points: 1.00

Unit 1 plant conditions are as follows:

- Reactor level is -60 inches down slow
- Both HPCI and RCIC fail to AUTO start
- Reactor pressure is 955 psig steady
- Drywell Pressure is +16 psig up slow
- All Reactor Feed Pumps are Tripped

Given the following indications:



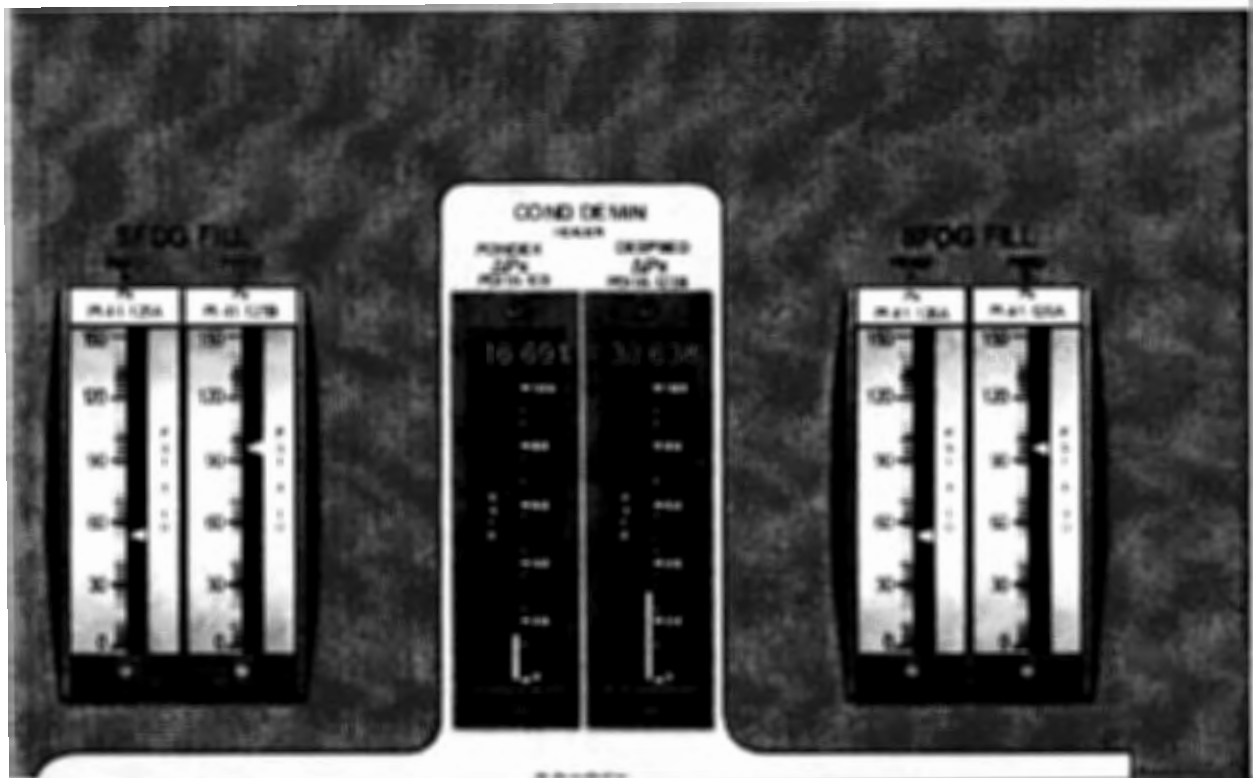
Which one of the following is (1) the cause of the event; and (2) the action required to restore reactor level?

- A. (1) "A" feedwater line break
(2) Initiate HPCI
- B. (1) "B" feedwater line break
(2) Initiate RCIC
- C. (1) "A" feedwater line break
(2) Initiate RCIC
- D. (1) "B" feedwater line break
(2) Initiate HPCI

Answer: C

Answer Explanation

LGS 2016 ILT NRC EXAM SRO



The supplied indication shows reduced pressure in the "A" feedwater line on both Safeguard Fill Pressure Indicators which is indicative of an A feedwater line break. HPCI injects to both core spray and the A feedwater header. RCIC injects to the B feedwater header. This is sometimes confusing since HPCI is B side ECCS logic and RCIC is A logic

C is correct for the reasons stated above

A is incorrect plausible to the Examinee who recognizes that A feed line break is correct but does not recall that HPCI injects to the A feedwater headed

B incorrect plausible to the examinee who mis-diagnoses the safeguard fill meters and associates RCIC with A feedwater header

D incorrect plausible to the examinee who mis-diagnoses the safeguard fill meters

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Question 1 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	3																																																						
Difficulty:	3.00																																																						
System ID:	1151829																																																						
User-Defined ID:	NEW																																																						
Cross Reference Number:	ILT 2016 Q# 1																																																						
Topic:	HPCI FW line break																																																						
RO importance:	3.6																																																						
SRO importance:	3.6																																																						
K/A #:	206000K1.04																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">206000K1.04 3.6/3.6</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">206000 High Pressure Coolant Injection System Knowledge of the physical connections and/or cause effect relationships between HIGH PRESSURE COOLANT INJECTION SYSTEM and the following: K1.04 Reactor feedwater system: BWR-2,3,4</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.3,5,7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>M-0041sh 1</td> <td>Rev #:</td> <td>47</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">New</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/a</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	206000K1.04 3.6/3.6			KA Statement	206000 High Pressure Coolant Injection System Knowledge of the physical connections and/or cause effect relationships between HIGH PRESSURE COOLANT INJECTION SYSTEM and the following: K1.04 Reactor feedwater system: BWR-2,3,4			Cognitive level	higher			10 CFR 55	41.3,5,7			Technical Reference with Revision No:	M-0041sh 1	Rev #:	47	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	New			Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/a		
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	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 1 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.3 Mechanical components and design features of the reactor primary system.

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

2

ID: 1151844

Points: 1.00

Unit 2 is operating at 100% power when the following occurs:

- 'SCRAM SYSTEM LOGIC' white light 'B3' on panel 20C603 extinguishes
- The EO investigating this failure reports that the fuse to the RPS B group 3 Scram solenoid valves has blown
- Prior to fuse replacement, a loss of power to 2A-Y160 A RPS/UPS panel occurs

WHICH ONE of the following correctly identifies the status of the control rods IMMEDIATELY after the loss of 2A-Y160?

- A. Two solenoids have deenergized for one-quarter (1/4) of the control rods, one-quarter (1/4) of the control rods have scrambled into the core.
- B. Only two of the 'SCRAM SYSTEM LOGIC' white lights have extinguished. No rods have scrambled
- C. Two solenoids have deenergized for one eighth (1/8) of the control rods, one-eighth (1/8) of the control rods have scrambled into the core.
- D. Only four the 'SCRAM SYSTEM LOGIC' white lights have extinguished. No rods have scrambled

Answer: A

Answer Explanation

There are 8 'Scram System Logic' white lights on panel 20C603, 4 across the top row and 4 across the bottom row. The top row lights are labeled 'A1', 'A2', 'A3', 'A4'; (DS9A,C,E, &G) similarly, the bottom row lights are labeled 'B1', 'B2', 'B3', 'B4' (DS(B,D,F,&H)). Each light monitors the availability of 120 VAC RPS power to the 'scram pilot valve solenoids' for a Group of control rods. For example: an illuminated 'B3' light means that RPS power is being supplied to the 'B' solenoids for the Group 3 rods (where 'Group 3' has approximately one-quarter of the 185 total control rods). Suppose that we consider (for this question) that the 'B3' light is extinguished...that means that 'B' solenoids (normally energized by RPS Trip System 'B' power) are de-energized for approximately one-quarter of the 185 control rods. Since the 'A' solenoids for those rods are still energized, the associated scram pilot valves have not re-positioned; therefore, the Scram Inlet and Scram Outlet Valves for each HCU remain closed (i.e., no scram occurs) however when a loss of 2A-Y160 occurs all 'A' side solenoids deenergize (A 1/2 scram). Since 'A'3 solenoids are deenergized along with 'B'3 solenoid 1/4 of the rods will initially scram into the core.

'A' is correct **One-quarter (1/4) of the control rods have scrambled into the core.** for the above reasons .

'B' is incorrect. **One solenoid has de-energized for each control rod in a single Group of rods.** both solenoids are deenergized for 1/4 of the rods. Plausible to the examinee who does not recall the logic for RPS fuses

'C' is incorrect. **One-eighth (1/8) of the control rods have scrambled into the core.** Plausible to the examinee who concludes that since one-eighth of the white lights were extinguished, at the start, then one-eighth of the rods are affected.

'D' is incorrect. **Only four the 'SCRAM SYSTEM LOGIC' white lights have extinguished.** all four A side and 1 B side solenoid are deenergized. plausible to examinee who does not recall that loss of 2A-Y160 will deenergize four trip channels

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Question 2 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
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Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	4																																																						
Difficulty:	3.00																																																						
System ID:	1151844																																																						
User-Defined ID:	MODIFIED 906936																																																						
Cross Reference Number:	ILT 2016 Q# 2																																																						
Topic:	One Scram System Logic (white) light extinguishes - Interpret the meaning																																																						
RO importance:	3.4																																																						
SRO importance:	3.3																																																						
K/A #:	262002K1.17																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">262002K1.17 3.4/3.3</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">262002 Uninterruptable Power Supply (A.C./D.C.) Knowledge of the physical connections and/or cause-effect relationships between UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) and the following: K1.17 Scram solenoid valves: Plant-Specific</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.6</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>C71-1020-E-010</td> <td>Rev #:</td> <td>28</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">906936 Bank modified</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	262002K1.17 3.4/3.3			KA Statement	262002 Uninterruptable Power Supply (A.C./D.C.) Knowledge of the physical connections and/or cause-effect relationships between UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) and the following: K1.17 Scram solenoid valves: Plant-Specific			Cognitive level	higher			10 CFR 55	41.6			Technical Reference with Revision No:	C71-1020-E-010	Rev #:	28	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	906936 Bank modified			Low KA Justification (if required):	N/A		
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	ILT	
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	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	
906936		

EXAMINATION ANSWER KEY

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3

ID: 1151846

Points: 1.00

Unit 1 is at operating at 100% power.

Unit 2 is shutdown.

All 4 KV buses are aligned normally.

A "Manual Load Dump" action has been declared by the TSO.

Load Dispatcher reports LGS Switchyard Voltages are as follows:

- 230 KV System - 229KV with 3.7% Post Trip Contingency Voltage Drop
- 500 KV System - 498 KV with 4.1% Post Trip Contingency Voltage Drop

WHICH ONE of the following identifies the status of the Offsite Sources?

	<u>10 BUS SOURCE</u>	<u>20 BUS SOURCE</u>
A.	OPERABLE	OPERABLE
B.	OPERABLE	INOPERABLE
C.	INOPERABLE	OPERABLE
D.	INOPERABLE	INOPERABLE

Answer: B

Answer Explanation

Refer to E-5 Grid Emergency. There are three sections/steps in this procedure that need to be evaluated against the existing 230 KV and 500 KV system voltages given in the stem: Steps 3.13.1, 3.13.2, and 3.13.3. Step 3.13.1 directs operators to declare as INOPERABLE the 10 Bus Source if it drops below 225 KV (given to be 228 KV in the stem; therefore, the 10 Bus Source meets the requirements of this step). Step 3.13.1 directs operators to declare as INOPERABLE the 20 Bus source if it drops below 225 KV or below 498 KV (given to be 228 KV and 498 KV in the stem; therefore, the 20 Bus Source meets the requirements of this step). Step 3.13.2 Table 1 evaluates the 10 Bus Source considering its Post Trip Contingency Voltage Drop (PTCVD). Since the stem conditions state that "all 4 KV buses are normally aligned", we consider the right-most column of Table 1, where it specifies the max allowed PTCVD to be 4.0%. Stem conditions indicate that the PTCVD for the 230 KV system is currently 3.7%; therefore, the 10 Bus Source is still OPERABLE. Step 3.13.3 considers the 20 Bus Source against the limits of Table 2, again using the right-most column, where the max allowed PTCVD is 4.0%. Stem conditions indicate that the PTCVD for the 500 KV system is currently 4.1%; therefore, we conclude that the 20 Bus Source is INOPERABLE.

'B' is correct for the reasons described above.

'A', 'C', 'D' are wrong. for the reasons stated above. Plausible to the examinee who does a less than adequate review of the E-5 criteria.

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Always select on test?	No																																																																										
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Points:	1.00																																																																										
Time to Complete:	4																																																																										
Difficulty:	2.50																																																																										
System ID:	1151846																																																																										
User-Defined ID:	1015086																																																																										
Cross Reference Number:	ILT 2016 Q# 3																																																																										
Topic:	E-5 - Determine Offsite Source Operability																																																																										
RO importance:	3.3																																																																										
SRO importance:	3.6																																																																										
K/A #:	226001K2.01																																																																										
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EXAMINATION ANSWER KEY

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4

ID: 1151856

Points: 1.00

Unit 2 plant conditions are as follows:

- Feeder breaker to 20Y102 from D224-R-G-23 Trips and cannot be reset
- A loss of offsite power occurs
- D21 D/G fails to start
- Reactor Power is 9%
- Reactor Pressure is 1160 psig

WHICH ONE of the following describes the status of Unit 2 SLC System 5 minutes later?

	<u>SLC Pumps</u>	<u>SLC Squib Valves</u>
A.	No SLC Pumps running	No SLC Squib valves fired
B.	Only "B" SLC pump running	Only "B" Squib valve fired
C.	Only "B" SLC Pump running	No SLC Squib valves fired
D.	"B", and "C" SLC pump running	"B", and "C" Squib valves fired

Answer: C

Answer Explanation

With high RPV pressure and the RPV not shutdown RRCS would have initiated the SLC system.

A SLC pump D214: A squib vlv 20Y101

B SLC pump D224: B squib vlv 20Y102

C SLC pump D234: C squib vlv 20Y103

Control power must be available to the pump for the squib vlv to fire.

The stem gives that 20Y102 is de-energized. The B Squib valve is powered from 20-Y102 Ckt 34 so the squib valve will not fire.

The A SLC Pump will not start because D21 BUS is de-energized.

The C SLC Pump will not start and its squib valve will not fire because it's normal alignment has the pump handswitch in STOP.

For the above reasons, C is correct.

"A" if wrong but plausible if the candidate mistakenly determines that 2B SLC pump will not start due to a loss of 20Y102

"B" is wrong but plausible if the candidate mistakenly determines that SQUIB valve will fire

"D" is wrong but plausible if the candidate mistakenly determines that the C CLS pump will start and the B SQUIB valve will fire.

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Question 4 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
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System ID:	1151856																																																																										
User-Defined ID:	560737																																																																										
Cross Reference Number:	ILT 2016 Q# 4																																																																										
Topic:	Describe the status of SLC with a LOOP and loss of D21 and 20Y102																																																																										
RO importance:	3.1																																																																										
SRO importance:	3.2																																																																										
K/A #:	211000 K2.02																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">211000K2.02 3.1/3.2</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Standby Liquid Control System Knowledge of electrical power supplies to the following: K2.02 Explosive valves</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">high</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>LLOT0048 C41-1040-E-002</td> <td>Rev #:</td> <td>029</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">560737 Bank</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">none</td> </tr> <tr> <td colspan="4">EORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	211000K2.02 3.1/3.2			KA Statement	Standby Liquid Control System Knowledge of electrical power supplies to the following: K2.02 Explosive valves			Cognitive level	high			10 CFR 55	41.7			Technical Reference with Revision No:	LLOT0048 C41-1040-E-002	Rev #:	029	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	560737 Bank			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	none			EORT				PRA: (i.e. Yes or No or #)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A- Systems or B- Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

5

ID: 1151869

Points: 1.00

Unit 2 plant conditions are as follows:

- A LOCA is in progress
- Reactor level -116 inches and lowering
- Drywell pressure is 15 psig and rising
- All RHR pumps are running
- Auto ADS has NOT been inhibited
- RPV level lowers to -135 inches

LIS-42-2N695A has failed to actuate on low level, all other level switches function as designed.

Refer to the information on the following page.

WHICH ONE of the following describes the ability of Division I and Division III ADS to actuate in the Manual and Automatic modes based on the above conditions?

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

TABLE I: WATER LEVEL INSTRUMENT UTILIZATION

TRANSMITTER NUMBER	DIV	POWER SUPPLY	TRIP	FUNCTION	LEVEL TRIP POINT
LT-2N080A	1A	K613A & E	LIS-2N680A	RPS/NS4	3
LT-2N080B	1B	K613B & F	LIS-2N680B	RPS/NS4	3
LT-2N080C	11A	K613A & E	LIS-2N680C	RPS/NS4	3
LT-2N080D	11B	K613B & F	LIS-2N680D	RPS/NS4	3
LT-2N081A	1A	K613A & E	LIS-2N681A	NS4	2
			LS-2N684A		1
LT-2N081B	1B	K613B & F	LIS-2N681B	NS4	2
			LS-2N684B		1
LT-2N081C	11A	K613A & E	LIS-2N681C	NS4	2
			LS-2N684C		1
LT-2N081D	11B	K613B & F	LIS-2N681D	NS4	2
			LS-2N684D		1
LT-2N085A	1	E11-K603A	—	FUEL ZONE INDICATION	—
LT-2N085B	2	E11-K603B	—	FUEL ZONE INDICATION	—
LT-2N091A	1	E21-K602A & E	LIS-2N691A	CS(A)/RHR(A)/ADS(A)	1
			LS-2N692A	RCIC	2
			LS-2N693A	RCIC	8
LT-2N091B,F	2	E21-K602B & F	LIS-2N691B,F	CS(B)/RHR(B)	1
			LS-2N692B,F	HPCI	2
			LS-2N693B,F	HPCI	8
LT-2N091C,G	3	E21-K602C & G	LIS-2N691C,G	CS(C)/RHR(C)/ADS(C)	1
LT-2N091D,H	4	E21-K602D & H	LIS-2N691D,H	CS(D)/RHR(D)	1
			LS-2N692D,H	HPCI	2
			LS-2N693D,H	HPCI	8
LT-2N091E	1	E21-K602A & E	LIS-2N691E	CS(A)/RHR(A)/ADS(A)	1
			LS-2N692E	RCIC	2
			LS-2N693E	RCIC	8
LT-2N095A	1	E21-K602A & E	LIS-2N695A	ADS (A)	3
LT-2N095C	3	E21-K602C & G	LIS-2N695C	ADS (C)	3
LT-2N097A	1	E21-K602A & E	LIS-2N697A	RCIC	2
			LS-2N698A	RCIC	8
LT-2N097E	1	E21-K602A & E	LIS-2N697E	RCIC	2
			LS-2N698E	RCIC	8
LT-2N027	NS	K603	—	SHUTDOWN LEVEL	—
LT-2N402A	1A	—	RRCS CABINET	RRCS	2
LT-2N402B	2A	—	RRCS CABINET	RRCS	2
LT-2N402E	1B	—	RRCS CABINET	RRCS	2
LT-2N402F	2B	—	RRCS CABINET	RRCS	2
LT-215A	1	K602A & E	—	WIDE RANGE INDICATION	—
LT-215B	2	K601	—	WIDE RANGE INDICATION	—
LT-216	NS	K603	—	REFUELING INDICATION	—
LT-217	NS	E/S-006-250-5 E/S-006-250-6	—	REFUELING INDICATION	—

Division I ADS

- A. Both Auto and Manual
- B. Manual Only
- C. Both Auto and Manual
- D. Manual Only

Division III ADS

- Both Auto and Manual
- Both Auto and Manual
- Manual Only
- Manual Only

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Answer: B

Answer Explanation

A review of level inst. table from P&ID M-0042 shows that LIS-42-2N095A only supplies ADS A level 3 trip (12.5 inch) reactor level confirmatory signal.

- A Incorrect plausible to the examinee who cannot use the level instrument table or does not understand how the loss of the 12.5 inch confirmatory level signal affects ADS.
- B Correct with the loss of A channel level 3 trip (12.5 inch) reactor level confirmatory signal Div I ADS will only work in manual.
- C Incorrect plausible to the examinee who incorrectly interprets the level instrument table such that the failed level switch affects DIV III ADS.
- D Incorrect Plausible to the examinee who incorrectly interprets the level instrument table or does not recall separate level switches for the confirmatory low level.

Question 5 Info																																											
Question Type:	Multiple Choice																																										
Status:	Active																																										
Always select on test?	No																																										
Authorized for practice?	No																																										
Points:	1.00																																										
Time to Complete:	3																																										
Difficulty:	2.50																																										
System ID:	1151869																																										
User-Defined ID:	561490																																										
Cross Reference Number:	ILT 2016 Q# 5																																										
Topic:	A LOCA is in progress - Reactor level -116 inches and lowering - Drywell																																										
RO importance:	4.5																																										
SRO importance:	4.6																																										
K/A #:	218000K3.02																																										
Comments:	<table><tr><th colspan="4">General Data</th></tr><tr><td>Level</td><td colspan="3">RO</td></tr><tr><td>Tier</td><td colspan="3">2</td></tr><tr><td>Group</td><td colspan="3">1</td></tr><tr><td>KA # and Rating</td><td colspan="3">218000 K3.02 4.5/4.6</td></tr><tr><td>KA Statement</td><td colspan="3">Automatic Depressurization System Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on following: K3.02 Ability to rapidly depressurize the reactor</td></tr><tr><td>Cognitive level</td><td colspan="3">higher</td></tr><tr><td>10 CFR 55</td><td colspan="3">41.7</td></tr><tr><td>Technical Reference with Revision No:</td><td>P&ID M-0042 sheet 2</td><td>Rev #:</td><td>34</td></tr><tr><td>Justification for Non SRO CFR Link:</td><td colspan="3">N/A</td></tr></table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	218000 K3.02 4.5/4.6			KA Statement	Automatic Depressurization System Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on following: K3.02 Ability to rapidly depressurize the reactor			Cognitive level	higher			10 CFR 55	41.7			Technical Reference with Revision No:	P&ID M-0042 sheet 2	Rev #:	34	Justification for Non SRO CFR Link:	N/A		
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Justification for Non SRO CFR Link:	N/A																																										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Question History: (i.e. LGS NRC-05, OYS CERT-04)	02 NRC
	Question Source: (i.e. New, Bank, Modified)	561490 bank
	Low KA Justification (if required):	N/A
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
PRA: (i.e. Yes or No or #)		
LORT Question Section: (i.e. A-Systems or B-Procedures)		
Comments		

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

6

ID: 1151872

Points: 1.00

Unit 1 plant conditions are as follows:

- OPCON 5
- RPS shorting links are removed due to an inadequate Shutdown Margin

During the execution of the Shutdown Margin test, the "1A" SRM Fails upscale

WHICH ONE of the following identifies the expected automatic plant response, if any?

- A. Rod block and full scram
- B. Rod block and half scram
- C. Rod block ONLY
- D. No automatic actions occur

Answer: A

Answer Explanation

- A Correct with shorting links removed 2x 10e5 upscale trip will cause a full scram non-coincident
- B Incorrect plausible to the examinee who believes the inop/trip alarm associated with this condition will cause a trip but does not recognize the implication of the shorting links removed
- C Incorrect plausible to the examinee who believes the inop/trip alarm associated with this condition will cause a trip
- D Incorrect plausible to the examinee who recalls the SRM mode switch position does not cause a scram but does not recall the rod block logic

Question 6 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	3										
Difficulty:	3.00										
System ID:	1151872										
User-Defined ID:	557022 MODIFIED										
Cross Reference Number:	ILT 2016 Q# 6										
Topic:	OPCON 5 - RPS shorting links are removed due to an inadequate Shutdown Margin During the execution										
RO importance:	3.7										
SRO importance:	3.7										
K/A #:	215004K3.04										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>2</td></tr><tr><td>Group</td><td>1</td></tr><tr><td>KA # and Rating</td><td>215004K3.04 3.7/3.7</td></tr></table>	General Data		Level	RO	Tier	2	Group	1	KA # and Rating	215004K3.04 3.7/3.7
General Data											
Level	RO										
Tier	2										
Group	1										
KA # and Rating	215004K3.04 3.7/3.7										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement	Source Range Monitor (SRM) System Knowledge of the effect that a loss or malfunction of the SOURCE RANGE MONITOR (SRM) SYSTEM will have on following: K3.04 Reactor power and indication		
	Cognitive level	low		
	10 CFR 55	41.7		
	Technical Reference with Revision No:	C51-1070-E sheets 2,3,10	Rev #:	
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)	557022 bank modified		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
Supplied Ref (If appropriate): (i.e. ABN-##)	None			
LORT				
PRA: (i.e. Yes or No or #)				
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

7

ID: 1151874

Points: 1.00

Unit 2 has just experienced a trip of the "2B" Condensate Pump from 100% power

Plant conditions are as follows:

- The "A" Recirculation Pump inadvertently ran back to 28% speed
- The "B" Recirculation Pump ran back to 42% speed
- Simulated Thermal Power is 66%
- Core Flow is 48 Mlbm/hr
- Recirc Drive Flow is 32,000 gpm

The OPRM ODA's (Operator Display Assembly) are displaying the following information for the Period Based Detection Algorithm:

	<u>Amplitude</u>	<u>Counts</u>
OPRM 1	1.10	11
OPRM 2	1.11	13
OPRM 3	1.13	15
OPRM 4	1.11	14

WHICH ONE of the following describes the OPRM response?

- A. OPRM Pre-Trip Alarm ONLY
- B. OPRM Upscale Trip Alarm ONLY
- C. Both OPRM Pre-Trip AND OPRM Upscale Trip Alarms
- D. Both OPRM Upscale Trip AND Neutron Monitoring System Trip Alarms

Answer: C

Answer Explanation

The stem provides recirc drive flow of 32,000 gpm. Given that full drive flow is 88,000 gpm, this is a drive flow in percent of $32,000 / 88,000 = 36\%$

The stem also provides that simulated Thermal Power is 66%.

Given these two items the student should determine that power is greater than or equal to 29.5% and flow is less than 60% so OPRM trips are enabled.

OPRM #3 will provide OPRM Upscale Trip alarm due to being above 1.12 amplitude and have 14 or more counts.

OPRM will provide a Vote to the 2 out of 4 voters.

Both OPRM 3 and 4 will provide the OPRM Pre-Trip alarm due to having 14 or more counts.

The Neutron Monitoring System Trip Alarm will not actuate due to only 1 Vote to the 2 out of 4 voters.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

For the above reasons C is correct.

"A" is plausible if the student does not determine the correct amplitude of OPRM #3 being greater than 1.12

"B" is plausible if the student does not determine that a Pre-Trip alarm will be received in addition to the Upscale Alarm

"D" is plausible if the student does not determine that an additional OPRM Upscale is required for a full Reactor Scram.

Question 7 Info																							
Question Type:	Multiple Choice																						
Status:	Active																						
Always select on test?	No																						
Authorized for practice?	No																						
Points:	1.00																						
Time to Complete:	3																						
Difficulty:	4.00																						
System ID:	1151874																						
User-Defined ID:	561905																						
Cross Reference Number:	ILT 2016 Q# 7																						
Topic:	OPRM response pp trip																						
RO importance:	4.10																						
SRO importance:	4.20																						
K/A #:	215005.K4.02																						
Comments:	<table border="1"> <thead> <tr> <th colspan="2">General Data</th></tr> </thead> <tbody> <tr> <td>Level</td><td>RO</td></tr> <tr> <td>Tier</td><td>2</td></tr> <tr> <td>Group</td><td>1</td></tr> <tr> <td>KA # and Rating</td><td>215005 4.1/4.2</td></tr> <tr> <td>KA Statement</td><td>K4.02 - Knowledge of AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM design feature(s) and/or interlocks which provide for the following: Reactor SCRAM signals</td></tr> <tr> <td>Cognitive level</td><td>higher</td></tr> <tr> <td>10 CFR 55</td><td>41.7</td></tr> <tr> <td>Technical Reference with Revision No:</td><td>OT-104 ARC-MCR-108 A2</td></tr> <tr> <td>Justification for Non SRO CFR Link:</td><td>N/A</td></tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td>Bank</td></tr> </tbody> </table>	General Data		Level	RO	Tier	2	Group	1	KA # and Rating	215005 4.1/4.2	KA Statement	K4.02 - Knowledge of AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM design feature(s) and/or interlocks which provide for the following: Reactor SCRAM signals	Cognitive level	higher	10 CFR 55	41.7	Technical Reference with Revision No:	OT-104 ARC-MCR-108 A2	Justification for Non SRO CFR Link:	N/A	Question History: (i.e. LGS NRC-05, OYS CERT-04)	Bank
General Data																							
Level	RO																						
Tier	2																						
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KA # and Rating	215005 4.1/4.2																						
KA Statement	K4.02 - Knowledge of AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM design feature(s) and/or interlocks which provide for the following: Reactor SCRAM signals																						
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Technical Reference with Revision No:	OT-104 ARC-MCR-108 A2																						
Justification for Non SRO CFR Link:	N/A																						
Question History: (i.e. LGS NRC-05, OYS CERT-04)	Bank																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Question Source: (i.e. New, Bank, Modified)	561905 Bank
	Low KA Justification (if required):	N/A
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	OTM review CBG 04/21/10 Line review FMC 04/22/10 Line review MAA 04/28/10
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

8

ID: 1153608

Points: 1.00

Unit 1 is at 40% with Reactor Feed Pumps status as follows:

- A feedwater level control malfunction causes the 1B Reactor Feed Pump to swap to manual
- 1A – injecting at 2.7 Mlbm/hr in AUTO
- 1B – injecting at 2.7 Mlbm/hr in MANUAL
- 1C – tripped

Unit 1 experiences a 20 psi rise in Reactor Pressure

WHICH ONE of the following identifies the new steady state condition of Feedwater injection?

- A. 1A – Discharge flow rate >2.7 Mlbm/hr
1B – Discharge flow rate <2.7 Mlbm/hr
- B. 1A – Discharge flow rate <2.7 Mlbm/hr
1B – Discharge flow rate >2.7 Mlbm/hr
- C. 1A – Discharge flow rate is 2.7 Mlbm/hr
1B – Discharge flow rate is 2.7 Mlbm/hr
- D. 1A – Discharge flow rate <2.7 Mlbm/hr
1B – Discharge flow rate <2.7 Mlbm/hr

Answer: A

Answer Explanation

With a RPV pressure rise, the 1A RFP will inject to maintain level. Based on the given conditions, the discharge pressure of the 1B RFP will be unchanged, due to being in manual. With a higher RPV pressure and a constant discharge pressure, the 1B RFP will inject less than the 2.7 Mlbm/hr it was injecting. Based on the lower injection of the 1B, the 1A RFP will inject more to maintain RPV Level.

B is plausible if the candidate incorrectly believes that raising RPV pressure would have the opposite effect as described above.

C is plausible if the candidate believes that Manual RFP operation means constant flow rather than constant speed

D is plausible if the candidate believes that the RPV pressure rise would ultimately result in a Scram on low RPV level.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 8 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	3																																																						
Difficulty:	2.00																																																						
System ID:	1153608																																																						
User-Defined ID:	NEW																																																						
Cross Reference Number:	ILT 2016 Q# 8																																																						
Topic:	Simultaneous operation of reactor water level control in manual and Auto																																																						
RO importance:	3.1																																																						
SRO importance:	3.0																																																						
K/A #:	259002 K4.17																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">259002 K4.17</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> 259002 Reactor Water Level Control System Knowledge of the effect that a loss or malfunction of the REACTOR WATER LEVEL CONTROL SYSTEM will have on following: Simultaneous Manual and Auto operation of the system (i.e. 1 FP in Auto, 1 FP in Manual) </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">High</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>S06.0.E U/1</td> <td>Rev #:</td> <td>11</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	259002 K4.17			KA Statement	259002 Reactor Water Level Control System Knowledge of the effect that a loss or malfunction of the REACTOR WATER LEVEL CONTROL SYSTEM will have on following: Simultaneous Manual and Auto operation of the system (i.e. 1 FP in Auto, 1 FP in Manual)			Cognitive level	High			10 CFR 55	41.7			Technical Reference with Revision No:	S06.0.E U/1	Rev #:	11	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A		
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A- Systems or B- Procedures)	
	Comments	

Question 8 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

LIMERICK LO Question Category

ILT
NRC
RO
HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

9

ID: 1153701

Points: 1.00

Unit 1 Plant conditions are as follows

A large break LOCA is in progress

T=0

- Reactor pressure is 150 psig
- 1B core spray loop is injecting a 6000 gpm

T=10 Minutes

- Reactor pressure is 15 psig
- 1B Core Spray loop flow is oscillating between 600 and 5500 GPM
- 1B and 1D Core Spray pump amps are swinging between 30 amps and 80 amps

Which one of the following describes (1) the cause of these conditions and (2) the actions that will restore Core Spray operation to normal?

- A. (1) Min flow valve malfunction causing it to repeatedly open and close
(2) Lower system Flow
- B. (1) Cavitation
(2) Lower system flow
- C. (1) Min flow valve malfunction causing it to repeatedly open and close
(2) Raise system Flow
- D. (1) Cavitation
(2) Raise system flow

Answer: B

Answer Explanation

Erratic flow is one consequence of cavitation. The opening (<775 gpm) and closing (>775 gpm after 3 second time delay) setpoints of HV-052-2F031A. Flow is dropping below this value so min flow valve will cycle

The 'A' distractor is plausible if does not recognize that the min flow valve will not pass the 5000 GPM of flow that is lost.

The 'C' distractor is plausible if the applicant does not recognize that the min flow valve will not pass the 5000 GPM of flow and assumes that raising flow will clear the faulty low flow signal.

The "D" distractor is plausible if the applicant confuses cavitation with shutoff head.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 9 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	3																																																																										
Difficulty:	3.00																																																																										
System ID:	1153701																																																																										
User-Defined ID:	1153701																																																																										
Cross Reference Number:	ILT 2016 Q# 9																																																																										
Topic:	Indications of Pump Cavitation on the Core Spray System																																																																										
RO importance:	2.6																																																																										
SRO importance:	2.7																																																																										
K/A #:	209001 K5.01																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">209001 K5.01</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> 209001 Low Pressure Core Spray System Knowledge of the operational implications of the following concepts as they apply to LOW PRESSURE CORE SPRAY SYSTEM : Indications of pump cavitation </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>GF</td> <td>Rev #:</td> <td></td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <td colspan="4">KORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	209001 K5.01			KA Statement	209001 Low Pressure Core Spray System Knowledge of the operational implications of the following concepts as they apply to LOW PRESSURE CORE SPRAY SYSTEM : Indications of pump cavitation			Cognitive level	Low			10 CFR 55	41.5			Technical Reference with Revision No:	GF	Rev #:		Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	None			KORT				PRA: (i.e. Yes or No or #)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A-Systems or B- Procedures)	
	Comments	

Question 9 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

LIMERICK LO Question Category

ILT
RO
LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

10

ID: 1152208

Points: 1.00

Unit 1 plant conditions:

- OPCIION 4 with reactor coolant temperature at 155 °F and lowering slowly
- '1D' RHR Pump is in SDC
- '1A' Recirc Pump is operating

An inadvertent group 2A isolation occurs.

WHICH ONE of the following describes the status of the '1D' RHR Pump and the 'B' RHR SDC Return Valve (HV-051-1F015B), five minutes later?

	<u>'1D' RHR PUMP</u>	<u>HV-051-1F015B</u>
A.	Running	Open
B.	Running	Closed
C.	Tripped	Open
D.	Tripped	Closed

Answer: B

Answer Explanation

In OPCIION 4, the inadvertent Group 2 isolation (i.e., closure of F008, 009, and F015A(B)). However, when placing a dedicated LPCI (such as 'D') in SDC mode, per S51.8.H, the pump auto-trip on loss of suction is defeated. The result of the loss of 1BY160, therefore, the sequence of events is as follows...F008/F009 close, but the F015B remains open (while the F015 valve does get the Group 2 isolation signal, the valve motor-actuator is not able to stroke the valve closed against flow from a running pump). Eventually, the closure of the F008/009 does stop the system flow, allowing the F015B to stroke closed.

For the above reasons, only **Running; Closed** is correct.

Distracters are wrong because they either suggest that the pump trips (i.e., neglecting the fact that the loss of suction trip is defeated), and/or because they suggest that the F015B valve will remain OPEN indefinitely (e.g., plausible if one forgets that the F008/009 closure will in-time stop loop flow, allowing the F015B to stroke closed on the isolation signal).

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 10 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	6																																																										
Difficulty:	3.50																																																										
System ID:	1152208																																																										
User-Defined ID:	573076																																																										
Cross Reference Number:	ILT 2016Q# 10																																																										
Topic:	'D' RHR Pump in SDC mode - predict response to Group 2 isolation																																																										
RO importance:	2.8																																																										
SRO importance:	2.9																																																										
K/A #:	205000K5.02																																																										
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	y
	LORT Question Section: (i.e. A-Systems or B-Procedures)	A
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

11

ID: 1152918

Points: 1.00

Unit 1 plant conditions are as follows:

- "1B" Drywell Chiller is in service
- "1A" and "1B" Drywell Chilled Water Pumps are in service
- 201-D12 bus breaker trips
- Drywell temperature is 143 ° F
- Drywell pressure is 0.7 psig

WHICH of the following describes **one** of the actions required to restore Drywell cooling?

- A. Bypass the isolation per GP 8.5 to restore cooling
- B. Reset isolation R2 with Blue/Green reset per GP 8.3
- C. Reopen the valves using the Handswitches HS-87-122, "B" Loop Drywell Isol. Vlvs and HS-87-128, "A" Loop Drywell Isol. Vlvs
- D. Start the standby Drywell chiller and all 16 unit cooler fans

Answer: C

Answer Explanation

Answer is correct because with the given fast transfer of D12, the interposing relay will drop out and on a re-energization of the bus, the drywell chilled water PCIVs will close per E-D12. The valves may be reopened when power is available because no isolation signal is present.

Bypass the isolation per GP 8.5 is plausible if the operator does not recognize that an isolation does not exist. It is incorrect in that bypassing the isolation will not make any difference. The valves will still open. Also, GP-8.5 Bypass is not directed until temperature rises above 145 ° F as directed in T-102.

Reset isolation R2 with Blue/Green reset is plausible as a method to clear an isolation when the monitored parameter has returned to normal value. It is not correct because there is no isolation command.

Start standby Drywell chiller is plausible as a method to restore cooling but starting more than 1 fan per cooler ads heat to the drywell

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 11 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	3																																																						
Difficulty:	3.30																																																						
System ID:	1152918																																																						
User-Defined ID:	703175																																																						
Cross Reference Number:	ILT 2016 Q# 11																																																						
Topic:	Action required to open DWCW valves following D12 Dead Bus Transfer																																																						
RO importance:	2.7																																																						
SRO importance:	2.8																																																						
K/A #:	4000001.K6.01																																																						
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Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	OTM review CBG 04/28/10 Line review MAA 04/28/10
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 11 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

NRC

RO

HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

12

ID: 1152748

Points: 1.00

Unit 1 plant conditions are as follows:

- A loss of feedwater occurred several hours ago

A loss of off-site power (LOOP) occurs

- D11 and D14 Diesel Generators fail to start
- All 4 LPCI LINE HIGH POINT VENT LO LEVEL annunciators are illuminated
- All 4 RHR pump discharge HI/LO pressure annunciators are illuminated
- Loop A and Loop B RHR High point vent LO Level annunciators are illuminated

WHICH ONE of the following combinations will allow clearing at least some of the LPCI LINE HIGH POINT VENT LO LEVEL annunciators; and which RHR pumps may be restarted without risk of water hammer?

Safeguard fill pump to start

RHR pump(s)

- | | | |
|----|---|---------|
| A. | A | B and C |
| B. | A | C |
| C. | B | B |
| D. | B | B and C |

Answer: C

Answer Explanation

ARC 113 G2 and E-10/20 direct filling and venting prior to starting pumps. Included in the procedure is the high point vent alarms cleared prior to pump start. D11 D/G is the power supply for A safeguard fill pump. Safeguard fill headers are not crosstied A pp supplies A/C ECCS header. B safeguard fill pp supplies B/D ECCS header

- A Incorrect A Safeguard fill pp is not available C RHR should not be started because the high point vent alarm cannot be cleared
- B Incorrect A Safeguard fill pp is not available C RHR should not be started because the high point vent alarm cannot be cleared
- C Correct B safeguard fill pp is available to support B RHR pp start
- D Incorrect B Safeguard fill pp does not supply C RHR, C RHR should not be started because the high point vent alarm cannot be cleared

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 12 Info																																																																			
Question Type:	Multiple Choice																																																																		
Status:	Active																																																																		
Always select on test?	No																																																																		
Authorized for practice?	No																																																																		
Points:	1.00																																																																		
Time to Complete:	3																																																																		
Difficulty:	2.00																																																																		
System ID:	1152748																																																																		
User-Defined ID:	NEW																																																																		
Cross Reference Number:	ILT 2016 Q# 12																																																																		
Topic:	loss of sfgrd fill																																																																		
RO importance:	3.5																																																																		
SRO importance:	3.5																																																																		
K/A #:	203000K6.04																																																																		
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">203000K6.04 3.5/3.5</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">203000 RHR/LPCI: Injection Mode (Plant Specific) Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) : K6.04 Keep fill system</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.3,7,8</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>ARC-MCR-113A G2</td> <td>Rev #:</td> <td>3</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">New</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	203000K6.04 3.5/3.5			KA Statement	203000 RHR/LPCI: Injection Mode (Plant Specific) Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) : K6.04 Keep fill system			Cognitive level	low			10 CFR 55	41.3,7,8			Technical Reference with Revision No:	ARC-MCR-113A G2	Rev #:	3	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	New			Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	None		
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ILT																																																																			
Supplied Ref (If appropriate): (i.e. ABN-##)	None																																																																		

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 12 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.3 Mechanical components and design features of the reactor primary system.

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

CFR: 41.8 Components, capacity, and functions of emergency systems.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

NRC

RO

LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

13

ID: 1248729

Points: 1.00

Unit 2 plant conditions are as follows:

- 100% power
- ARC-MCR-107-H1 Reactor Water Below Level 3 Trip is annunciated
- RPS Level Trip Unit LIS-42-2N680D has been verified in the Aux Equipment Room to be failed downscale
- All automatic actions have occurred

WHICH ONE of the following will cause all 185 scram solenoid pilot valves to reposition?

- A. 2A-Y160 power supply under frequency
- B. '2A' RPS Inverter overtemperature
- C. Loss of Div 1 DC
- D. Loss of TSC MCC 144D-C-F

Answer: A

Answer Explanation

2A-Y160 power supply underfrequency is correct. With the LIS-42-2N680D level instrument failed downscale, a 'B' side half-scram will be present. This means that the 'B' solenoid on all 185 scram solenoid pilot valves will be de-energized and an 'A' side half-scram will result in a full scram and all pilot valves repositioning. An underfrequency condition on the power supply to the 2A-Y160 panel will result in tripping the power monitoring breakers and tripping the panel to give a full scram.

Loss of Div 1 DC is incorrect. Although Div 1 DC is the normal supply to the 'A' RPS inverter, the static switch will transfer the power source to the 144D-C-F TSC MCC without interrupting power to the 2A-Y160 panel.

'2A' RPS Inverter overtemperature is incorrect. This will also result in the static switch transferring to the 144D-C-F MCC without a loss of power to the 2A-Y160 panel.

Loss of TSC MCC 144D-C-F is incorrect. This MCC is the backup power supply to the RPS static inverters and therefore will not result in a loss of either Y160 panel unless it was previously aligned to it. This would not be a normal alignment.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 13 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	0																																																										
Difficulty:	3.00																																																										
System ID:	1248729																																																										
User-Defined ID:	1142348																																																										
Cross Reference Number:	ILT 2016 Q# 13																																																										
Topic:	Determine what loss of power condition will result in a full scram with an RPS level inst downsc1																																																										
RO importance:	2.6																																																										
SRO importance:	2.7																																																										
K/A #:	212000 A1.05																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">212000 A1.05 2.6/2.7</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> 212000 Reactor Protection System A1. Ability to predict and/or monitor changes in parameters associated with operating the REACTOR PROTECTION SYSTEM controls including: A1.05 RPS bus frequency: Plant-Specific </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>E-32, Sh 1 ARC-MCR-220 A-5</td> <td>Rev #:</td> <td></td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.5,6</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">na</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">bank 1142348</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">n/a</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	212000 A1.05 2.6/2.7			KA Statement	212000 Reactor Protection System A1. Ability to predict and/or monitor changes in parameters associated with operating the REACTOR PROTECTION SYSTEM controls including: A1.05 RPS bus frequency: Plant-Specific			Cognitive level	higher			Technical Reference with Revision No:	E-32, Sh 1 ARC-MCR-220 A-5	Rev #:		10 CFR 55	43.5,6			Justification for Non SRO CFR Link:	na			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	bank 1142348			Low KA Justification (if required):	n/a			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
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Low KA Justification (if required):	n/a																																																										
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

14

ID: 1151814

Points: 1.00

Unit 2 is in OPCON 5 and core shuffle part 1 is in progress:

- A leaking valve has caused water to be sprayed into 'A' SBTG Charcoal Bed.
- A fuel handling accident that results in multiple broken fuel pins in one fuel bundle occurred, causing radiation levels at the site boundary to increase.
- The PRO isolated Refuel Floor ventilation and started the 'A' SBTG train.

The release rates at the site boundary will be higher than anticipated for which of the following?

- A. Particulates
- B. Transuranics
- C. Iodine
- D. Noble Gases

Answer: C

Answer Explanation

Explanation: The charcoal bed normally removes the Iodine, but due to being wet the efficiency of removal goes down. Transuranics are released with fuel failure but do not go airborne. Particulates are removed by the HEPA filters. Noble Gases have little hold up and would not be significantly changed.

Question 14 Info

Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	2.00

System ID:	1151814
User-Defined ID:	BANK DRESDEN
Cross Reference Number:	ILT 2016 Q# 14

Topic:	SBTG wet filter
RO importance:	3.2
SRO importance:	3.8
K/A #:	261000A1.03

Comments:

General Data	
Level	RO
Tier	2
Group	1
KA # and Rating	261000 A1.03 3.2/3.8
KA Statement	261000 Standby Gas Treatment System: A1.03 †Off-site release levels
Cognitive level	High

LGS 2016 ILT NRC EXAM SRO

Question 14 Table-Item Links

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

LIMERICK LO Question Category

ILT
NRC
RO
HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

15

ID: 1152953

Points: 1.00

Unit 1 plant startup is in progress.

All IRMs are operable and indicating as shown below:

<u>IRM</u>	<u>Range</u>	<u>Reading</u>
A	1	60/125
B	1	40/125
C	2	30/125
D	2	35/125
E	1	35/125
F	2	40/125
G	1	45/125
H	2	50/125

The 'C' IRM detector fails down scale.

WHICH ONE of the following describes (1) the plant response and (2) the action required to continue withdrawing control rods?

- A. (1) Rod withdraw block and downscale alarm
(2) Bypass the C IRM
- B. (1) Half scram and Rod Withdraw block
(2) Bypass the C IRM
- C. (1) Rod withdraw block and downscale alarm
(2) Move C IRM Mode Switch from Operate to Standby
- D. (1) Half scram and Rod Withdraw block
(2) Move C IRM Mode Switch from Operate to Standby

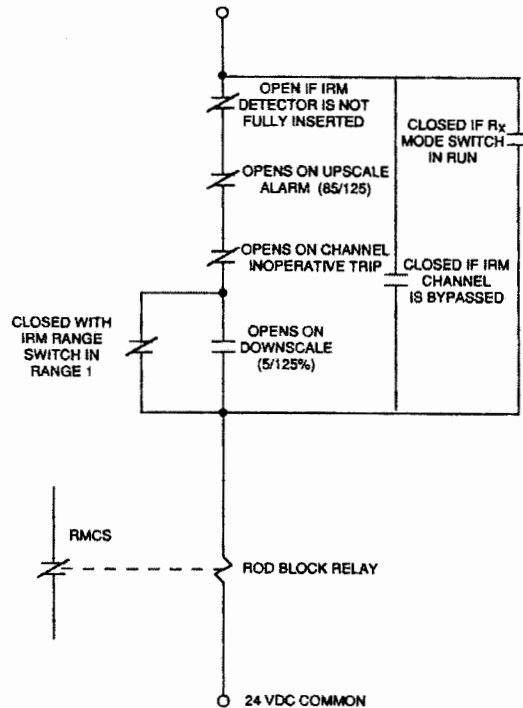
Answer: A

Answer Explanation

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

IRM Rod Blocks



Rod block only-

CONTROL ROD WITHDRAWAL BLOCKS, through interface to Reactor Manual Control System (RMCS). The IRMs produce a control rod withdrawal block under the following conditions:

IRM UPSCALE (85/125 of scale)

INOP (ARC-MCR-107 H3)

- Low detector voltage (<90% of rated)
- Internal module unplugged; other hardware failures
- Channel mode switch not in operate (on Instrument Drawer in Aux Equipment Room)

IRM DOWNSCALE (5/125 of scale)

IRM DETECTOR NOT FULLY INSERTED

Control Rod Withdrawal blocks will occur on the trip of any ONE IRM channel.

Additionally each side (A and B) of the RPS have a bypass joystick which allows the bypass of one IRM per Side. For the A side of RPS a joystick allows for the bypass of one of the following IRMs: A,C,E, or G. For the B side of RPS a joystick allows for the bypass of one of the following IRMs: B,D,F, or H.

Distractors:

B is wrong but plausible if the candidate mistakenly determines that an IRM downscale will provide a RPS half scram.

C is wrong but plausible if the candidate chooses to take the C IRM mode switch to Standby (an action that would actually cause a half scram)

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

D is wrong but plausible if the candidate determines the IRM downscale will provide an RPS half scram and chooses to take the C IRM mode switch to Standby (an action that would actually cause a half scram)

Question 15 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	3																																																						
Difficulty:	2.00																																																						
System ID:	1152953																																																						
User-Defined ID:	NEW																																																						
Cross Reference Number:	ILT 2016 Q# 15																																																						
Topic:	Recall IRM rod block																																																						
RO importance:	3.3																																																						
SRO importance:	3.5																																																						
K/A #:	215003A2.05																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">215003A2.05 3.3/3.5</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> intermediate Range Monitor (IRM) System A2.05 Ability to (a) predict the impacts of the following on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Faulty or erratic operation of detectors/system </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">high</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>ARC-107-G3</td> <td>Rev #:</td> <td>33</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">new</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">new</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	215003A2.05 3.3/3.5			KA Statement	intermediate Range Monitor (IRM) System A2.05 Ability to (a) predict the impacts of the following on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Faulty or erratic operation of detectors/system			Cognitive level	high			10 CFR 55	41.5			Technical Reference with Revision No:	ARC-107-G3	Rev #:	33	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	new			Question Source: (i.e. New, Bank, Modified)	new			Low KA Justification (if required):	N/A		
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Question Source: (i.e. New, Bank, Modified)	new																																																						
Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A- Systems or B- Procedures)	
	Comments	

Question 15 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.2 General design features of the core, including core structure, fuel elements, control rods, core instrumentation, and coolant flow.

CFR: 41.3 Mechanical components and design features of the reactor primary system.

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

16

ID: 1153783

Points: 1.00

A Loss of Off Site Power has occurred

- 1A RHR is the only ECCS available
- 1A RHR is maintaining level at -120 inches
- Alarm ARC-MCR-006- A2L Diesel Gen I Cell A is received
- The FBL reports there is smoke in the D11 Diesel bay and the Fire system has actuated

Which of the following will (1) initiate a fire suppression system for D13 Diesel Generator bay and (2) describes the requirement for securing D11 diesel generator?

- A. (1) Hi temperature
(2) Maintain D11 diesel running
- B. (1) Hi temperature
(2) Secure D11 diesel generator
- C. (1) Smoke detector
(2) Maintain D11 diesel running
- D. (1) Smoke detector
(2) Secure D11 diesel generator

Answer: A

Answer Explanation

A is correct Hi temperature will both actuate the heat detector to open the deluge valve and alarm as well as melt the fusible spray heads

B - D is incorrect but plausible to the examinee who does not properly recall that flame detector is alarm only and that hi temperature will both actuate and alarm.

Reference LGSOPS0022 and LGSOPS0092B

Question 16 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	1153783
User-Defined ID:	NEW
Cross Reference Number:	ILT 2016 Q# 16
Topic:	Predict impact of Fire System Actuation of EDG
RO importance:	3.3
SRO importance:	3.7
K/A #:	264000 A2.08
Comments:	
General Data	
Level	RO

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Tier	2		
Group	1		
KA # and Rating	264000 A2.08		
KA Statement	264000 Emergency Generators (Diesel/Jet) Ability to (a) predict the impacts of the following on the EMERGENCY GENERATORS (DIESEL/JET) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Initiation of emergency generator room fire protection system		
Cognitive level	High		
10 CFR 55	41.5		
Technical Reference with Revision No:	M-22 sht 3	Rev #:	61
Justification for Non SRO CFR Link:	N/A		
Question History: (i.e. LGS NRC-05, OYS CERT-04)			
Question Source: (i.e. New, Bank, Modified)	New		
Low KA Justification (if required):	N/A		
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
ILT			
Supplied Ref (If appropriate): (i.e. ABN-##)	F-D-311A		
LORT			
PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)			
Comments			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 16 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

LIMERICK LO Question Category

ILT
NRC
RO
HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

17

ID: 1151900

Points: 1.00

Unit 2 ADS/SRV indication is as follows on 20C626 panel:

ADS SRV	Red Light	Green Light	Amber Light	White solenoid Light
'2E'	ON	OFF	ON	OFF
'2H'	OFF	ON	OFF	ON
'2K'	OFF	ON	ON	OFF
'2S'	ON	OFF	ON	ON

WHICH ONE of the following SRV is open due to reactor pressure exceeding SRV lift setpoint?

- A. '2E'
- B. '2H'
- C. '2K'
- D. '2S'

Answer: A

Answer Explanation

The question asks which SRV is automatically OPEN: 2E SRV white (solenoid energized lite NOT lit) along with red lite (OPEN) lit is AUTO open. The 2S SRV has the same indications except for white light IS lit meaning the solenoid was manually energized. Both of the 2K and 2H red lights not lit indicates they are NOT opened. H has not been open by no AMBER lite lit.

Question 17 Info							
Question Type:	Multiple Choice						
Status:	Active						
Always select on test?	No						
Authorized for practice?	No						
Points:	1.00						
Time to Complete:	3						
Difficulty:	2.00						
System ID:	1151900						
User-Defined ID:	560625						
Cross Reference Number:	ILT 2016 Q# 17						
Topic:	Select the open ADS/SRV with the following indications:						
RO importance:	4.3						
SRO importance:	4.3						
K/A #:	239002A3.02						
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>2</td></tr></table>	General Data		Level	RO	Tier	2
General Data							
Level	RO						
Tier	2						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Group	1		
	KA # and Rating	239002A3.02 4.3/4.3		
	KA Statement	239002 Relief/Safety Valves Ability to monitor automatic operations of the RELIEF/SAFETY VALVES including: A3.02 SRV operation on high reactor pressure		
	Cognitive level	Low		
	10 CFR 55	41.7		
	Technical Reference with Revision No:	LGSOPS0050	Rev #:	2
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)	bank 560625		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)	None		
	LORT			
	PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				
560625 low				

Question 17 Table-Item Links

LIMERICK LO Question Category

ILT
NRC
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

18

ID: 1153047

Points: 1.00

Unit 1 plant conditions are as follows:

- Unit 1 DIV 1 SFGD BATTERY CHARGERS TROUBLE alarm has annunciated
- ARC Response results are as follows

AMMETER SELECTOR SWITCH in
POSITION 1



AMMETER SELECTOR SWITCH in
POSITION 2



Which of the following identifies (1) the battery charger that has the electrical problem, and (2) the long term effect on **ALL** Div 1 125 VDC loads if this condition is not corrected?

	<u>Battery Charger with an electrical problem</u>	<u>Div 1 125VDC Loads that will continue to function long term</u>
A.	1BCA1 (Position 1)	None of the loads will continue to function
B.	1BCA1 (Position 1)	Approximately half of the loads will continue to function
C.	1BCA2 (Position 2)	None of the loads will continue to function
D.	1BCA2 (Position 2)	Approximately half of the loads will continue to function

Answer: D

Answer Explanation

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

The division 1 safeguard DC system consists of 2 125 VDC Batteries and 1 125V DC Battery Chargers. The 1BCA1 Charger supports the 1A1 Battery (and is represented on A/AD101 when Ammeter Selector Switch is in position 1). The 1BCA2 Charger supports the 1A2 Battery (and is represented on A/AD101 when Ammeter Selector Switch is in position 2).

The 1BCA1 and 1A1 battery power 125V DC panels 1AD102 and 1AD162

The 1BCA2 and 1A2 battery power 125V DC panel 1AD501

The stem provided the student with indication that the 1BCA1 Battery Charger (Ammeter Selector Switch in Position 1) continues to carry the 125V DC loads and the 1A2 Battery is carrying the 125V DC loads (as indicated by the ammeter reading in the discharge direction)

Based on the above D is correct.

A is wrong but plausible if the candidate mis-interprets the ammeter indication and fails to recall that the 125 VDC loads are divided between the two 125 VDC battery/charger pairs.

B is wrong but plausible if the candidate mis-interprets the ammeter indication

C is wrong but plausible if the candidate fails to recall that the 125 VDC loads are divided between the two 125 VDC battery/charger pairs.

Question 18 Info															
Question Type:	Multiple Choice														
Status:	Active														
Always select on test?	No														
Authorized for practice?	No														
Points:	1.00														
Time to Complete:	3														
Difficulty:	2.00														
System ID:	1153047														
User-Defined ID:	561238														
Cross Reference Number:	ILT 2016 Q# 18														
Topic:	Describe the effect of a loss of a battery charger has on the DC system														
RO importance:	3.2														
SRO importance:	3.3														
K/A #:	263000A3.01														
Comments:	<table border="1"> <thead> <tr> <th colspan="2">General Data</th></tr> </thead> <tbody> <tr> <td>Level</td><td>RO</td></tr> <tr> <td>Tier</td><td>2</td></tr> <tr> <td>Group</td><td>1</td></tr> <tr> <td>KA # and Rating</td><td>263000A3.01</td></tr> <tr> <td>KA Statement</td><td>263000 D.C. Electrical Distribution Ability to monitor automatic operations of the D.C. ELECTRICAL DISTRIBUTION including: A3.01 Meters, dials, recorders, alarms, and indicating lights</td></tr> <tr> <td>Cognitive level</td><td>high</td></tr> </tbody> </table>	General Data		Level	RO	Tier	2	Group	1	KA # and Rating	263000A3.01	KA Statement	263000 D.C. Electrical Distribution Ability to monitor automatic operations of the D.C. ELECTRICAL DISTRIBUTION including: A3.01 Meters, dials, recorders, alarms, and indicating lights	Cognitive level	high
General Data															
Level	RO														
Tier	2														
Group	1														
KA # and Rating	263000A3.01														
KA Statement	263000 D.C. Electrical Distribution Ability to monitor automatic operations of the D.C. ELECTRICAL DISTRIBUTION including: A3.01 Meters, dials, recorders, alarms, and indicating lights														
Cognitive level	high														

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	10 CFR 55	41.7		
	Technical Reference with Revision No:	E-0033 sh1 LGSOPS0095 E-0092 Sh1	Rev #:	45 2 31
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)	New		
	Question Source: (i.e. New, Bank, Modified)	New		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)	None		
	LORT			
	PRA: (i.e. Yes or No or #)			
	LORT Question Section: (i.e. A-Systems or B-Procedures)			
	Comments			

Question 18 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

CFR: 41.8 Components, capacity, and functions of emergency systems.

10 CFR 55.41 RO WRITTEN EXAMINATION

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

19

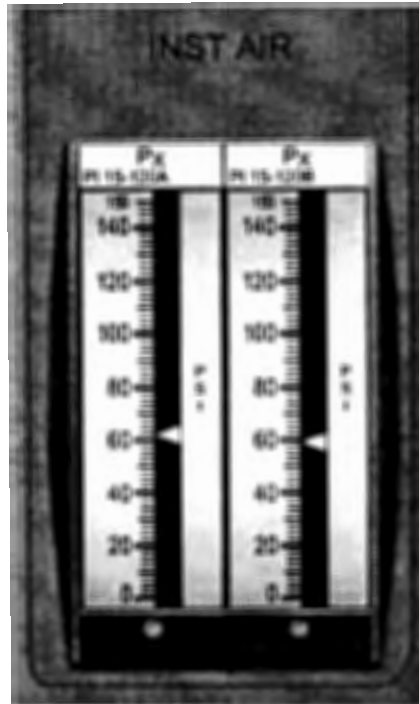
ID: 1153967

Points: 1.00

Unit 1 plant conditions are as follows:

- Backup Service Air Compressor is in AUTO and aligned to Unit 1
- Service Air/Instrument Air cross-tie is aligned to the '1A' Instrument Air header
- Service Air Compressor is in AUTO

'1A' and '1B' Instrument Air header pressures drop and are now as indicated below:



WHICH ONE of the following identifies (1) the compressor(s) supplying the U1 Instrument Air System;
(2) the compressor(s) supplying the Service Air System?

- A. (1) Instrument Air Compressors and Service Air Compressor
(2) Backup Service Air Compressor - ONLY
- B. (1) Instrument Air Compressors and Service Air Compressor
(2) Service Air Compressor and Backup Service Air Compressor
- C. (1) Instrument Air Compressors - ONLY
(2) Service Air Compressor - ONLY
- D. (1) Instrument Air Compressors - ONLY
(2) Service Air Compressor and Backup Service Air Compressor

Answer: A

Answer Explanation

As pressure in the instrument air headers lowers the following occurs:

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

- the instrument air compressors continue to supply the instrument air headers
- When the IA header pressure drops below the SA header pressure, the SA compressor services both the IA header (for which it is aligned to) and the service air header
- When SA header pressure lowers to 90 psi, the Backup Service Air Compressor starts and supports the SA header
- When pressure in both IA headers lowers below 70 psi PV-015-*67 closes to isolate service air header from the service air compressor. This allows the Service Air compressor to be dedicated to supply the more vital Instrument Air header.

'A' is correct for the above reasons

'B' is plausible if the candidate incorrectly believes the SA compressors continues to supply the SA header, as it was with either of the IA header pressures being above 70 psi.

'C' is plausible if the candidate incorrectly believes normal plant air system alignment remains as the IA header pressure drops

'D' is plausible if the candidate incorrectly believes that when both IA headers lowers below 70 psi PV-015-*67 closes to isolate service air header from the IA header (the opposite of the actual outcome of the closure of PV-015-*67)

Question 19 Info																																															
Question Type:	Multiple Choice																																														
Status:	Active																																														
Always select on test?	No																																														
Authorized for practice?	No																																														
Points:	1.00																																														
Time to Complete:	0																																														
Difficulty:	2.00																																														
System ID:	1153967																																														
User-Defined ID:	MODIFIED 555782																																														
Cross Reference Number:	ILT 2016 Q# 19																																														
Topic:	Monitoring of Instrument Air Pressure Gauges from MCR																																														
RO importance:	2.6																																														
SRO importance:	2.7																																														
K/A #:	300000A4.01																																														
Comments:	<table><tr><th colspan="4">General Data</th></tr><tr><td>Level</td><td colspan="3">RO</td></tr><tr><td>Tier</td><td colspan="3">2</td></tr><tr><td>Group</td><td colspan="3">1</td></tr><tr><td>KA # and Rating</td><td colspan="3">300000 A4.01 2.6/2.7</td></tr><tr><td>KA Statement</td><td colspan="3">300000 Instrument Air System (IAS) Ability to manually operate and / or monitor in the control room: Pressure gauges</td></tr><tr><td>Cognitive level</td><td colspan="3">High</td></tr><tr><td>10 CFR 55</td><td colspan="3">41.7</td></tr><tr><td>Technical Reference with Revision No:</td><td>LGSOPS0015 M-0015sh1,4</td><td>Rev #:</td><td>4</td></tr><tr><td>Justification for Non SRO CFR Link:</td><td colspan="3">N/A</td></tr><tr><td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td colspan="3"></td></tr></table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	300000 A4.01 2.6/2.7			KA Statement	300000 Instrument Air System (IAS) Ability to manually operate and / or monitor in the control room: Pressure gauges			Cognitive level	High			10 CFR 55	41.7			Technical Reference with Revision No:	LGSOPS0015 M-0015sh1,4	Rev #:	4	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)			
General Data																																															
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Group	1																																														
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KA Statement	300000 Instrument Air System (IAS) Ability to manually operate and / or monitor in the control room: Pressure gauges																																														
Cognitive level	High																																														
10 CFR 55	41.7																																														
Technical Reference with Revision No:	LGSOPS0015 M-0015sh1,4	Rev #:	4																																												
Justification for Non SRO CFR Link:	N/A																																														
Question History: (i.e. LGS NRC-05, OYS CERT-04)																																															

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Question Source: (i.e. New, Bank, Modified)	Modified - from bank 555782
	Low KA Justification (if required):	N/A
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	
K/A: 295019 A1.01		

Question 19 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

20

ID: 1152027

Points: 1.00

Unit 1 plant conditions are as follows:

- A loss of Feedwater has occurred
- HPCI failed to initiate
- RCIC injection has restored RPV level to +30"
- The PRO depresses the RCIC seal in reset push button

WHICH ONE of the following describes the response of the RCIC System if RPV water level rises to +54" then drops to -38"?

	<u>RPV LEVEL +54"</u>	<u>RPV LEVEL -38"</u>
A.	Turb trip & throttle (112) trips	will NOT re-inject
B.	Turb trip & throttle (112) trips	will re-inject
C.	Steam supply (1F045) closes	will Not re-inject
D.	Steam supply (1F045) closes	will re-inject

Answer: D

Answer Explanation

On a reactor high level the RCIC steam admission valve (*F045) closes; this is different than HPCI, on HPCI the TRIP throttle valve will close.

Even with the seal in reset when level reaches the -38 inch setpoint, both RCIC and HPCI will inject

Distractors A and B are wrong but plausible to the examinee who may confuse HPCI and RCIC response to a high level trip signal

Distractor C is wrong but plausible to the candidate who believes that a manual action will be required to re-inject after a high level trip.

Question 20 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	2.00
System ID:	1152027
User-Defined ID:	555085
Cross Reference Number:	ILT 2016 Q# 20
Topic:	A loss of Feedwater has occurred - HPCI failed to initiate - RCIC injection has restored RPV level
RO importance:	4.1
SRO importance:	4.1
K/A #:	217000A4.05
Comments:	General Data

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Level	RO		
Tier	2		
Group	1		
KA # and Rating	217000A4.05 4.1/4.1		
KA Statement	217000 Reactor Core Isolation Cooling System (RCIC) Ability to manually operate and/or monitor in the control room: A4.05 Reactor water level		
Cognitive level	low		
10 CFR 55	41.7		
Technical Reference with Revision No:	E51-1040-E- 003	Rev #:	32
Justification for Non SRO CFR Link:	N/A		
Question History: (i.e. LGS NRC-05, OYS CERT-04)	555085 bank		
Question Source: (i.e. New, Bank, Modified)			
Low KA Justification (if required):			
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
ILT			
Supplied Ref (If appropriate): (i.e. ABN-##)	none		
LOFT			
PRA: (i.e. Yes or No or #)			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A-Systems or B- Procedures)	
	Comments	
Lesson Plan: LOT-0380, Obj. #5, 9		

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

21

ID: 1152204

Points: 1.00

LGS Unit 2 plant conditions are as follows:

Time = 12:00

- OPCON 4
- Rx water Level raised to 210"
- Unit 2 has been shutdown for 10 days for a refueling outage
- RPV coolant temperature is 120 degrees F
- The Shutdown Cooling System has isolated due to an NSSSS logic failure. All attempts to reopen HV-51-2F009 have failed.

Time = 12:15 minutes

- RPV coolant temperature is 130 degrees F

WHICH ONE of the following describes the approximate time until OPCON 3 is reached and an alternate method of Shutdown Cooling that should be used?

<u>Time to reach OPCON 3</u>	<u>Alternate decay heat removal method</u>
A. 14:00 hours	ADHR
B. 14:00 hours	SRVs & Suppression Pool Cooling
C. 14:18 hours	ADHR
D. 14:18 hours	SRVs & Suppression Pool Cooling

Answer: B

Answer Explanation

14:00, SRVs & Sp. Pool Cooling is correct:

R RPV coolant temperature is increasing at a rate of 40 degrees/hour. At this heat-up rate, it will take about 2 hours to reach 200 degrees (OPCON 3 temperature).

Note: it will take 2 hours 18 minutes to reach 212 (time to boiling)

Per ON-121 the use of SRV's & Suppression Pool Cooling can be used as an alternate decay heat removal method in OPCON 3 or 4. ADHR can only be used in OPCON 5 since reactor cavity and fuel pool need to be tied together before ADHR can be used

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 21 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	3																																																										
Difficulty:	3.00																																																										
System ID:	1152204																																																										
User-Defined ID:																																																											
Cross Reference Number:	ILT 2016 Q# 21																																																										
Topic:	Time to Boil Opcon 4																																																										
RO importance:	3.8																																																										
SRO importance:	4.2																																																										
K/A #:	223002 2.4.9																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">223002 2.4.9 3.8/4.2</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">223002 Primary Containment Isolation System/Nuclear Steam Supply Shut-Off 2.4.9 Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.10</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>ON-121</td> <td>Rev #:</td> <td>29</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3"></td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">new</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3"></td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">n/a</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	223002 2.4.9 3.8/4.2			KA Statement	223002 Primary Containment Isolation System/Nuclear Steam Supply Shut-Off 2.4.9 Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.			Cognitive level	higher			10 CFR 55	41.10			Technical Reference with Revision No:	ON-121	Rev #:	29	Justification for Non SRO CFR Link:				Question History: (i.e. LGS NRC-05, OYS CERT-04)	new			Question Source: (i.e. New, Bank, Modified)				Low KA Justification (if required):	n/a			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
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Level	RO																																																										
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Question History: (i.e. LGS NRC-05, OYS CERT-04)	new																																																										
Question Source: (i.e. New, Bank, Modified)																																																											
Low KA Justification (if required):	n/a																																																										
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (if appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 21 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

CFR: 45.8 Safely operate the facility's auxiliary and emergency systems, including operation of those controls associated with plant equipment that could affect reactivity or the release of radioactive materials to the environment.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

22

ID: 1153605

Points: 1.00

WHICH ONE of the following is the reason that ADS is inhibited when boron injection is required during an ATWS?

- A. To prevent a loss of boron from the RPV through the SRVs resulting in a reactivity increase.
- B. To prevent cold unborated water injection causing a power excursion that may result in substantial fuel damage.
- C. To prevent an excessive depressurization that would cause the SLC pumps to runout.
- D. To prevent a rise in natural circulation resulting in reduced voiding and a rise in power.

Answer: B

Answer Explanation

RC/Q-19 of T-101

DISCUSSION

LGS TRIP Step RC/Q-19 directs actions to inhibit the Automatic Depressurization System (ADS) automatic initiation logic. Automatic initiation of the ADS initiation could result in the injection of large amounts of relatively cold, unborated water from low pressure RPV injection systems. With the reactor either critical or shutdown on boron, the positive reactivity addition due to boron dilution and temperature reduction effected through the injection of cold water may result in a reactor power excursion large enough to cause substantial core damage. Defeating ADS is therefore appropriate whenever boron injection is required.

Question 22 Info									
Question Type:	Multiple Choice								
Status:	Active								
Always select on test?	No								
Authorized for practice?	No								
Points:	1.00								
Time to Complete:	0								
Difficulty:	0.00								
System ID:	1153605								
User-Defined ID:	556129								
Cross Reference Number:	ILT 2016 Q# 22								
Topic:	is the reason that ADS is inhibited whenever boron injection is required?								
RO importance:	2.7								
SRO importance:	4.1								
K/A #:	218000 2.4.30								
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>2</td></tr><tr><td>Group</td><td>1</td></tr></table>	General Data		Level	RO	Tier	2	Group	1
General Data									
Level	RO								
Tier	2								
Group	1								

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

KA # and Rating	218000 2.4.30		
KA Statement	Automatic Depressurization System Emergency Procedures / Plan: Knowledge of operational implications of EOP warnings, cautions, and notes.		
Cognitive level	high		
10 CFR 55	41.10		
Technical Reference with Revision No:	T-101 Bases	Rev #:	22
Justification for Non SRO CFR Link:	N/A		
Question History: (i.e. LGS NRC-05, OYS CERT-04)	Bank		
Question Source: (i.e. New, Bank, Modified)	Bank - 556129		
Low KA Justification (if required):	N/A		
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
ILT			
Supplied Ref (If appropriate): (i.e. ABN-##)	None		
LORT			
PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A- Systems or B- Procedures)			
Comments			
<p>Lesson Plan: LOT-1560, Obj.5 Reference: T-101 Bases K/A: 295014 AA2.03</p>			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

23

ID: 1154012

Points: 1.00

Unit 2 plant conditions are as follows:

- OPCON 2, Reactor Startup in progress
- RPS NI shorting links are **installed**
- All SRMs are fully inserted
- All IRMs are on **range 2**

Criticality has just been achieved, with SRM countrate as follows:

"2A" SRM - 1.4×10^5 cps
"2B" SRM - 1.1×10^5 cps
"2C" SRM - 9.2×10^4 cps
"2D" SRM - 2.3×10^5 cps

WHICH ONE of the following describes the proper positioning of the SRMs based on the above conditions; and the method for withdrawal using the "DRIVE OUT" pushbutton ?

	<u>SRM Position</u>	<u>"DRIVE OUT" Pushbutton</u>
A.	Fully withdraw regardless of count rate	Depress and release to start withdrawal Depress and release to stop withdrawal
B.	Withdrawn to maintain 100 to 100,000 cps	Depress and release to start withdrawal Depress and release to stop withdrawal
C.	Fully withdraw regardless of count rate	Depress and hold to start withdrawal Release to stop withdrawal
D.	Withdrawn to maintain 100 to 100,000 cps	Depress and hold to start withdrawal Release to stop withdrawal

Answer: D

Answer Explanation

To keep from getting a rod block during startup SRMs must be $< 1 \times 10^5$ and cannot be withdrawn if IRMs are below range 3 and SRM count rate is < 100 . withdraw push button must be held down (depressed) to withdraw SRMs

A Incorrect fully withdrawing will reduce count rate to < 100 and cause rod block, and withdraw button must be continually depressed

B Incorrect withdraw button must be continually depressed

C Incorrect fully withdrawing will reduce count rate to < 100 and cause rod block

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 23 Info																																																																																			
Question Type:	Multiple Choice																																																																																		
Status:	Active																																																																																		
Always select on test?	No																																																																																		
Authorized for practice?	No																																																																																		
Points:	1.00																																																																																		
Time to Complete:	3																																																																																		
Difficulty:	3.30																																																																																		
System ID:	1154012																																																																																		
User-Defined ID:	561432																																																																																		
Cross Reference Number:	ILT 2016 Q# 23																																																																																		
Topic:	OPCON 2, Reactor Startup in progress - RPS NI shorting links are installed - All SRMs are fully in																																																																																		
RO importance:	4.4																																																																																		
SRO importance:	4.0																																																																																		
K/A #:	215004 2.1.30																																																																																		
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2150004 2.1.30 4.4/4.0</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">215004 Source Range Monitor 2.1.30 - Conduct of Operations: Ability to locate and operate components, including local controls.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>GP-2, Appendix 1</td> <td>Rev #:</td> <td>5 1</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">02 NRC exam</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">561432 bank</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <th colspan="4">ILT</th> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <th colspan="4">LORT</th> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> <tr> <td>LORT Question Section: (i.e. A-Systems or B-Procedures)</td> <td colspan="3"></td> </tr> <tr> <td>Comments</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	2150004 2.1.30 4.4/4.0			KA Statement	215004 Source Range Monitor 2.1.30 - Conduct of Operations: Ability to locate and operate components, including local controls.			Cognitive level	low			10 CFR 55	41.7			Technical Reference with Revision No:	GP-2, Appendix 1	Rev #:	5 1	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	02 NRC exam			Question Source: (i.e. New, Bank, Modified)	561432 bank			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	None			LORT				PRA: (i.e. Yes or No or #)				LORT Question Section: (i.e. A-Systems or B-Procedures)				Comments			
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Comments																																																																																			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

24

ID: 1152968

Points: 1.00

Unit 1 is operating at 100% power when the following occurs:

- The DIV 1 Steam Leak Detection Temperature Element for the '1B' RWCU Pump Room fails to 180°F

WHICH ONE of the following describes the response of the RWCU Inlet valves?

	HV-44-1F001 (INBOARD)	HV-44-1F004 (OUTBOARD)
A.	Remains open	Remains open
B.	Remains open	Closes
C.	Closes	Remains open
D.	Closes	Closes

Answer: C

Answer Explanation

RWCU isolation on HI temp is signal channel for inboard and single channel for outboard. set point is 155 degrees F

- A Incorrect but plausible to examinee who believes the logic requires 2 channels to actuate. HV-44-1F001 and HV-44-1F004 require 2 channels to isolate on level.
- B Incorrect plausible to candidate who confuses which valve is affected by the div 1 logic
- C Correct a single div 1 temperature element >155 degrees F will isolate the inboard valve
- D Incorrect plausible to the examinee who recalls that a single temperature element will isolate RWCU, but fails to recall that it will only isolate 1 valve.

Question 24 Info							
Question Type:	Multiple Choice						
Status:	Active						
Always select on test?	No						
Authorized for practice?	No						
Points:	1.00						
Time to Complete:	0						
Difficulty:	2.50						
System ID:	1152968						
User-Defined ID:	556844						
Cross Reference Number:	ILT 2016 Q# 24						
Topic:	Given the following conditions: - HV-44-1F001 RWCU Inlet (INBOARD) is open - HV-44-1F004 RWCU Inle						
RO importance:	3.0						
SRO importance:	3.3						
K/A #:	223002K6.05						
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>2</td></tr></table>	General Data		Level	RO	Tier	2
General Data							
Level	RO						
Tier	2						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Group	1		
KA # and Rating	223002K6.05 3.0/3.2		
KA Statement	223002 Primary Containment Isolation System/Nuclear Steam Supply Shut-Off Knowledge of the effect that a loss or malfunction of the following will have on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF : K6.05 Containment instrumentation		
Cognitive level	Low		
10 CFR 55	41.7		
Technical Reference with Revision No:	m-0025 sht 2 GP-8.1	Rev #:	007 16
Justification for Non SRO CFR Link:	N/A		
Question History: (i.e. LGS NRC-05, OYS CERT-04)			
Question Source: (i.e. New, Bank, Modified)	556844 Bank		
Low KA Justification (if required):	N/A		
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
ILT			
Supplied Ref (If appropriate): (i.e. ABN-##)	None		
PORT			
PRA: (i.e. Yes or No or #)			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A-Systems or B- Procedures)	
	Comments	K6.05 Containment instrumentation is not specific to primary or secondary containment. With regard to NSSSS primary containment instrumentation would be limited to drywell pressure. secondary containment instrumentation for NSSSS allows use of various room temperatures and radiation levels as well
LOT-0110, page 30 556844		

Question 24 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

25

ID: 1152749

Points: 1.00

Unit 1 plant conditions are as follows:

The following events occur:

- A Loss of Coolant Accident occurs
- Drywell pressure is 2.5 psig
- Reactor water level lowered to -100 inches and has been restored to -75 inches with Condensate
- Offsite power remains available
- Reactor pressure is 310 psig and stable

WHICH ONE of the following describes the response of HV-51-1F017A, "1A" RHR LPCI INJ PCIV, and the HV-51-1F007A, "1A" RHR MIN FLOW

	<u>HV-51-1F017A</u>	<u>HV-51-1F007A</u>
A.	Remains Closed	Remains Open
B.	Opens	Closes
C.	Remains Closed	Opens
D.	Opens	Remains Open

Answer: D

Answer Explanation

With the LOCA signal initiated the LOCA signal seals in . The LPCI F017 valve will open as soon as the 74 psi delta pressure permissive is met, however there will be no flow to the vessel until RHR pressure is greater than reactor pressure. Until RHR pressure is greater than reactor pressure the min flow valve will remain open. RHR shutoff head pressure is approximately 260 psig. Given the stem conditions the HV-51-1F017A is within the 74 psi delta P permissive to open but there will be no flow to the vessel so the min flow valve will remain open.

- A Incorrect plausible to the examinee who does not recall the delta P permissive or incorrectly recalls the shutoff head of RHR
- B Incorrect plausible to the examinee who believe that LPCI will inject as soon as the valve opens
- C Incorrect plausible to the examinee who does not recall the delta P permissive or incorrectly recalls the shutoff head of RHR or does not recall the normal Open position of the min flow
- D Correct the LPCI injection valve HV-51-1F017A will open and the min flow valve HV-051-1F007A will remain open

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 25 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	3																																																										
Difficulty:	2.00																																																										
System ID:	1152749																																																										
User-Defined ID:	NEW																																																										
Cross Reference Number:	ILT 2016 Q# 25																																																										
Topic:	"1A" RHR is in Suppression Pool Cooling The following events occur: - A Loss of Coolant Accident o																																																										
RO importance:	4.0																																																										
SRO importance:	4.0																																																										
K/A #:	203000K1.17																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">203000K1.17 4.0/4.0</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">203000 RHR/LPCI: Injection Mode (Plant Specific) Knowledge of the physical connections and/or cause effect relationships between RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) and the following: K1.17 Reactor pressure</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.3,5,7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>E11-1040-E-061, 67</td> <td>Rev #:</td> <td>001</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">new</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">new</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">n/a</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	1			KA # and Rating	203000K1.17 4.0/4.0			KA Statement	203000 RHR/LPCI: Injection Mode (Plant Specific) Knowledge of the physical connections and/or cause effect relationships between RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) and the following: K1.17 Reactor pressure			Cognitive level	higher			10 CFR 55	41.3,5,7			Technical Reference with Revision No:	E11-1040-E-061, 67	Rev #:	001	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	new			Question Source: (i.e. New, Bank, Modified)	new			Low KA Justification (if required):	n/a			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
General Data																																																											
Level	RO																																																										
Tier	2																																																										
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Question Source: (i.e. New, Bank, Modified)	new																																																										
Low KA Justification (if required):	n/a																																																										
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 25 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.3 Mechanical components and design features of the reactor primary system.

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

26

ID: 1153994

Points: 1.00

Unit 1 is in OPCON 5 flooded up with the Fuel Pool Gates removed

'1B' RHR is running in Shutdown Cooling when a loss of D12 Bus occurs.

WHICH ONE of the following valves must be manually repositioned (at the valve) in order to restore Shutdown Cooling with '1A' loop of RHR?

- A. HV-051-1F008 RHR Shutdown Cooling Suction Outboard PCIV (OUTBOARD)
- B. HV-051-1F009 RHR Shutdown Cooling Suction Inboard PCIV (INBOARD)
- C. HV-051-1F015A 1A Shutdown Cooling Injection PCIV (OUTBOARD)
- D. HV-051-1F006A 1A RHR Pump Shutdown Cooling Suction Intertie valve (SUCTION A)

Answer: C

Answer Explanation

- A Incorrect HV-051-1F008 RHR Shutdown Cooling Suction Outboard PCIV (OUTBOARD) although this is also an outboard PCIV powered from Div 2 it is in its required position
- B Incorrect HV-051-1F009 RHR Shutdown Cooling Suction Inboard PCIV (INBOARD) this is an inboard PCIV and powered from DIV 1 and in its required position plausible to examinee who confuses loss of div 2 ac and loss of 2B RPS distribution panel and believes a full isolation occurred
- C Correct HV-051-1F015A 1A Shutdown Cooling Injection PCIV (OUTBOARD) this valve is powered from Div 2
- D Incorrect HV-051-1F006A 1A RHR Pump Shutdown Cooling Suction Intertie valve (SUCTION A) will lose power however this valve does not require repositioning, plausible to the examinee who believes the b loop must be isolated prior to starting A RHR

Question 26 Info					
Question Type:	Multiple Choice				
Status:	Active				
Always select on test?	No				
Authorized for practice?	No				
Points:	1.00				
Time to Complete:	0				
Difficulty:	0.00				
System ID:	1153994				
User-Defined ID:	NEW				
Cross Reference Number:	ILT 2016 Q# 26				
Topic:	SDC valve power				
RO importance:	2.5				
SRO importance:	2.7				
K/A #:	205000K2.02				
Comments:	<table><tr><td colspan="2">General D-12</td></tr><tr><td>Level</td><td>RO</td></tr></table>	General D-12		Level	RO
General D-12					
Level	RO				

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Tier	2		
Group	1		
KA # and Rating	205000K2.02 2.5/2.7		
KA Statement	205000 Shutdown Cooling System (RHR Shutdown Cooling Mode) Knowledge of electrical power supplies to the following: K2.02 Motor operated valves		
Cognitive level	high		
10 CFR 55	41.7		
Technical Reference with Revision No:	GP-8	Rev #:	17
Justification for Non SRO CFR Link:	N/A		
Question History: (i.e. LGS NRC-05, OYS CERT-04)	New		
Question Source: (i.e. New, Bank, Modified)	New		
Low KA Justification (if required):	N/A		
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
ILT			
Supplied Ref (If appropriate): (i.e. ABN-##)	None		
LORT			
PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e, A-Systems or B-Procedures)			
Comments			

Question 26 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

27

ID: 1152346

Points: 1.00

Given the following indications on the full core display for a control rod that WAS at position 48:

- FULL IN: ON
- FULL OUT: OFF
- DRIFT: ON
- SELECTED: OFF
- ACCUM: ON
- SCRAM: ON

WHICH ONE of the following describes the status of the control rod?

- A. Both the scram inlet and the scram outlet valves have opened.
- B. Only the scram outlet valve opened.
- C. Rod has inserted due to a Directional Control Valve malfunction
- D. Rod is being manually driven to position 00 using the CONTINUOUS INSERT pushbutton.

Answer: A

Answer Explanation

FULL IN: ON shows rod has moved from 48 to full in
FULL OUT: OFF Shows rod not at 48
DRIFT: ON shows rod motion with no request
SELECTED: OFF rod not selected
ACCUM: ON accum did not depressurize
SCRAM: ON Requires both SCRAM inlet and outlet to be open to illuminate

A correct with SCRAM inlet and outlet open the rod will SCRAM in illuminating the drift light, accum light, SCRAM light, and full in when rod reaches 00

B incorrect SCRAM light is lit so both inlet and outlet valves opened plausible to the examinee who does not recall that the scram light requires both SCRAM inlet and outlet to be open to illuminate

C incorrect plausible to the examinee who does not recall how the Accumulator and SCRAM Lights work

D Incorrect plausible to the examinee who recalls the that the drift light will illuminate while the continuous in PB is released at 00

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 27 Info																																																															
Question Type:	Multiple Choice																																																														
Status:	Active																																																														
Always select on test?	No																																																														
Authorized for practice?	No																																																														
Points:	1.00																																																														
Time to Complete:	0																																																														
Difficulty:	2.50																																																														
System ID:	1152346																																																														
User-Defined ID:	555854 MODIFIED																																																														
Cross Reference Number:	ILT 2016 Q# 27																																																														
Topic:	Given the following indications on the full core display for a control rod that WAS at position 48																																																														
RO importance:	3.2																																																														
SRO importance:	3.2																																																														
K/A #:	201002K1.01																																																														
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">201002 K1.01 3.2/3.2</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> 201002 Reactor Manual Control System Knowledge of the physical connections and/or cause effect relationships between REACTOR MANUAL CONTROL SYSTEM and the following: K1.01 Control rod drive hydraulic system </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.1,2,7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>LGSOPS0073A</td> <td>Rev #:</td> <td>02</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">555854 modified</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	2			KA # and Rating	201002 K1.01 3.2/3.2			KA Statement	201002 Reactor Manual Control System Knowledge of the physical connections and/or cause effect relationships between REACTOR MANUAL CONTROL SYSTEM and the following: K1.01 Control rod drive hydraulic system			Cognitive level	low			10 CFR 55	41.1,2,7			Technical Reference with Revision No:	LGSOPS0073A	Rev #:	02	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	555854 modified			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				Supplied Ref (If appropriate): (i.e. ABN-##)	None		
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Question Source: (i.e. New, Bank, Modified)	555854 modified																																																														
Low KA Justification (if required):	N/A																																																														
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																															
Supplied Ref (If appropriate): (i.e. ABN-##)	None																																																														

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	
Lesson Plan: LOT-0080. Obj. 2		

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

28

ID: 1152366

Points: 1.00

Unit 2 is operating at 100% power when a complete loss of offsite power (LOOP) occurs.

- D21 D/G has tripped and cannot be restarted.

WHICH ONE of the following identifies the total number of Unit 2 Drywell Unit Cooler Fans that are still available?

- A. 4
- B. 8
- C. 12
- D. 16

Answer: C

Answer Explanation

There are 8 Unit Coolers each having 2 Fans (for a total of 16 fans). The D21 bus (via D214-R-G) powers one fan for each of the following coolers: A, C, E, and G (for a total of 4 fans). **Therefore, a total of 12 fans still have power available (after the respective D/G re-powers the 4 KV bus).**

Question 28 Info													
Question Type:	Multiple Choice												
Status:	Active												
Always select on test?	No												
Authorized for practice?	No												
Points:	1.00												
Time to Complete:	3												
Difficulty:	2.00												
System ID:	1152366												
User-Defined ID:	986901												
Cross Reference Number:	ILT 2016 Q# 28												
Topic:	Determine number if DW fans available after LOOP and single DG failure												
RO importance:	RO 2.7												
SRO importance:	SRO 2.9												
K/A #:	K/A 223001 K2.09												
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>2</td></tr><tr><td>Group</td><td>2</td></tr><tr><td>KA # and Rating</td><td>223001 K2.09 2.7/2.9</td></tr><tr><td>KA Statement</td><td>223001 Primary Containment System and Auxiliaries Knowledge of electrical power supplies to the following: K2.09 Drywell cooling fans: Plant-Specific</td></tr></table>	General Data		Level	RO	Tier	2	Group	2	KA # and Rating	223001 K2.09 2.7/2.9	KA Statement	223001 Primary Containment System and Auxiliaries Knowledge of electrical power supplies to the following: K2.09 Drywell cooling fans: Plant-Specific
General Data													
Level	RO												
Tier	2												
Group	2												
KA # and Rating	223001 K2.09 2.7/2.9												
KA Statement	223001 Primary Containment System and Auxiliaries Knowledge of electrical power supplies to the following: K2.09 Drywell cooling fans: Plant-Specific												

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Cognitive level	low		
	10 CFR 55	41.7		
	Technical Reference with Revision No:	E-0476 sheet 1	Rev #:	2 3
	Justification for Non SRO CFR Link:			
	Question History: (i.e. LGS NRC-05, OYS CERT-04)	02 NRC LGS		
	Question Source: (i.e. New, Bank, Modified)	bank 986901		
	Low KA Justification (if required):			
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (if appropriate): (i.e. ABN-##)	None		
	LORT			
	PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

29

ID: 1153167

Points: 1.00

Unit 2 is at 100% power in January with RE HVAC in Service when a malfunction occurs in the RE HVAC system causing the Bypass Dampers to go full open and the Face Dampers go full closed.

- (1) What component in RE HVAC do the Bypass Dampers bypass?
 - (2) Effect on Reactor Enclosure temperature for the above malfunction?
- A. (1) Cooling Coils
 (2) No Change
 - B. (1) Heating Coils
 (2) No Change
 - C. (1) Cooling Coils
 (2) Goes Up
 - D. (1) Heating Coils
 (2) Goes Down

Answer: D

Answer Explanation

'D' is correct, the stem provided the information setting the conditions for winter HVAC operation. In winter operation the cooling coils are OOS and drained and the heating coils are in service. The Face Dampers open to allow air over the heating coils. The Bypass Dampers bypass the heating coils. The air then combines and pass over the cooling coils (there is no cooling coil bypass).

'A' is incorrect, the cooling coils are not bypassed by the Bypass Dampers. This answer is plausible if the candidate mistakenly believe that Bypass Dampers bypass the cooling coils. If this were the case, in the Winter lineup, no temperature change would be expected.

'B' is incorrect, a temperature change will occur. This answer is plausible if the candidate mistakenly believes that RE HVAC is in the summer line up with heating coils OOS.

'C' is incorrect, this is not the bases for step SSC-5. This answer is plausible if the candidate mistakenly believe that Bypass Dampers bypass the cooling coils. If this were the case, in the Summer lineup, temperature change would be expected.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 29 Info																																																															
Question Type:	Multiple Choice																																																														
Status:	Active																																																														
Always select on test?	No																																																														
Authorized for practice?	No																																																														
Points:	1.00																																																														
Time to Complete:	0																																																														
Difficulty:	2.00																																																														
System ID:	1153167																																																														
User-Defined ID:	NEW																																																														
Cross Reference Number:	ILT 2016 Q# 29																																																														
Topic:	malfunction of Reactor Enclosure HVAC effect on temperature																																																														
RO importance:	2.9																																																														
SRO importance:	3.1																																																														
K/A #:	288000 K3.02																																																														
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">288000 K3.02</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">288000 Plant Ventilation Systems Knowledge of the effect that a loss or malfunction of the PLANT VENTILATION SYSTEMS will have on following: Reactor building temperature: Plant-Specific</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>M-076 sh 1</td> <td>Rev #:</td> <td>31</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">new</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td>Supplied Ref (if appropriate): (i.e. ABN-##)</td> <td colspan="3">none</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	2			KA # and Rating	288000 K3.02			KA Statement	288000 Plant Ventilation Systems Knowledge of the effect that a loss or malfunction of the PLANT VENTILATION SYSTEMS will have on following: Reactor building temperature: Plant-Specific			Cognitive level	low			10 CFR 55	41.5			Technical Reference with Revision No:	M-076 sh 1	Rev #:	31	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	new			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				Supplied Ref (if appropriate): (i.e. ABN-##)	none		
General Data																																																															
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Supplied Ref (if appropriate): (i.e. ABN-##)	none																																																														

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

30

ID: 1153127

Points: 1.00

Unit 2 plant conditions:

- OPCON 5
- Vessel head detensioning in progress per GP-6.1, 'Shutdown Operations'
- Reactor head is removed
- RPV level is below the vessel flange

A loss of panel 2BY160 occurs.

WHICH ONE of the following will ensure adequate core circulation exists, per GP-6.1?

- A. Upset Range level indicates +70"
- B. Shutdown Range level indicates +68"
- C. Wide Range level indicates +80"
- D. Place ADHR in service

Answer: B

Answer Explanation

Shutdown Range level indicates 68 inches is correct: Per caution in GP-6.1, RPV level must be maintained greater than 60 inches on Shutdown Range or greater than 78 inches on Upset Range for sufficient natural circulation in the event of a loss of forced circulation. Greater than 60" is required because this level covers the moisture separator drains, which provide coupling between the inside and outside shroud area. If this is not achieved, no flow path will be established.

Upset level indication at 70 inches is incorrect: Does not meet the minimum RPV level of 78 inches in GP-6.1. This is plausible if the applicant incorrectly recalls the Shutdown range limit

Wide Range level indication at 80 inches is incorrect: Wide Range level is not referenced in GP-6.1. This is plausible if the applicant incorrectly believes that the calibration of the wide range level instrument was at cold depressurized conditions.

Shutdown cooling remains in service is incorrect: Group II jumpers are not installed per GP-6.1 until Reactor cavity is flooded and FP gates are removed. This is plausible if the applicant incorrectly believes that the jumpers have already been installed.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 30 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	4																																																										
Difficulty:	3.00																																																										
System ID:	1153127																																																										
User-Defined ID:	710695																																																										
Cross Reference Number:	ILT 2016 Q #30																																																										
Topic:	Reactor Vessel Internals - Natural Circulation																																																										
RO importance:	3.3																																																										
SRO importance:	3.5																																																										
K/A #:	290002 K4.05																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">290002 K4.05</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">290002 Reactor Vessel Internals K4. Knowledge of REACTOR VESSEL INTERNALS design feature(s) and/or interlocks which provide for the following: Natural Circulation</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>LLOT-0041A LLOT-0051. GP-6.1</td> <td>R e v # :</td> <td>000/ 002 30</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">Bank 710695</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	2			KA # and Rating	290002 K4.05			KA Statement	290002 Reactor Vessel Internals K4. Knowledge of REACTOR VESSEL INTERNALS design feature(s) and/or interlocks which provide for the following: Natural Circulation			Cognitive level	Low			10 CFR 55	41.7			Technical Reference with Revision No:	LLOT-0041A LLOT-0051. GP-6.1	R e v # :	000/ 002 30	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	Bank 710695			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
General Data																																																											
Level	RO																																																										
Tier	2																																																										
Group	2																																																										
KA # and Rating	290002 K4.05																																																										
KA Statement	290002 Reactor Vessel Internals K4. Knowledge of REACTOR VESSEL INTERNALS design feature(s) and/or interlocks which provide for the following: Natural Circulation																																																										
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Technical Reference with Revision No:	LLOT-0041A LLOT-0051. GP-6.1	R e v # :	000/ 002 30																																																								
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Low KA Justification (if required):	N/A																																																										
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 30 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

LIMERICK LO Question Category

ILT
NRC
RO
LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

31

ID: 1151894

Points: 1.00

During normal full power operation identify (1) the largest percentage of non condensable gasses in the main condenser and (2) the purpose of the offgas recombiner system.

- A. (1) Hydrogen and Oxygen
(2) to prevent an explosive mixture in the offgas system
- B. (1) Hydrogen and Oxygen
(2) to minimize the total Radioactive effluents from the offgas system
- C. (1) Xenon and Krypton
(2) to prevent an explosive mixture in the offgas system
- D. (1) Xenon and Krypton
(2) to minimize the total Radioactive effluents from the offgas system

Answer: A

Answer Explanation

The non-condensable gasses that are produced in a BWR are:

Hydrogen and Oxygen from radiolytic decomposition of water

Xenon, Krypton, and Iodine from fission product gasses produced in the core

with hydrogen and oxygen accounting for the largest percentage of non-condensable gases.
(LGSOPS0069 Rev 003)

As stated above, Xenon and Krypton are also generated in a BWR. The offgas recombine has no affect on the xenon and krypton concentrations and therefore can not minimize the total radioactive effluents from the offgas system.

Question 31 Info									
Question Type:	Multiple Choice								
Status:	Active								
Always select on test?	No								
Authorized for practice?	No								
Points:	1.00								
Time to Complete:	2								
Difficulty:	2.00								
System ID:	1151894								
User-Defined ID:	NEW								
Cross Reference Number:	ILT 2016 Q #31								
Topic:	Offgas system and H2 and O2 combination								
RO importance:	2.6								
SRO importance:	2.8								
K/A #:	271000 K5.09								
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>2</td></tr><tr><td>Group</td><td>2</td></tr></table>	General Data		Level	RO	Tier	2	Group	2
General Data									
Level	RO								
Tier	2								
Group	2								

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA # and Rating	271000 K5.09 2.6 (2.8)		
	KA Statement	271000 Offgas System Knowledge of the operational implications of the following concepts as they apply to OFFGAS SYSTEM : Hydrogen and oxygen recombination		
	Cognitive level	Low		
	10 CFR 55	41.7		
	Technical Reference with Revision No:	LGSOPS0069	Rev #:	003
	Justification for Non SRO CFR Link:	n/a		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)	New		
	Low KA Justification (if required):	n/a		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)	none		
	LORT			
	PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

32

ID: 1240867

Points: 1.00

Unit 1 plant conditions are as follows:

- Reactor power is 50%
- Reactor pressure is 1038 psig
- Reactor level is +35"

HV41-1F022C, "1C" Inboard MSIV slowly drifts fully closed and a reactor SCRAM does not occur.

After the transient, WHICH ONE of the following describes the maximum allowed power level, and the bases for that power level?

	<u>POWER LEVEL</u>	<u>BASES</u>
A.	75%	To ensure proper reactor pressure control
B.	75%	Ensures steam flow in remaining steam lines does not exceed 100%
C.	90%	To ensure proper reactor pressure control
D.	90%	Ensures steam flow in remaining steam lines does not exceed 100%

Answer: B

Answer Explanation

Answer: Power level 75%, Ensures steam flow in remaining steam lines does not exceed 100%

Per OT-102, The closure of one or more MSIV's will cause increased steam flow in the unisolated steam lines. This increased steam flow reduces the margin between actual steam flow and steam flow causing a Group 1 isolation (all MSIVs closed). In order to restore this margin to normal and avoid all MSIVs going closed reducing RPV power to <75% is required.

Distracters:

Power level Bases

75% To ensure proper reactor pressure control - Power level is reduced to 75% to ensure steam flow in remaining steam lines does not exceed 100%

90% To ensure proper reactor pressure control - Power level is reduced to 75% to ensure steam flow in remaining steam lines does not exceed 100%

90% Ensures steam flow in remaining steam lines does not exceed 100% - Power level is reduced to 75%

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 32 Info																																																															
Question Type:	Multiple Choice																																																														
Status:	Active																																																														
Always select on test?	No																																																														
Authorized for practice?	No																																																														
Points:	1.00																																																														
Time to Complete:	3																																																														
Difficulty:	3.50																																																														
System ID:	1240867																																																														
User-Defined ID:	MODIFIED 560847																																																														
Cross Reference Number:	ILT 2016 Q# 32																																																														
Topic:	Determine maximum RPV power level associated with a closed MSIV																																																														
RO importance:	3.8																																																														
SRO importance:	3.8																																																														
K/A #:	239001 A1.10																																																														
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">239001 A1.10 3.8 / 3.8</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Main and Reheat Steam System Ability to predict and/or monitor changes in parameters associated with operating the MAIN ANDREHEAT STEAM SYSTEM controls including: A1.10 Reactor power</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">high</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>OT-102</td> <td>Rev #:</td> <td>26</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">Modified from 560847</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	2			KA # and Rating	239001 A1.10 3.8 / 3.8			KA Statement	Main and Reheat Steam System Ability to predict and/or monitor changes in parameters associated with operating the MAIN ANDREHEAT STEAM SYSTEM controls including: A1.10 Reactor power			Cognitive level	high			10 CFR 55	41.5			Technical Reference with Revision No:	OT-102	Rev #:	26	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	Modified from 560847			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				Supplied Ref (If appropriate): (i.e. ABN-##)	None		
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Cognitive level	high																																																														
10 CFR 55	41.5																																																														
Technical Reference with Revision No:	OT-102	Rev #:	26																																																												
Justification for Non SRO CFR Link:	N/A																																																														
Question History: (i.e. LGS NRC-05, OYS CERT-04)																																																															
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Low KA Justification (if required):	N/A																																																														
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																															
Supplied Ref (If appropriate): (i.e. ABN-##)	None																																																														

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A- Systems or B- Procedures)	
	Comments	

Question 32 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.2 General design features of the core, including core structure, fuel elements, control rods, core instrumentation, and coolant flow.

CFR: 41.3 Mechanical components and design features of the reactor primary system.

CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

CFR: 41.8 Components, capacity, and functions of emergency systems.

10 CFR 55.41 RO WRITTEN EXAMINATION

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

33

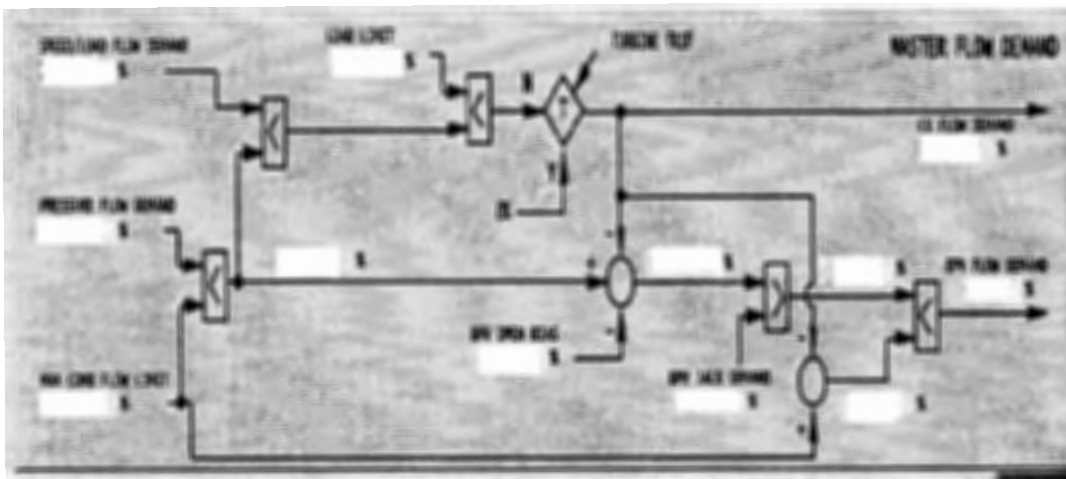
ID: 1151870

Points: 1.00

Unit 1 is operating at 95% power when the following occurs:

- The '1B' throttle pressure transmitter for DEHC fails to an output signal of 1000 psig and remains there
- The Reactor Mode Switch is placed in SHUTDOWN

Reactor pressure is 850 psig and lowering.



WHICH ONE of the following operator actions will terminate this plant transient?

- A. Lower the PRESSURE SET
- B. Press the FULL CLOSE button for the BPV JACK
- C. Raise the LOAD LIMIT setting
- D. Place the standby and running EHC pump hand switches in Pull To Lock

Answer: D

Answer Explanation

A failed-high (to 1000 psig signal) condition for either steam pressure transmitter (selected, or not) causes the pressure regulator to believe that a high pressure exists. The TCVs and the BPVs will open, limited only by the MCFL. The reactor will rapidly depressurize until a MSIV Group I isolation occurs (756 psig in RUN) and, with it, an automatic scram (on MSIV closure). This is why the stem conditions indicate that operators have already taken the Mode Switch to SHUTDOWN (i.e., have taken the Mode Switch out of RUN, thereby preventing the automatic closure of the MSIVs). Nonetheless, as also indicated in the stem, reactor pressure will continue to lower until some additional action is taken (short of manually closing the MSIVs to stop all steam flow). Because the turbine trip caused the TCVs to close, they are no longer contributing to the lowering pressure. It's the still-open BPVs that are the problem.

'D' is correct. **Trip the Running and Standby EHC Pumps.** Because the Transmitter is failed at a pressure greater than pressure set, the system will continually call for Bypass Valves Open. The only method to close the valves from the provided answers is to trip the pumps. After the BPV accumulator pressure is exhausted (~1 min), the BPVs will close and the transient will end.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

'A' is wrong. **Lower the PRESSURE SET.** Lowering the Pressure Setpoint just makes the delta between the failed-high '1B' steam pressure transmitter signal (1000 psig) and the pressure regulator LARGER. Thus, it is still the much SMALLER signal (the delta between the MCFL and the Speed Control Unit signals) that gets through the Bypass Control Unit LVG (<), keeping the BPVs fully open.

'B' is wrong. **Press the FULL CLOSE button for the BPV JACK.** The normal "Bypass Jack" signal to the Bypass Control Unit HVG (>) is 0%; therefore, pressing the FULL CLOSE button won't change anything.

'C' is wrong. **Raise the LOAD LIMITER setting.** Since the LOAD LIMIT signal only inputs to the Bypass Control Unit LVG (<), raising its setpoint won't accomplish anything.

Question 33 Info																																															
Question Type:	Multiple Choice																																														
Status:	Active																																														
Always select on test?	No																																														
Authorized for practice?	No																																														
Points:	1.00																																														
Time to Complete:	5																																														
Difficulty:	3.00																																														
System ID:	1151870																																														
User-Defined ID:	1121029																																														
Cross Reference Number:	ILT 2016 Q #33																																														
Topic:	Unit 1 DEHC - Operator action to mitigate transient resulting from failed HIGH steam press xmtr																																														
RO importance:	3.8																																														
SRO importance:	3.9																																														
K/A #:	241000 K6.06																																														
Comments:	<table><tr><th colspan="4">General Data</th></tr><tr><td>Level</td><td colspan="3">RO</td></tr><tr><td>Tier</td><td colspan="3">2</td></tr><tr><td>Group</td><td colspan="3">2</td></tr><tr><td>KA # and Rating</td><td colspan="3">241000 k6.06 3.8/3.9</td></tr><tr><td>KA Statement</td><td colspan="3">241000 Reactor/Turbine Pressure Regulating System Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR/TURBINE PRESSURE REGULATING SYSTEM : Reactor pressure</td></tr><tr><td>Cognitive level</td><td colspan="3">High</td></tr><tr><td>10 CFR 55</td><td colspan="3">41.7</td></tr><tr><td>Technical Reference with Revision No:</td><td>LLOT0046</td><td>Rev #:</td><td>0</td></tr><tr><td>Justification for Non SRO CFR Link:</td><td colspan="3">N/A</td></tr><tr><td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td colspan="3"></td></tr></table>			General Data				Level	RO			Tier	2			Group	2			KA # and Rating	241000 k6.06 3.8/3.9			KA Statement	241000 Reactor/Turbine Pressure Regulating System Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR/TURBINE PRESSURE REGULATING SYSTEM : Reactor pressure			Cognitive level	High			10 CFR 55	41.7			Technical Reference with Revision No:	LLOT0046	Rev #:	0	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)			
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10 CFR 55	41.7																																														
Technical Reference with Revision No:	LLOT0046	Rev #:	0																																												
Justification for Non SRO CFR Link:	N/A																																														
Question History: (i.e. LGS NRC-05, OYS CERT-04)																																															

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Question Source: (i.e. New, Bank, Modified)	Bank - 1121029
	Low KA Justification (if required):	N/A
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (if appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 33 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

LIMERICK LO Question Category

ILT
NRC
RO
HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

34

ID: 1151843

Points: 1.00

Unit 1 is operating at 100% power when a complete loss of TECW occurs.

WHICH ONE of the following identifies (1) the required action if TECW is not returned to Service; and (2) the basis for required action

- A. (1) Trip all Condensate Pumps
(2) Prevent Condensate Pump Motor Winding Damage
- B. (1) Reduce Reactor Power to < 44%
(2) Prevent Condensate Pump Bearing Damage
- C. (1) Reduce Reactor Power to < 44%
(2) Prevent Condensate Pump Motor Winding Damage
- D. (1) Trip all Condensate Pumps
(2) Prevent Condensate Pump Bearing Damage

Answer: D

Answer Explanation

The required Action and basis are Identified in ON-117, Loss of TECW.

This item identified in this question is a total loss of TECW with action directed by step 2.10

2.10 IF a Total Loss of TECW occurs

THEN perform the following:

- Prior to Condensate Pump bearing temperatures reaching 185 °F

INITIATE GP-4 plant shutdown. []

- Prior to Condensate Pump bearing temperatures reaching 194 °F

TRIP all reactor feed water pumps and condensate pumps. []

ON-117 also identified the reason for securing the condensate pumps as preventing sever damage to the condensate pump sand babbitted bearings in the CAUTION prior to step 2.8

A power reduction to less than 44% would be required if there was a complete loss of Instrument Air (ON-119). The Instrument air compressors are cooled by TECW but there is no indication in the stem that there is a complete loss of Instrument Air. A power reduction to 44% only would be insufficient to address the rising Condensate Pump Bearing Temperature issue.

Rising motor winding temperature is plausible due to the fact that LGS does have pump motors that are cooled by a liquid cooler (Recirc Pump Motors are cooled by DWCW)

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 34 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	3																																																										
Difficulty:	3.00																																																										
System ID:	1151843																																																										
User-Defined ID:	NEW																																																										
Cross Reference Number:	ILT 2016 Q #34																																																										
Topic:	Loss of TECW Pumps - impact on Condensate system																																																										
RO importance:	3.1																																																										
SRO importance:	3.1																																																										
K/A #:	256000 A2.12																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">256000 A2.12</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> 256000 Reactor Condensate System Ability to (a) predict the impacts of the following on the REACTOR CONDENSATE SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of equipment component cooling water systems </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>ON-117</td> <td>Rev #:</td> <td>9</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	2			KA # and Rating	256000 A2.12			KA Statement	256000 Reactor Condensate System Ability to (a) predict the impacts of the following on the REACTOR CONDENSATE SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of equipment component cooling water systems			Cognitive level	Low			10 CFR 55	41.5			Technical Reference with Revision No:	ON-117	Rev #:	9	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
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Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	none
		LORT
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 34 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

LIMERICK LO Question Category

ILT
NRC
RO
LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

35

ID: 1151796

Points: 1.00

Plant conditions are as follows:

- An ATWS is in progress
- Plant Monitoring System (PMS) is FAILED

WHICH ONE of the following can be used to confirm that a control rod is fully inserted?

- A. Red "DRIFT" light is lit on the Full Core Display
- B. Blue "SCRAM" light is lit on the Full Core Display
- C. "- -" (two dashed lines) for the selected rod on the Four Rod Display
- D. The green "IN" light is lit for the selected rod on the Full Core Display

Answer: D

Answer Explanation

During a SCRAM or ATWS the following is available for determination that a Rod is full in position:

Per GP-11:

There are four readily accessible sources of rod full-in information:

- Full Core Display (Green "IN" light lit)
- Process Computer (PMS)
- Four Rod Display (00 indicated)
- Rod Drive Control Cabinet

The following do NOT indicate ROD is Full In:

-Red Drift Light. This indicates rod is drifting in, and would be seen for a selected rod during a scram, but does not indicate rod is full in.

-"- -" (two dashed lines) on the Four Rod Display. This indicates rod is at an odd reed switch, and would be seen for a selected rod during a scram, but does not indicate rod is full in.

-Blue "SCRAM" light is lit on the Full Core Display. This indicates rod scram inlet and outlet valves are open, but does not indicate rod is full in.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 35 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	0																																																																										
Difficulty:	2.50																																																																										
System ID:	1151796																																																																										
User-Defined ID:	560215																																																																										
Cross Reference Number:	ILT 2016 Q #35																																																																										
Topic:	Determine Control Rod Position with PMS Broken																																																																										
RO importance:	3.7																																																																										
SRO importance:	3.6																																																																										
K/A #:	201003																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">201003 A3.01 3.7/3.6</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> 201003 Control Rod and Drive Mechanism Ability to monitor automatic operations of the CONTROL ROD AND DRIVE MECHANISM including: Control rod position </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>GP-11</td> <td>Rev #:</td> <td>28</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">Bank 560215</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <td colspan="4">LORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	2			Group	2			KA # and Rating	201003 A3.01 3.7/3.6			KA Statement	201003 Control Rod and Drive Mechanism Ability to monitor automatic operations of the CONTROL ROD AND DRIVE MECHANISM including: Control rod position			Cognitive level	low			10 CFR 55	41.7			Technical Reference with Revision No:	GP-11	Rev #:	28	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	Bank 560215			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	None			LORT				PRA: (i.e. Yes or No or #)			
General Data																																																																											
Level	RO																																																																										
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Low KA Justification (if required):	N/A																																																																										
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PRA: (i.e. Yes or No or #)																																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 35 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

LIMERICK LO Question Category

ILT

RO

HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

36

ID: 1151778

Points: 1.00

Unit 1 is at 100% power when the following events occur:

- Control rod 26-39 is at position 48
- Control rod 26-39 is bypassed from RDCS.

WHICH ONE of the following describes the ability to select rod 26-39 and the ability of rod 26-39 to SCRAM?

	<u>Ability to select rod 26-39</u>	<u>Ability to SCRAM rod 26-39</u>
A.	Can be Selected	Will SCRAM
B.	Can be Selected	Will not SCRAM
C.	Cannot be selected	Will SCRAM
D.	Cannot be selected	Will not SCRAM

Answer: C

Answer Explanation

S73.0.E identifies that a rod bypassed from RDCS will not respond to any request from the rod select matrix however the rod will not be inoperable per T.S 3.1.3 i.e the rod will scram C is correct the distractors are plausible to the examinee who fails to recall how bypassing a rod from RDCS effects either hydraulic operation or RMCS system operation

Question 36 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	4										
Difficulty:	2.00										
System ID:	1151778										
User-Defined ID:	562065										
Cross Reference Number:	ILT 2016 Q #36										
Topic:	Effect of bypassing a control rod in RDCS										
RO importance:	3.2										
SRO importance:	3.3										
K/A #:	214000 A4.01										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>2</td></tr><tr><td>Group</td><td>2</td></tr><tr><td>KA # and Rating</td><td>214000 A4.01 3.2/3.3</td></tr></table>	General Data		Level	RO	Tier	2	Group	2	KA # and Rating	214000 A4.01 3.2/3.3
General Data											
Level	RO										
Tier	2										
Group	2										
KA # and Rating	214000 A4.01 3.2/3.3										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement	SYSTEM: 214000 Rod Position Information System: Ability to manually operate and/or monitor in the control room: RCIS rod action control bypass switches		
	Cognitive level	Higher		
	10 CFR 55	41.7		
	Technical Reference with Revision No:	S73.0.E, ARC-MCR-108 F1	Rev #:	17
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)	Bank 562065		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (if appropriate): (i.e. ABN-##)	None		
	LORT			
PRA: (i.e. Yes or No or #)				
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

Justification - CRD Accumulator trouble indicator will light when pressure drops to 970 psig. A RDCS inop will freeze the full core display with the CRD Accumulator light on. Bypassing Control Rod 26-39 will remove the CRD Accumulator light on the full core display.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 36 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

NRC

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HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

37

ID: 1240587

Points: 1.00

Unit 2 is in OPCON 5 when the following occurs:

- Loss of Coolant Accident from a Shutdown Cooling rupture
- Reactor Enclosure (RE) flooding on El. 177'
- The Operator is performing T-236, TRANSFERRING REACTOR ENCLOSURE FLOOR DRAIN SUMP TO SUPPRESSION POOL VIA CORE SPRAY SYSTEM
- RE FLOOR DRAIN SUMP PUMP HI HI LVL alarm is annunciated

The Operator has placed HSS-61-204, "Rx Encl Floor Drain Sump Pumps Selector Sw" at 20C452 to HI HI Rad

WHICH ONE of the following describes the subsequent operation of the RE Floor Drain Sump Pumps based on the above conditions?

- A. Runs continuously regardless of sump level and trips on Radwaste Enclosure Exhaust HI HI rad
- B. Auto stops and starts on sump level and trips on Radwaste Enclosure Exhaust HI HI rad
- C. Runs continuously regardless of sump level and runs regardless of drywell post-LOCA rad monitor HI HI rad
- D. Auto stops and starts on sump level and runs regardless of drywell post-LOCA rad monitor readings

Answer: D

Answer Explanation

Per note in T-236

NORM: Pumps auto start/stop on level

AND

trip on Hi-Hi radiation.

HI-HI RAD: Pumps auto start/stop on level

AND

do **not** trip on Hi-Hi radiation.

RUN A: A pump runs continuously - **no** trips except on thermal.

B pump auto starts/stops on level.

B pump will trip on Hi-Hi radiation.

RUN B: B pump runs continuously - **no** trips except on thermal.

A pump auto starts/stops on level.

A pump will trip on Hi-Hi radiation.

The Hi hi Rad is post LOCA rad monitor not radwaste HI HI Rad

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

A incorrect plausible to the examinee who recalls that the pumps will not trip on level but does not recall the switch position that will cause this

B incorrect plausible to the examinee who fails to recall where the HI HI rad trip is generated from

C incorrect plausible to the examinee who mixes the HI HI rad and RUN A/B positions

Question 37 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	0																																																						
Difficulty:	0.00																																																						
System ID:	1240587																																																						
User-Defined ID:	561526																																																						
Cross Reference Number:	ILT 2016 Q #37																																																						
Topic:	Loss of Coolant Accident during refueling from a Shutdown Cooling rupture - Reactor Enclosure (RE)																																																						
RO importance:	RO 3.2																																																						
SRO importance:	SRO 3.3																																																						
K/A #:	K/A 295036EA1.01																																																						
Comments:	<table><tr><th colspan="4">General Data</th></tr><tr><td>Level</td><td colspan="3">RO</td></tr><tr><td>Tier</td><td colspan="3">2</td></tr><tr><td>Group</td><td colspan="3">2</td></tr><tr><td>KA # and Rating</td><td colspan="3">295036EA1.01 3.2/3.3</td></tr><tr><td>KA Statement</td><td colspan="3">295036 Secondary Containment High Sump/Area Water Level Ability to operate and/or monitor the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL : EA1.01 Secondary containment equipment and floor drain</td></tr><tr><td>Cognitive level</td><td colspan="3">low</td></tr><tr><td>10 CFR 55</td><td colspan="3">41.7</td></tr><tr><td>Technical Reference with Revision No:</td><td>T-236</td><td>Rev #:</td><td>12</td></tr><tr><td>Justification for Non SRO CFR Link:</td><td colspan="3">N/A</td></tr><tr><td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td colspan="3"></td></tr><tr><td>Question Source: (i.e. New, Bank, Modified)</td><td colspan="3">Bank 561526</td></tr><tr><td>Low KA Justification (if required):</td><td colspan="3">N/A</td></tr></table>			General Data				Level	RO			Tier	2			Group	2			KA # and Rating	295036EA1.01 3.2/3.3			KA Statement	295036 Secondary Containment High Sump/Area Water Level Ability to operate and/or monitor the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL : EA1.01 Secondary containment equipment and floor drain			Cognitive level	low			10 CFR 55	41.7			Technical Reference with Revision No:	T-236	Rev #:	12	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	Bank 561526			Low KA Justification (if required):	N/A		
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A- Systems or B- Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

38

ID: 1151770

Points: 1.00

Plant conditions are as follows:

- OPGON 5
- Reactor Cavity is flooded
- Spent Fuel Pool gates are removed
- Skimmer Surge Tank level is reading 23 feet (red hi) on PMS point M200

Annunciator 112 K5 fuel pool cooling and cleanup system trouble alarm is received

The EO investigating the Alarm reports that seal 3 "reactor well seal top" and seal 4 "reactor well seal bottom" are in alarm

Assuming no operator action. Given the following 2 alarms:

- 112 I-5 Fuel Pool storage HI/LO level
- Skimmer surge tank PMS point M200 (red low)

WHICH ONE of the following describes (1) the NEXT alarm and (2) the long term effect on fuel pool cooling pumps?

- A. (1) 112 I-5 Fuel Pool Storage HI/LO level
(2) Tripped
- B. (1) 112 I-5 Fuel Pool Storage HI/LO level
(2) Running
- C. (1) Skimmer Surge Tank PMS point M200 (red low)
(2) Tripped
- D. (1) Skimmer Surge Tank PMS point M200 (red low)
(2) Running

Answer: C

Answer Explanation

The fuel pool cooling pumps take a suction from the skimmer surge tank and return to the fuel pool

The fuel pool overflows into the skimmer surge tanks through a set of wiers. Under normal conditions this overflow is equal to the amount the fuel pool cooling pumps are removing from the skimmer surge tanks and an equilibrium level in both the fuel pool and skimmer surge tank is maintained. with 3 and 4 seals in alarm (low pressure) over time (per stem no operator action is taken) fuel pool level will lower. once pool level lowers the overflow to the surge tanks is reduced and the fuel pool cooling pumps will pump down the skimmer surge tanks until they trip on low level.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

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Question Type:	Multiple Choice																																																																										
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Time to Complete:	3																																																																										
Difficulty:	2.00																																																																										
System ID:	1151770																																																																										
User-Defined ID:	560705																																																																										
Cross Reference Number:	ILT 2016 Q #38																																																																										
Topic:	Predict Impact of Dropping Cavity Level in OPCON 5*																																																																										
RO importance:	2.9 (2.5)																																																																										
SRO importance:	3.5 (2.6)																																																																										
K/A #:	233000 K3.08 (A4.10)																																																																										
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A- Systems or B- Procedures)	
	Comments	

Question 38 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

RO

LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

39

ID: 1150327

Points: 1.00

Unit 2 plant conditions are as follows:

- A LOCA has occurred
- '2C' and '2D' RHR Pumps are injecting to maintain RPV water level (8000 gpm each)
- Containment Sprays have been utilized to lower Containment pressure
- Suppression Pool level has stabilized at 24 feet

WHICH ONE of the following conditions would bring the '2C' and '2D' RHR Pumps closer to their NPSH limit? (Reduce the NPSH margin)

	<u>Suppression Pool Temperature</u>	<u>Suppression Pool Pressure</u>
A.	150 °F	1.5 psig
B.	150 °F	6.0 psig
C.	175 °F	1.5 psig
D.	175 °F	6.0 psig

Answer: C

Answer Explanation

Justification:

- A. **Incorrect but plausible:** Initially plausible in that temperature and pressure associated with the pump suction source (suppression pool) have face validity (directly impact pump NPSH).
- B. **Incorrect but plausible:** Initially plausible in that temperature and pressure associated with the pump suction source (suppression pool) have face validity (directly impact pump NPSH).
- C. **Correct:** Requires the applicant to (1) analyze and conclude that the symptoms reported by the Equipment Operator are indicative of pump cavitation, and (2) determine that the conditions most likely to cause cavitation are the combination of highest pool temperature (lowest density water) and lowest airspace pressure, resulting in lower pump suction pressures at higher flows (pool level stable). T-101 Bases states that "NPSH limits are defined to be the highest suppression pool temperature values which provide adequate NPSH for the pumps which take a suction on the suppression pool. The NPSH Limits are functions of pump flow and suppression pool overpressure (*airspace pressure plus the hydrostatic head of water over the pump suction*), and are utilized to preclude pump damage from cavitation." Note that Limerick RHR Pump Specific NPSH Limit Curves are not available.
- D. **Incorrect but plausible:** Initially plausible in that temperature and pressure associated with the pump suction source (suppression pool) have face validity (directly impact pump NPSH).

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 39 Info																																																																											
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Time to Complete:	3																																																																										
Difficulty:	3.00																																																																										
System ID:	1150327																																																																										
User-Defined ID:	1097327																																																																										
Cross Reference Number:	ILT 2016 Q# 39																																																																										
Topic:	high Supp Pool temp/press effects on RHR pp suction pressure																																																																										
RO importance:	3.0																																																																										
SRO importance:	3.4																																																																										
K/A #:	295026 EK1.01																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295026 3.0/3.4</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Knowledge of the operational implications of the following concepts as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE :EK1.01 Pump NPSH</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.8, 41.9, 41.10</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T-102</td> <td>Rev #:</td> <td>25</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">2012 LGS NRC exam (NRC developed)</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">Bank 1097327 2012 LGS NRC exam (NRC developed)</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3">NA</td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (if appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <td colspan="4">LORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	1			KA # and Rating	295026 3.0/3.4			KA Statement	Knowledge of the operational implications of the following concepts as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE :EK1.01 Pump NPSH			Cognitive level	Low			10 CFR 55	41.8, 41.9, 41.10			Technical Reference with Revision No:	T-102	Rev #:	25	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	2012 LGS NRC exam (NRC developed)			Question Source: (i.e. New, Bank, Modified)	Bank 1097327 2012 LGS NRC exam (NRC developed)			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	NA			ILT				Supplied Ref (if appropriate): (i.e. ABN-##)	None			LORT				PRA: (i.e. Yes or No or #)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A- Systems or B- Procedures)	
	Comments	

Question 39 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.8 Components, capacity, and functions of emergency systems.

CFR: 41.9 Shielding, isolation, and containment design features, including access limitations.

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

NRC

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LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

40

ID: 1150337

Points: 1.00

Plant conditions:

- Drywell Pressure is 24 psig
- Drywell Temperature is 250°F
- Suppression Pool level is 39.2 feet

WHICH ONE of the following is the basis for Drywell Sprays being prohibited with the above conditions?

- A. Excessive stress on SRV tailpipes
- B. Excessive Suppression Pool wall loading
- C. Excessive pressure drop due to evaporative cooling
- D. Post spray drywell vacuum relief cannot be assured

Answer: D

Answer Explanation

Drywell spray operation effects a drywell pressure and temperature reduction through the combined effects of evaporative cooling and convective cooling. In evaporative cooling the water spray undergoes a change of state, liquid to vapor, whereas convective cooling involves no change of state.

Evaporative cooling refers to spray droplet heat and mass transfer which occurs when water is sprayed into a superheated atmosphere. The water in each droplet is assumed to instantaneously heat and flash to steam until the surrounding atmosphere saturates, absorbing heat energy from the atmosphere.

Convective cooling refers to spray droplet heat transfer which occurs when water is sprayed into a saturated atmosphere. The sprayed water droplets absorb heat from the surrounding atmosphere through convective heat transfer (sensible heat from the drywell atmosphere is transferred to the water droplets), reducing drywell ambient temperature and pressure until equilibrium conditions are established.

The drywell-below-suppression pool differential pressure capability, or the high drywell pressure scram setpoint. The DSIL is a function of drywell pressure, and is utilized to preclude primary containment failure following initiation of drywell sprays.

The restriction on suppression pool level being below 37.4 ft. is concerned with covering the suppression pool-to-drywell vacuum breakers. These vacuum breakers will not function as designed if any portion of the valve is covered with water. The specified suppression pool level assures that no portion of the drywell side of the valve is submerged for any drywell-below-suppression pool differential pressure less than or equal to the valve opening differential pressure. Drywell spray operation with vacuum breakers inoperable (i.e., with no drywell vacuum relief capability) may cause the primary containment differential pressure capability to be exceeded and therefore is not permitted.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 40 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
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Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	3																																																										
Difficulty:	2.00																																																										
System ID:	1150337																																																										
User-Defined ID:	560661																																																										
Cross Reference Number:	ILT 2016 Q# 40																																																										
Topic:	T-102, Describe why Drywell Spray is prohibited under the following conditions																																																										
RO importance:	4.1																																																										
SRO importance:	4.2																																																										
K/A #:	295024 EK1.01																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295024EK1.01 4.1/4.2</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE :EK1.01 Drywell integrity: Plant-Specific </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.8-41.10</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T-102 bases</td> <td>Rev #:</td> <td>25</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3"></td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">Bank</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">560661</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	1			KA # and Rating	295024EK1.01 4.1/4.2			KA Statement	Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE :EK1.01 Drywell integrity: Plant-Specific			Cognitive level	low			10 CFR 55	41.8-41.10			Technical Reference with Revision No:	T-102 bases	Rev #:	25	Justification for Non SRO CFR Link:				Question History: (i.e. LGS NRC-05, OYS CERT-04)	Bank			Question Source: (i.e. New, Bank, Modified)	560661			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 40 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.8 Components, capacity, and functions of emergency systems.

CFR: 41.9 Shielding, isolation, and containment design features, including access limitations.

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

NRC

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

41

ID: 1150348

Points: 1.00

Both units are operating at 100% power when the following alarm is received;

- 006 FIRE B-4-U, TURB I EL 239 LO RESERVOIR
- Fire header pressure initially lowered to 85 psig

WHICH ONE of the following describes the status of the fire pumps?

- A. ONLY the Motor Driven Fire Pump is running
- B. ONLY the Diesel Driven Fire Pump is running
- C. Neither the Motor Driven or Diesel Driven Fire Pumps are running
- D. Both the Motor Driven and Diesel Driven Fire Pumps are running

Answer: D

Answer Explanation

Examinee should understand that the motor driven fire pump setpoint is 100 psig and that the diesel driven fire pump setpoint is 95 psig as such both pumps should have started.

A incorrect due diesel pump should also be running

B incorrect Motor driven fire pump should also be running

C incorrect both pumps should be running

Question 41 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	0										
Difficulty:	2.50										
System ID:	1150348										
User-Defined ID:	NEW										
Cross Reference Number:	ILT 2016 Q# 41										
Topic:	Pro action for a fire										
RO importance:	2.9										
SRO importance:	3.1										
K/A #:	600000AK.1.02										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>1</td></tr><tr><td>Group</td><td>1</td></tr><tr><td>KA # and Rating</td><td>600000</td></tr></table>	General Data		Level	RO	Tier	1	Group	1	KA # and Rating	600000
General Data											
Level	RO										
Tier	1										
Group	1										
KA # and Rating	600000										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		Knowledge of the operation applications of the following concepts as they apply to Plant Fire On Site:AK1.02 Fire fighting	
	Cognitive level		high	
	10 CFR 55		41.10	
	Technical Reference with Revision No:		SE-8	Rev #: 50
	Justification for Non SRO CFR Link:		N/A	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)		New	
	Question Source: (i.e. New, Bank, Modified)		New	
	Low KA Justification (if required):		N/A	
	Revision History: Revision History: (i.e. Modified distractor “b” to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)		None	
	LORT			
	PRA: (i.e. Yes or No or #)			
	LORT Question Section: (i.e, A-Systems or B-Procedures)			
	Comments			

Question 41 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

NRC

RO

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

42

ID: 1150397

Points: 1.00

Unit 2 is in OPCON 1 at 100% power when.

- Drywell pressure rises to 4.0 psig
- The only ECCS able to inject is the '2C' Core Spray Pump
- The '2C' Core Spray Pump is injecting at 3250 gpm
- Reactor level is -50 inches and rising 2 inches per minute
- Suppression Pool temperature is 115 degrees up slow
- Suppression Pool water level is 21' 8" steady

WHICH ONE of the following is required for long term Core Spray injection?

- A. Throttle the 2C Core Spray pump discharge flow to < 3175 gpm
- B. Transfer 2C Core Spray suction to CST
- C. Verify D23 loaded to less than 2850 KW
- D. Secure 2C Core Spray after 1 hour

Answer: A

Answer Explanation

Per S52.7.B pool level must be > 22 feet for single pp operation above 3175 gpm. level is rising 2 inches per minute or 400 GPM so we have 2850 gpm to maintain level and 400gpm raising level. since level is - 50 inches, reducing flow by 75 gpm will only slow the level rise into normal band

Question 42 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	0										
Difficulty:	2.40										
System ID:	1150397										
User-Defined ID:	NEW										
Cross Reference Number:	ILT 2016 Q# 42										
Topic:	CS operation <22' pool										
RO importance:	3.8										
SRO importance:	3.9										
K/A #:	295030EK2.03										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>1</td></tr><tr><td>Group</td><td>1</td></tr><tr><td>K/A # and Rating</td><td>295030EK2.03 3.8/3.9</td></tr></table>	General Data		Level	RO	Tier	1	Group	1	K/A # and Rating	295030EK2.03 3.8/3.9
General Data											
Level	RO										
Tier	1										
Group	1										
K/A # and Rating	295030EK2.03 3.8/3.9										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		Knowledge of the interrelations between LOW SUPPRESSION POOL WATER LEVEL and the following: EK2.03 LPCS	
	Cognitive level		Higher	
	10 CFR 55		41.7	
	Technical Reference with Revision No:		S52.7.B	Rev #: 9
	Justification for Non SRO CFR Link:		N/A	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)		NEW	
	Question Source: (i.e. New, Bank, Modified)		NEW	
	Low KA Justification (if required):		N/A	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	Supplied Ref (If appropriate): (i.e. ABN-##)		none	
	PRA: (i.e. Yes or No or #)			
	LORT Question Section: (i.e. A-Systems or B-Procedures)			
	Comments			

Question 42 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

43

ID: 1150467

Points: 1.00

A Radwaste Floor Drain Tank release is in progress when the following alarms are received.

- Radwaste control room 0AC304-C1 Liquid Radwaste Discharge Rad Monitor HI-HI/INOP
- Main Control Room MCR-003 A5 Liquid Radwaste Discharge Hi Radiation

WHICH ONE of the following describes (1) the release point and (2) the isolation capability of this release pathway?

- A. (1) Hold Pond
(2) Automatically isolates
- B. (1) River
(2) Automatically isolates
- C. (1) Hold Pond
(2) Must be manually isolated
- D. (1) River
(2) Must be manually isolated

Answer: B

Answer Explanation

Radwaste discharge is directly to the river not to the hold pond first as are the normal drainage and storm drains. the RW discharge line automatically isolates on Hi radiation ARC action is to verify isolation on RWCR alarm for discharge Hi/Hi radiation. Both RW discharge and hold pond discharge have HI radiation alarms, only the RW dish. Auto isolates

B correct for reasons stated above

A incorrect for reasons stated above, plausible to examinee who does not recall release path for RW discharge

C incorrect for reasons stated above, plausible to examinee who does not recall RW discharge isolation capabilities

D Incorrect and plausible for reasons stated above

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 43 Info																																																																																			
Question Type:	Multiple Choice																																																																																		
Status:	Active																																																																																		
Always select on test?	No																																																																																		
Authorized for practice?	No																																																																																		
Points:	1.00																																																																																		
Time to Complete:	3																																																																																		
Difficulty:	2.00																																																																																		
System ID:	1150467																																																																																		
User-Defined ID:	NEW																																																																																		
Cross Reference Number:	ILT 2016 Q# 43																																																																																		
Topic:	radwaste release																																																																																		
RO importance:	3.1																																																																																		
SRO importance:	3.4																																																																																		
K/A #:	295038EK2.01																																																																																		
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295038EK2.01 3.1/3.4</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: EK2.01 Radwaste</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>M-0063 sht 2</td> <td>Rev #:</td> <td>6 7</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">NEW</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">NEW</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <th colspan="4">ILT</th> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <th colspan="4">LORT</th> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> <tr> <td>LORT Question Section: (i.e. A-Systems or B-Procedures)</td> <td colspan="3"></td> </tr> <tr> <td>Comments</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	1			KA # and Rating	295038EK2.01 3.1/3.4			KA Statement	Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: EK2.01 Radwaste			Cognitive level	low			10 CFR 55	41.7			Technical Reference with Revision No:	M-0063 sht 2	Rev #:	6 7	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	NEW			Question Source: (i.e. New, Bank, Modified)	NEW			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	None			LORT				PRA: (i.e. Yes or No or #)				LORT Question Section: (i.e. A-Systems or B-Procedures)				Comments			
General Data																																																																																			
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Tier	1																																																																																		
Group	1																																																																																		
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10 CFR 55	41.7																																																																																		
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Question Source: (i.e. New, Bank, Modified)	NEW																																																																																		
Low KA Justification (if required):	N/A																																																																																		
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Supplied Ref (If appropriate): (i.e. ABN-##)	None																																																																																		
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LORT Question Section: (i.e. A-Systems or B-Procedures)																																																																																			
Comments																																																																																			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 43 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

44

ID: 1150488

Points: 1.00

Unit 2 plant conditions are as follows:

- "2B" RHR Pump in Shutdown Cooling (SDC)
- "2B" Recirc Pump SUCTION and DISCHARGE valves are OPEN (HV43-2F023B and 2F031B)
- RPV Pressure is 20 psig
- "2B" RHR Pump Suction Temperature is 180 °F
- "2B" RHR Loop Flow is 6,200 gpm
- RPV Level is +54 inches

WHICH ONE of the following reflects plant status?

	<u>SDC FLOW</u>	<u>RPV WATER TEMPERATURE</u>
A.	Through core	180 °F
B.	Bypassing core	Greater than 180 °F
C.	Through core	Greater than 180 °F
D.	Bypassing core	180 °F

Answer: B

Answer Explanation

Operating RHR in the Shutdown Cooling Mode with both Recirc Pump valves F023 and F031 open will create a Shutdown Cooling Bypass leakage path and could result in an unexpected OPCON change.

Question 44 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	3										
Difficulty:	2.00										
System ID:	1150488										
User-Defined ID:	560691										
Cross Reference Number:	ILT 2016 Q# 44										
Topic:	OPCON 4 - "2B" RHR in Shutdown Cooling - "2B" Reactor Recirc Pump SUCTION and										
RO importance:	3.6										
SRO importance:	3.6										
K/A #:	295021AK2.03										
Comments:	<table border="1"> <thead> <tr> <th colspan="2">General Data</th></tr> </thead> <tbody> <tr> <td>Level</td><td>RO</td></tr> <tr> <td>Tier</td><td>1</td></tr> <tr> <td>Group</td><td>1</td></tr> <tr> <td>KA # and Rating</td><td>295021AK2.03</td></tr> </tbody> </table>	General Data		Level	RO	Tier	1	Group	1	KA # and Rating	295021AK2.03
General Data											
Level	RO										
Tier	1										
Group	1										
KA # and Rating	295021AK2.03										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: AK2.03 RHR/shutdown cooling	
	Cognitive level		higher	
	10 CFR 55		41.7	
	Technical Reference with Revision No:		S51.8.B	Rev #: 76
	Justification for Non SRO CFR Link:		N/A	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)		Bank 560691	
	Question Source: (i.e. New, Bank, Modified)		Bank	
	Low KA Justification (if required):		N/A	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (if appropriate): (i.e. ABN-##)		None	
	LORT			
PRA: (i.e. Yes or No or #)				
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

Question 44 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

45

ID: 1150667

Points: 1.00

Unit 1 is operating at 50% when one of the operating Service Water Pumps trips.

Which of the following identifies (1) what action is required for the given conditions and (2) the reason for the action?

- A. (1) Valve out the spare RECW Heat Exchanger
(2) In order to lower SW Pump dP
- B. (1) Valve out the spare RECW Heat Exchanger
(2) In order to raise SW Pump dP
- C. (1) Secure Feedwater Heater Access Area Unit Coolers
(2) In order to lower SW Pump dP
- D. (1) Secure Feedwater Heater Access Area Unit Coolers
(2) In order to raise SW Pump dP

Answer: B

Answer Explanation

The step indicates a trip of one of the two running SW pumps. Referencing SE-25, Degraded Service Water Capability, it is seen that it is expected that system flow will be near the upper limit or exceeding the upper limit for one SW pump operation (22,600 gpm or 89 psid). As a result it is required to reduce flows on systems to restore flow (Raise dP). SE-25 lists several loads to choose from. Of these the RECW Heat Exchanger is the first that is listed in Section 4.4. Further in the procedure, another option for correcting the issue is securing Condenser Area and Condensate Pump Room Unit Coolers.

B is correct because valving out the spare RECW Heat Exchanger will lower system flow and aid in raising Pump dP

A is wrong but plausible if the student identifies the reverse response on pump dP for lowering system flow

C is wrong but plausible if the student does not realize that the Feedwater Heater Access Area Unit Coolers are cooled by Drywell Chill Water not Service Water and if the student identifies the reverse response on pump dP for lowering system flow

D is wrong but plausible if the student does not realize that the Feedwater Heater Access Area Unit Coolers are cooled by Drywell Chill Water not Service Water

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 45 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	4																																																										
Difficulty:	2.50																																																										
System ID:	1150667																																																										
User-Defined ID:	951925																																																										
Cross Reference Number:	ILT 2016 Q# 45																																																										
Topic:	Partial Loss of Service Water																																																										
RO importance:	2.9																																																										
SRO importance:	3.2																																																										
K/A #:	295018AK3.01																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295018AK3.01 2.9/3.2</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Partial or Total Loss of CCW / 8 AK3.01 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : Isolation of non-essential heat loads: Plant- Specific</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>LGSOPS0010</td> <td>Rev #:</td> <td>004</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	1			KA # and Rating	295018AK3.01 2.9/3.2			KA Statement	Partial or Total Loss of CCW / 8 AK3.01 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : Isolation of non-essential heat loads: Plant- Specific			Cognitive level	Higher			10 CFR 55	41.5			Technical Reference with Revision No:	LGSOPS0010	Rev #:	004	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
General Data																																																											
Level	RO																																																										
Tier	1																																																										
Group	1																																																										
KA # and Rating	295018AK3.01 2.9/3.2																																																										
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10 CFR 55	41.5																																																										
Technical Reference with Revision No:	LGSOPS0010	Rev #:	004																																																								
Justification for Non SRO CFR Link:	N/A																																																										
Question History: (i.e. LGS NRC-05, OYS CERT-04)																																																											
Question Source: (i.e. New, Bank, Modified)	New																																																										
Low KA Justification (if required):	N/A																																																										
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 45 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

46

ID: 1151319

Points: 1.00

A Unit 1 LOCA signal is initiated
Given the following 2 components

- 1A Instrument Gas Compressor
- 1A TECW Pump

Which one of the following describes a component that will shunt trip and the reason for the shunt trip?

	<u>Component that will Shunt Trip</u>	<u>Reason for Shunt Trip</u>
A.	1A TECW pump	Ensure non-safeguard loads can not be automatically or manually reclosed for the first 60 minutes following a LOCA/LOOP
B.	1A Instrument Gas compressor	Ensure non-safeguard loads do not affect safeguard loads during a LOCA
C.	1A Instrument Gas compressor	Ensure non-safeguard loads can not be automatically or manually reclosed for the first 60 minutes following a LOCA/LOOP
D.	1A TECW pump	Ensure non-safeguard loads do not affect safeguard loads during a LOCA

Answer: B

Answer Explanation

B is correct 1A Instrument gas compressor does shunt trip, and the reason for the shunt trip is to separate safeguard from non-safeguard loads post accident.

A incorrect 1A TECW does not shunt trip, Shunt trips are procedurally prevented from being manually closed for 10 minutes following a LOCA/LOOP. Plausible to examinee who does not recall which components shunt trip or the time requirement for reclosing.

C incorrect Shunt trips are procedurally prevented from being manually closed for 10 minutes following a LOCA/LOOP. Plausible to examinee who does not recall the time requirement for reclosing.

D incorrect 1A TECW does not shunt trip Plausible to examinee who does not recall which components shunt trip .

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 46 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	4																																																						
Difficulty:	2.00																																																						
System ID:	1151319																																																						
User-Defined ID:	553584																																																						
Cross Reference Number:	ILT 2016 Q# 46																																																						
Topic:	D11 shunt trip response																																																						
RO importance:	2.9																																																						
SRO importance:	3.1																																																						
K/A #:	295003AK3.02																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295003AK3.02 2.9/3.1</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">295003 Partial or Complete Loss of AC / 6 AK3.02 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Selective tripping</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>LGSOPS0092 ARC-MCR-120 F3</td> <td>Rev #:</td> <td>002</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">Bank</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">553584</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	1			KA # and Rating	295003AK3.02 2.9/3.1			KA Statement	295003 Partial or Complete Loss of AC / 6 AK3.02 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Selective tripping			Cognitive level	Higher			10 CFR 55	41.5			Technical Reference with Revision No:	LGSOPS0092 ARC-MCR-120 F3	Rev #:	002	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	Bank			Question Source: (i.e. New, Bank, Modified)	553584			Low KA Justification (if required):	N/A		
General Data																																																							
Level	RO																																																						
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Cognitive level	Higher																																																						
10 CFR 55	41.5																																																						
Technical Reference with Revision No:	LGSOPS0092 ARC-MCR-120 F3	Rev #:	002																																																				
Justification for Non SRO CFR Link:	N/A																																																						
Question History: (i.e. LGS NRC-05, OYS CERT-04)	Bank																																																						
Question Source: (i.e. New, Bank, Modified)	553584																																																						
Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

47

ID: 1150794

Points: 1.00

The unit is operating at 24% power with all available feedwater heaters in service when a Main Turbine trip occurs.

- Reactor level is 35 inches stable inches and stable

WHICH ONE of the following describes (1) the change in reactor power 5 minutes later and (2) the reason for the change?

- A. (1) Rises
(2) More inlet subcooling
- B. (1) Rises
(2) Less inlet subcooling
- C. (1) Lowers
(2) Less inlet subcooling
- D. (1) Lowers
(2) More inlet subcooling

Answer: A

Answer Explanation

A turbine trip will cause a loss of feedwater heating which will cause a rise in inlet subcooling. increased inlet sub cooling will cause power to rise

A Correct for reasons stated above

B - D Incorrect for the reasons stated above

Question 47 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	3										
Difficulty:	2.00										
System ID:	1150794										
User-Defined ID:	NEW										
Cross Reference Number:	ILT 2016 Q# 47										
Topic:	Feedwater temperature response to a turbine trip										
RO importance:	2.8										
SRO importance:	3.0										
K/A #:	295005AK3.03										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>1</td></tr><tr><td>Group</td><td>1</td></tr><tr><td>KA # and Rating</td><td>295005 2.8/3.0</td></tr></table>	General Data		Level	RO	Tier	1	Group	1	KA # and Rating	295005 2.8/3.0
General Data											
Level	RO										
Tier	1										
Group	1										
KA # and Rating	295005 2.8/3.0										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		295005 Main Turbine Generator Trip Knowledge of the reasons for the following responses as they apply to MAIN TURBINE GENERATOR TRIP:AK3.03 Feedwater temperature decrease	
	Cognitive level		lower	
	10 CFR 55		41.5	
	Technical Reference with Revision No:		GF	Rev #: <input type="text"/>
	Justification for Non SRO CFR Link:		N/A	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)		New	
	Question Source: (i.e. New, Bank, Modified)		New	
	Low KA Justification (if required):		N/A	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)		None	
	LORT			
	PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

Question 47 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

48

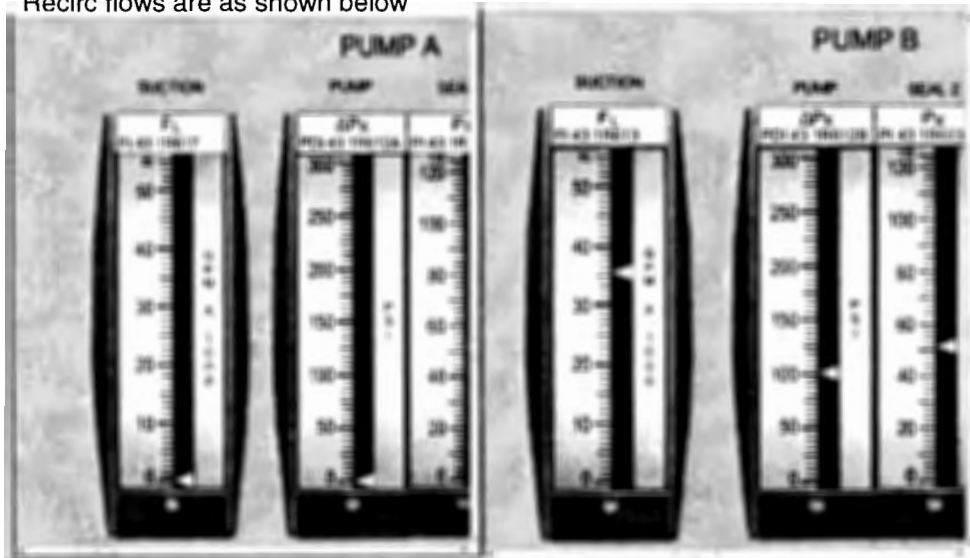
ID: 1151193

Points: 1.00

Unit 1 is operating at 70% power due to a trip of the 1A Reactor Recirc. Pump.

All ST's for single loop operations are complete.

Recirc flows are as shown below



Given the above conditions which of the following identifies the current APRM ROD BLOCK setpoint?

- A. 71.9 percent
- B. 75.4 percent
- C. 80.5 percent
- D. 108 percent

Answer: B

Answer Explanation

APRM rod block is generated as follows

$0.65W + 54.3\%$ (dual loop, flow-biased with Reactor Mode Switch in "RUN"), clamped at 108%

$0.65(W - 7.6\%) + 54.1\%$ (single loop, flow-biased with Reactor Mode Switch in "RUN"), clamped at 108%

(W) = Total Recirc Drive Flow

Recirc Loop "A" Drive Flow plus Recirc

Loop "B" Drive Flow divided by 88,000 gpm

Loop "A" + Loop "B" x 100/88,000

Depressing the button below the APRM shows the rod block value in the APRM reading as long as the button is depressed

A is incorrect math error not dividing 35000/88000 and just using 35

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

B correct candidate must recognize suction flow is drive flow A flow is 0 B flow is 35, 500 gpm
 $A+B \times 100/88000 = 40.34$

$40.34 - 7.6 = 32.74$, $32.74 \times .65 = 21.28$, $21.28 + 54.1 = 75.38$

C is incorrect plausible to the candidate who does not remember or use the 7.6% penalty for single loop operation

D is incorrect plausible to the examinee who recalls the APRM rod block clamp at 108%

Question 48 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	4																																																						
Difficulty:	4.00																																																						
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User-Defined ID:	NEW																																																						
Cross Reference Number:	ILT 2016 Q# 48																																																						
Topic:	APRM rod block																																																						
RO importance:	2.6																																																						
SRO importance:	2.7																																																						
K/A #:	295001AA1.03																																																						
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Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	PORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 48 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

49

ID: 1151292

Points: 1.00

Unit 1 plant conditions are as follows:

- HPCI is in service controlling RPV level
- FIC-055-1R600 (HPCI FLOW CONTROL VALVE) AUTO/MANUAL Switch in "MANUAL"
- RPV pressure is 950 psig

RPV pressure rises to 1100psig

WHICH ONE of the following describes the effect of the RPV pressure rise on HPCI Turbine speed and injection flowrate, if any?

	<u>HPCI TURBINE SPEED</u>	<u>INJECTION FLOWRATE</u>
A.	Rises	No Change
B.	No Change	Lowers
C.	Rises	Rises
D.	No Change	No Change

Answer: B

Answer Explanation

HPCI Turbine Speed - No Change (Correct) - With the flow controller in "MANUAL", controller output will not respond to HPCI System flowrate changes. Controller output becomes the setpoint for the Woodward Governor (speed) controller. Because the setpoint is constant, turbine speed remains constant.

RPV Injection Flowrate: Lowers (Correct) - With the flow controller in "MANUAL" and turbine speed constant, as RPV pressure goes up, HPCI Pump discharge pressure to RPV pressure differential pressure goes down and injection flowrate lowers accordingly.

HPCI Turbine Speed - Rises (Incorrect) - With the flow controller in "MANUAL", controller output will not respond to HPCI System flowrate changes. Controller output becomes the setpoint for the Woodward Governor (speed) controller. Because the setpoint is constant, turbine speed remains constant.

RPV Injection Flowrate: No Change (Incorrect) - With the flow controller in "MANUAL" and turbine speed constant, as RPV pressure goes down, HPCI Pump discharge pressure to RPV differential pressure goes up and injection flowrate rises accordingly.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 49 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	0																																																																										
Difficulty:	2.00																																																																										
System ID:	1151292																																																																										
User-Defined ID:	MODIFIED 560089																																																																										
Cross Reference Number:	ILT 2016 Q# 49																																																																										
Topic:	HPCI Turbine Response To Lowering RPV Pressure In MANUAL																																																																										
RO importance:	3.8																																																																										
SRO importance:	3.9																																																																										
K/A #:	295025EA1.04																																																																										
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PRA: (i.e. Yes or No or #)																																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A-Systems or B- Procedures)	
	Comments	
560089		

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

50

ID: 1151295

Points: 1.00

Unit 2 plant conditions are as follows:

- An ATWS is in progress
- 2A and 2B SLC Pumps are running with a discharge pressure of 1400 psi
- Reactor pressure is 1045 psi
- Alternate Rod Insertion depressurized the Scram Air Header
- RCIC is required for adequate Core Cooling
- Reactor power is 48%

WHICH ONE of the following TRIP procedures is required?

- A. T-209, Injection From The SLC Storage Tank With The RCIC System
- B. T-212, Bypassing Squib Valves For SLC Injection
- C. T-213, Individual Control Rod Scram/Solenoid De-Energization
- D. T-215, De-Energization of Scram Solenoids

Answer: B

Answer Explanation

B is correct - based on information in the Stem the 2A and 2B SLC pumps are operating with a discharge pressure of 1400 psi (the lift set point for the discharge pressure relief valve PSV-048-2F029A(B)). With pump discharge pressure at 1400 psi and reactor pressure at 1045 psi, the student should determine that the Squib valves have failed to function properly. T-212 - Bypassing the squib valves will provide an injection path for the SLC.

Distractors:

T-209, Injection from the SLC Storage Tank with RCIC, is wrong but plausible if the student fails to identify that RCIC is being used for adequate core cooling. T-209 has a prerequisite that the RCIC can not be used for this procedure if RCIC is being used for adequate core cooling.

T-213, Individual Control Rod Scram/Solenoid de-energization - is wrong but plausible if the student mistakenly determines that the procedure is from the Scram Valves Open section of T-101.

T-215, De-Energization of Scram Solenoids - is wrong but plausible if the student mistakenly determines that the procedure is from the Scram Valves Open section of T-101.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 50 Info																																																																			
Question Type:	Multiple Choice																																																																		
Status:	Active																																																																		
Always select on test?	No																																																																		
Authorized for practice?	No																																																																		
Points:	1.00																																																																		
Time to Complete:	3																																																																		
Difficulty:	3.50																																																																		
System ID:	1151295																																																																		
User-Defined ID:																																																																			
Cross Reference Number:	ILT 2016 Q# 50																																																																		
Topic:	Select the T-200 procedure used during an ATWS with the SLC Pumps high discharge pressure																																																																		
RO importance:	3.6 (3.7)																																																																		
SRO importance:	3.9 (3.9)																																																																		
K/A #:	295037 EK2.13 (EA1.10)																																																																		
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Technical Reference with Revision No:	T-212	Rev #:	20																																																																
Justification for Non SRO CFR Link:	N/A																																																																		
Question History: (i.e. LGS NRC-05, OYS CERT-04)																																																																			
Question Source: (i.e. New, Bank, Modified)	New																																																																		
Low KA Justification (if required):	N/A																																																																		
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																																			
Supplied Ref (If appropriate): (i.e. ABN-##)	none																																																																		
PRA: (i.e. Yes or No or #)																																																																			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	
561163		

Question 50 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

NRC

RO

LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

51

ID: 1151312

Points: 1.00

Unit 2 was operating in OPCON 1. After a transient, the following containment parameters were observed:

- Drywell pressure 12 psig rising.
- Drywell air temperature 240°F rising.
- Suppression Pool pressure 7 psig rising.
- Suppression Pool water temperature 95°F rising.

No operator action has been taken.

WHICH ONE of the following is the cause of the above condition?

- A. A safety relief valve tailpipe vacuum breaker has failed open during a small break LOCA.
- B. Containment is breached following a LOCA
- C. Containment is functioning normally following a high pressure discharge into the drywell.
- D. Pressure suppression capability of containment has been bypassed due to a primary system discharge into the suppression chamber airspace.

Answer: C

Answer Explanation

With normal suppression pool level and a leak into the drywell, suppression pool pressure should be about 5 psig lower than drywell pressure

A incorrect with an open SRV suppression pool water temperature will increase along with a slight rise in pressure. Drywell temperature and pressure will remain steady

B incorrect if containment were breached Drywell pressure would be lower

C correct Containment is functioning normally

D incorrect if pressure suppression bypass occurred drywell and pool pressure would be equal

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 51 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	3																																																																										
Difficulty:	2.50																																																																										
System ID:	1151312																																																																										
User-Defined ID:	BANK DRESDEN																																																																										
Cross Reference Number:	ILT 2016 Q# 51																																																																										
Topic:	Containment operation																																																																										
RO importance:	3.6																																																																										
SRO importance:	3.8																																																																										
K/A #:	295028EA2.05																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295028EA2.05 3.6/3.8</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE: Suppression Pool /Suppression chamber pressure.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.10</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>LLOT0060A</td> <td>Rev #:</td> <td>001</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">Dresden 2013 ILT NRC exam</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3"></td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <td colspan="4">LORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	1			KA # and Rating	295028EA2.05 3.6/3.8			KA Statement	Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE: Suppression Pool /Suppression chamber pressure.			Cognitive level	higher			10 CFR 55	41.10			Technical Reference with Revision No:	LLOT0060A	Rev #:	001	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	Dresden 2013 ILT NRC exam			Question Source: (i.e. New, Bank, Modified)				Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	None			LORT				PRA: (i.e. Yes or No or #)			
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LORT																																																																											
PRA: (i.e. Yes or No or #)																																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A- Systems or B- Procedures)	
	Comments	

Question 51 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

52

ID: 1151316

Points: 1.00

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

- HPCI is operating in the full flow test mode on the Condensate Storage Tank for post maintenance testing
- RHR Loop 'A' is operating in the Suppression Pool Cooling Mode to support the HPCI test
- Average Suppression Pool temperature is 100°F and steady
- D11 Diesel Generator has been started for ST-6-092-111-1, D11 Diesel Generator 24 Hour Endurance Test
- The PRO is adjusting D11 Diesel Generator speed so that the sync scope indicator will rotate slowly in the fast direction

A fault causes a ground overcurrent relay to trip on 101 Safeguard Transformer and the following alarm is received:

- 120 F-1: 101 SAFEGUARD XFMR DIFF GRD LOCKOUT

WHICH ONE of the choices below completes the following statement?

Five minutes after receiving the 101 transformer alarm, Suppression Pool temperature will be (1) and the D11 Bus will be energized from (2)

	<u>(1)</u>	<u>(2)</u>
A.	Stable	201 Safeguards Transformer
B.	Stable	D11 Diesel Generator
C.	Increasing	D11 Diesel Generator
D.	Increasing	201 Safeguards Transformer

Answer: C

Answer Explanation

Justification:

- A. Incorrect. RHR Pump 1A will not restart on restoration of bus voltage. Pool temperature will increase due to loss of cooling flow. Plausible if applicant thinks 201 D11 closing will re-energize the bus before loads are shed on undervoltage.
- B. Incorrect. RHR Pump 1A will not restart on restoration of bus voltage. Pool temperature will increase due to loss of cooling flow. Plausible if applicant thinks diesel will re-energize the bus before loads are shed on undervoltage.
- C. Correct. The 101 Safeguards Transformer ground overcurrent fault will trip the D1x-101 breakers, de-energizing D11 thru D34 Buses. D11 Diesel Generator is ready to load so its output breaker will automatically close onto the D11 Bus after bus voltage has decayed to < 40%. D11-201 will not close because D11 Bus voltage will be restored before the 1 second transfer closure interlock time delay elapses. RHR Pump 1A will shed on the initial bus undervoltage and will not auto start upon bus voltage restoration.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

- D. Incorrect. D11-201 has a 1 second time delay following bus undervoltage before it will close. D11 Diesel Generator output breaker has a shorter 0.5 second time delay. The diesel will re-energize the bus before the closure interlock is satisfied on D11-201 Breaker.

Question 52 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	3																																																										
Difficulty:	3.00																																																										
System ID:	1151316																																																										
User-Defined ID:	2008 LGS EXAM NRC D																																																										
Cross Reference Number:	ILT 2016 Q# 52																																																										
Topic:	grid voltage drop ESF response																																																										
RO importance:	3.9																																																										
SRO importance:	4.0																																																										
K/A #:	700000AA1.05																																																										
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Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 52 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

53

ID: 1151367

Points: 1.00

Unit 1 is in OPCON 1 plant conditions are as follows:

- A Plant Startup is in progress
- Reactor power is 20%
- The PRO is preparing for Generator Synchronization
- RPV pressure indicates 960 psig
- RPV water level is 35"
- 5.5 Turbine Bypass Valves are open

ALL Turbine Bypass Valves fail **OPEN**.
(No operator actions have been taken)

WHICH ONE of the following identifies the Reactor SCRAM signal in this event?

- A. APRM downscale
- B. IRM upscale
- C. Reactor low level
- D. MSIV not full open position

Answer: D

Answer Explanation

The plant is starting up (Mode switch in RUN) with 5.5 TBVs open, when all TBV go open, and the plant scrams. As the TBVs open, RPV pressure will lower until it reaches 756 psig. At this point, all MSIVS close to minimize the cooldown and the plant will scram from MSIV position.. **Answer D is correct.** As the RPV depressurizes, water will flash to steam adding negative reactivity which will be displayed as lowering APRMs. Downscale APRMs by themselves, only provide a rod block – not a scram. An upscale IRM with an associated APRM downscale can cause a scram signal, but as stated, the IRMs would not be in effect due to the mode switch being in run, and the void formation would only drive power indications downward. Answer A is incorrect. Upscale IRMs can cause a scram signal to prevent loss of margin to the fuel clad safety limit, but not when the mode switch is in run. Answer B is incorrect. Reactor level will initially rise due to void formation. If level were to reach +54 inches all feed pumps would trip on hi level. without any operator action as stated in the stem, level would then lower to the +12.5 inch SCRAM setpoint this time frame would be well after the MSIV position scram and typically level will only rise to about +50 inches. Answer C is incorrect.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 53 Info																																																																															
Question Type:	Multiple Choice																																																																														
Status:	Active																																																																														
Always select on test?	No																																																																														
Authorized for practice?	No																																																																														
Points:	1.00																																																																														
Time to Complete:	0																																																																														
Difficulty:	2.00																																																																														
System ID:	1151367																																																																														
User-Defined ID:	MODIFIED OYSTER CREE																																																																														
Cross Reference Number:	ILT 2016 Q# 53																																																																														
Topic:	SCRAM initiation																																																																														
RO importance:	3.5																																																																														
SRO importance:	3.8																																																																														
K/A #:	295006																																																																														
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295006 AA2.06 3.5/3.8</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Ability to determine and/or interpret the following as they apply to SCRAM : Cause of reactor scram</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.5,41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>GP-8.1</td> <td>Rev #:</td> <td>16</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">OC 2008 NRC SRO</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">Modified</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (if appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <td colspan="4">LORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> <tr> <td>LORT Question Section: (i.e. A-Systems or B-Procedures)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	1			KA # and Rating	295006 AA2.06 3.5/3.8			KA Statement	Ability to determine and/or interpret the following as they apply to SCRAM : Cause of reactor scram			Cognitive level	Higher			10 CFR 55	41.5,41.7			Technical Reference with Revision No:	GP-8.1	Rev #:	16	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	OC 2008 NRC SRO			Question Source: (i.e. New, Bank, Modified)	Modified			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (if appropriate): (i.e. ABN-##)	None			LORT				PRA: (i.e. Yes or No or #)				LORT Question Section: (i.e. A-Systems or B-Procedures)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Comments	
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Question 53 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

54

ID: 1151387

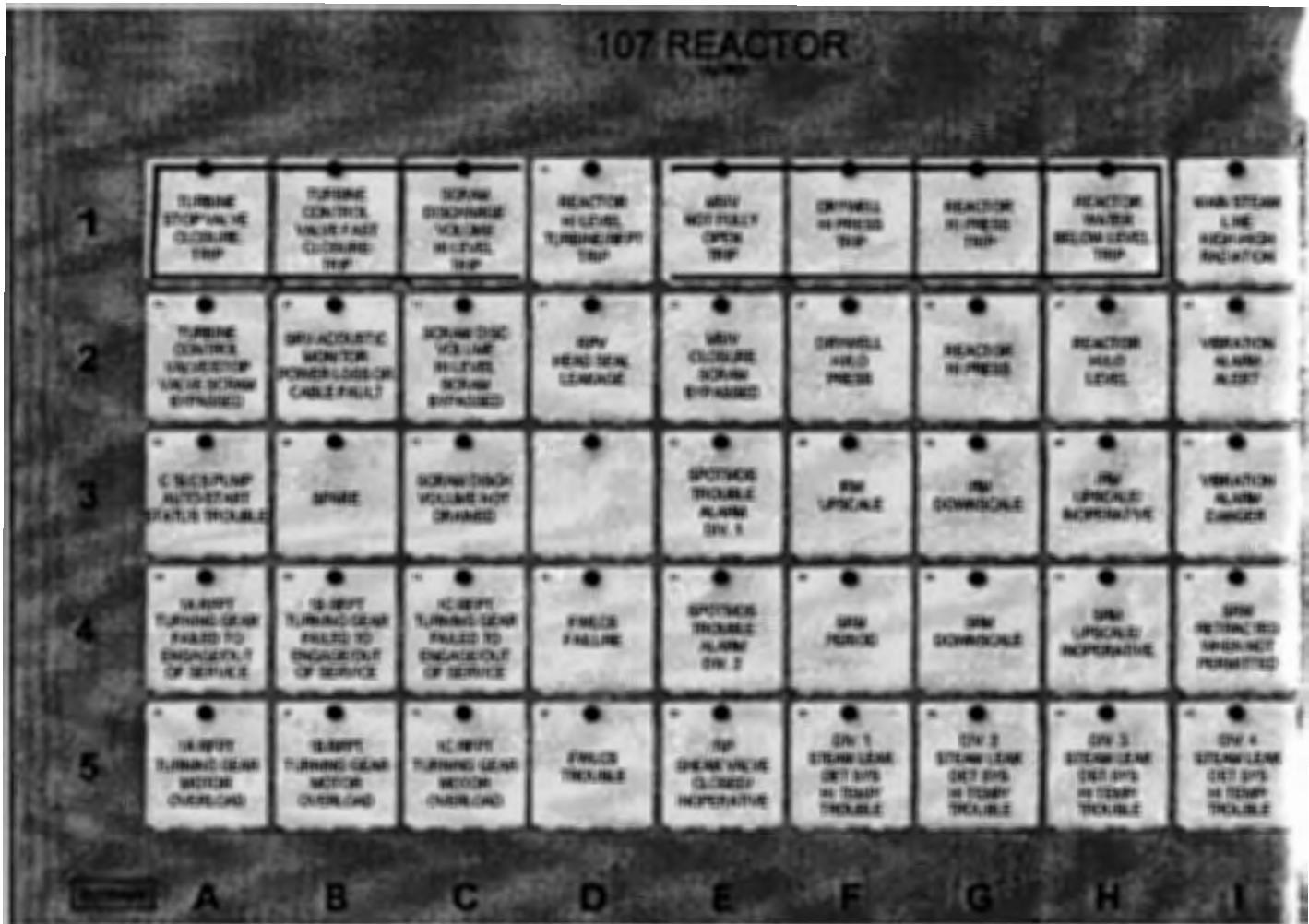
Points: 1.00

Unit 1 is in OPCON 5 core shuffle part 1 in progress.

- I&C is testing DIV 1 SPOTMOS
- Annunciator 107-E3 SPOTMOS TROUBLE DIV. 1 alarms

The RO attempts to acknowledge the alarm but it continues to ring and flash after pushing the acknowledge pushbutton several times.

Given:



EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

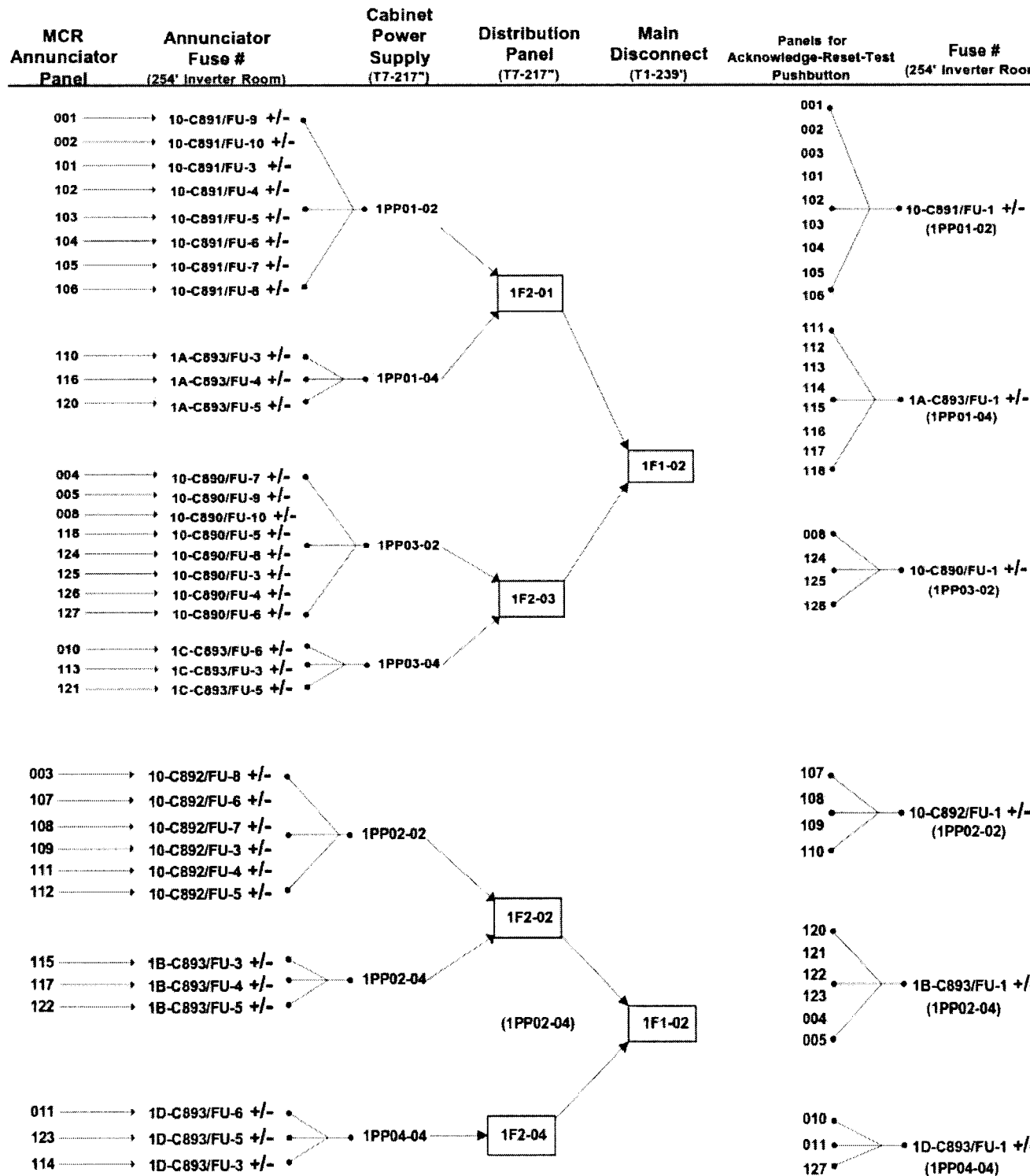
ATTACHMENT 1

Page 1 of 3

UNIT 1 & COMMON MCR ANNUNCIATOR PANEL POWER SUPPLY CIRCUITS

ON-122,

Pa



EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

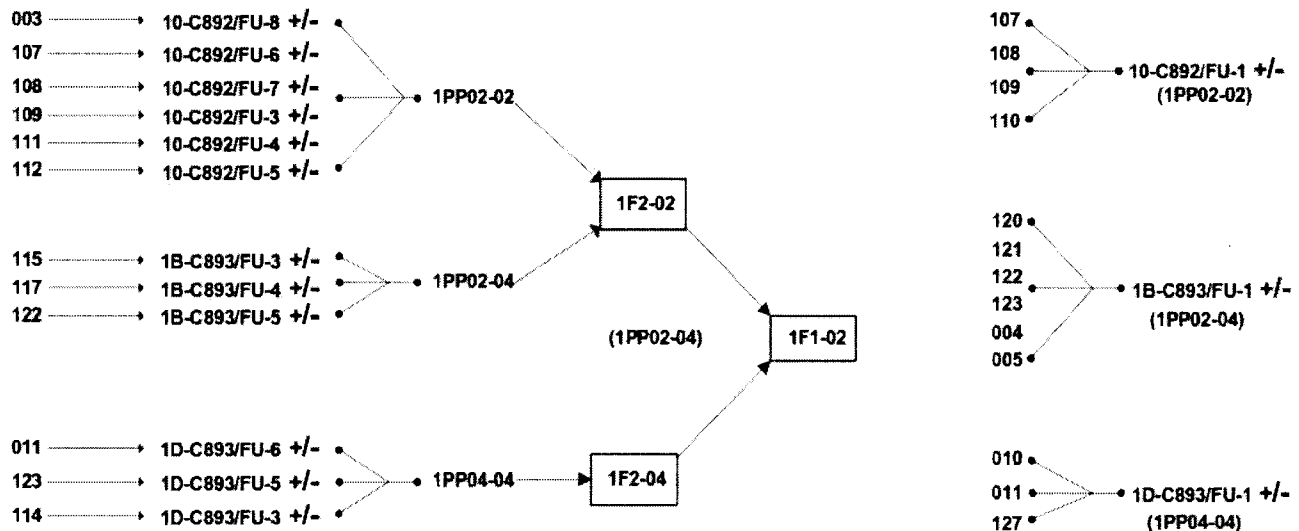
WHICH ONE of the following describes both the (1) cause of the failure to acknowledge and (2) the allowance to continue fuel moves?

- A. (1) Fuse 10-C892/FU-1 +/- is blown
(2) Fuel movement must be suspended
- B. (1) Fuse 10-C892/FU-1 +/- is blown
(2) Fuel movement may continue
- C. (1) Fuse 10-C892/FU-6 +/- is blown
(2) Fuel movement must be suspended
- D. (1) Fuse 10-C892/FU-6 +/- is blown
(2) Fuel movement may continue

Answer: A

Answer Explanation

From ON-122



10-C892/FU-6 +/- provides power to the annunciator panel not the ack reset test button. From the stem the alarm is still flashing. FU-6 selection is plausible to examinee who does not interpret ON-122 correctly 10-C892/FU-1 +/- is the correct fuse.

T.S 3.9.2 requires an audible SRM alarm. the SRM alarm is also on 207 panel with the alarm bell constantly ringing any SRM alarm would be masked with no audible alarm. The T.S. requires suspension of core alts

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 54 Info																																																																			
Question Type:	Multiple Choice																																																																		
Status:	Active																																																																		
Always select on test?	No																																																																		
Authorized for practice?	No																																																																		
Points:	1.00																																																																		
Time to Complete:	4																																																																		
Difficulty:	4.00																																																																		
System ID:	1151387																																																																		
User-Defined ID:	NEW																																																																		
Cross Reference Number:	ILT 2016 Q# 54																																																																		
Topic:	Loss of DC annunciator during fuel moves																																																																		
RO importance:	4.6																																																																		
SRO importance:	4.6																																																																		
K/A #:	295004 2.1.20																																																																		
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295004 2.1.20 4.6/4.6</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">295004 Partial or Complete Loss of D.C. Power 2.1.20 Ability to interpret and execute procedure steps.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.10</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>ON-122 & T.S 3.9.2</td> <td>Rev #:</td> <td>19</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">NEW</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">none</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	1			KA # and Rating	295004 2.1.20 4.6/4.6			KA Statement	295004 Partial or Complete Loss of D.C. Power 2.1.20 Ability to interpret and execute procedure steps.			Cognitive level	Higher			10 CFR 55	41.10			Technical Reference with Revision No:	ON-122 & T.S 3.9.2	Rev #:	19	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	NEW			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				Supplied Ref (If appropriate): (i.e. ABN-##)	none			PRA: (i.e. Yes or No or #)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A- Systems or B- Procedures)	
	Comments	

Question 54 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

55

ID: 1241276

Points: 1.00

Unit 2 plant conditions are as follows:

- A loss of Instrument Air has occurred
- ON-119, Loss of Instrument Air, has been entered

The CRS directs the PRO to monitor the Instrument Air header pressure from the following points:

- PI-15-220A/B, 2A/B Instrument Air Header Pressure, on 20C655, and
- Computer points G500/G501, 2A/B Instrument Air Receiver Low Pressure

WHICH ONE of the following is the bases for monitoring the header at these different points?

- A. Provide a method to validate the value of the MCR 20C655 panel indication with the computer point values
- B. Provide a method for determination as to whether the "A" and "B" air headers are able to be crosstied to the other unit
- C. Provide direction for power reduction to less than 44% when both computer points toggle from NORMAL to LO
- D. Provide troubleshooting data to determine if a dryer malfunction is the cause of the loss of air pressure

Answer: D

Answer Explanation

'B' is correct - From step 2.2 ON-119 bases,

G500 and G501 change from NORMAL to LO at 80 psig as measured at the instrument air receivers. These computer points can help determine if the loss of instrument air is resulting from a problem with the instrument air dryers or the instrument air compressor.

'A' is wrong but plausible if the candidate incorrectly believes that validating of the MCR indication is the reason for this step. Validating indications is appropriate but these computer points only toggle from "NORMAL" to "LO" at 80 psig there is no numeric value with the point.

'C' is wrong but plausible if the candidate incorrectly believes that these points being reviewed is to provide a determination for unit crosstie per step 2.5.7.

'D' is wrong but plausible if the candidate incorrectly believes that the power reduction is directed from ON-119 when these computer points toggle from "NORMAL" to "LO" (80 psig) vice the 85 psi in each header.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 55 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	2																																																						
Difficulty:	2.00																																																						
System ID:	1241276																																																						
User-Defined ID:	MODIFIED 556167																																																						
Cross Reference Number:	ILT 2016 Q# 55																																																						
Topic:	A loss of Instrument Air has occurred - ON-119, Loss of Instrument Air, has been entered The CRS d																																																						
RO importance:	3.9																																																						
SRO importance:	4.0																																																						
K/A #:	2.1.27 (295019)																																																						
Comments:	REFERENCE: LOT1550.02 PP 6																																																						
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Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A- Systems or B- Procedures)	
	Comments	

Question 55 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

LIMERICK LO Question Category

ILT
NRC
RO
LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

56

ID: 1151435

Points: 1.00

The MCR has been evacuated due to a fire in the Cable Spreading Room

- All switches have been placed in Emergency.
- The RO is placing Unit 2 Shutdown Cooling in service at the Remote Shutdown Panel.
- The RHRSW Spray header return is to be swapped from Bypass to Spray.

WHICH ONE of the following describes the RHRSW pump to be used for Unit 2 Shutdown Cooling and the panel location to lineup RHRSW return header for Spray Pond Spray?

	<u>PUMP</u>	<u>SPRAY POND SPRAY Alignment</u>
A.	'A' RHRSW	From Unit 1 Remote S/D Panel
B.	'C' RHRSW	From Unit 1 Remote S/D Panel
C.	'C' RHRSW	From Unit 2 Remote S/D Panel
D.	'A' RHRSW	From Unit 2 Remote S/D Panel

Answer: B

Answer Explanation

A RHRSW is controlled from unit 1 remote shutdown panel and would have been placed in service to support unit 1 S/D cooling.

C RHRSW is controlled from unit 2 RSP and would be placed in service to support unit 2 shutdown cooling

Both A and C RHRSW return header spray/spray bypass switches are controlled from the unit 1 remote shutdown panel.

Question 56 Info									
Question Type:	Multiple Choice								
Status:	Active								
Always select on test?	No								
Authorized for practice?	No								
Points:	1.00								
Time to Complete:	4								
Difficulty:	3.00								
System ID:	1151435								
User-Defined ID:	NEW								
Cross Reference Number:	ILT 2016 Q# 56								
Topic:	RSP unit diff.								
RO importance:	3.8								
SRO importance:	3.9								
K/A #:	295016 2.2.3								
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>1</td></tr><tr><td>Group</td><td>1</td></tr></table>	General Data		Level	RO	Tier	1	Group	1
General Data									
Level	RO								
Tier	1								
Group	1								

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA # and Rating	295016 2.2.3 3.8/3.9		
	KA Statement	295016 Control Room Abandonment 2.2.3 2.2.3 (multi-unit license) Knowledge of the design, procedural, and operational differences between units.		
	Cognitive level	Higher		
	10 CFR 55	41.5,6,10		
	Technical Reference with Revision No:	SE-1 S88.1.A	Rev #:	73 21
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)	New		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)	none		
	LORT			
	PRA: (i.e. Yes or No or #)			
	LORT Question Section: (i.e, A-Systems or B-Procedures)			
	Comments			

[Question 56 Table-Item Links](#)

[LIMERICK LO Question Category](#)

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

57

ID: 1151444

Points: 1.00

T-111, Steam Cooling, is in progress with the following:

- Reactor water level is -178"
- No injection systems are available to the RPV

WHICH ONE of the following describes the status of the fuel?

	<u>Adequate Core Cooling</u>	<u>Definition of Zero Injection Adequate Core Cooling Peak Clad Temperature</u>
A.	Yes	<1800°F
B.	Yes	<2200°F
C.	No	<1800°F
D.	No	<2200°F

Answer: A

Answer Explanation

LR-9 Any system, subsystem, OR alt subsystem lined up with at least one pump running

The terms "**systems**", "**subsystems**", and "**alternate subsystems**" have been defined previously in this Bases document, and are repeated here for clarity.

A "NO" response indicates that no RPV injection sources are available, and that steam cooling is required. Operators are directed to continue at Step LR-10, where the steam cooling section of the T-111, Level Restoration/Steam Cooling, flowchart begins.

Step LR-10 directs an exit from the RPV pressure (RC/P) control flowpath of T-101, RPV Control. The steam cooling section of T-111, Level Restoration/Steam Cooling, contains RPV pressure control steps which are in conflict with those in the RC/P flowpath of T-101. To avoid the occurrence of concurrently effective, yet conflicting, RPV pressure control guidance between T-101 and T-111, operators are directed to exit the RC/P flowpath of T-101.

Steam cooling is performed to prolong the time that adequate core cooling is assured when no RPV injection sources are available. With no injection into the RPV, adequate core cooling is defined to exist as long as peak clad temperature remains below 1800 deg, the threshold for significant metal-water reaction. The RPV level at which this occurs is designated as the Minimum Zero-Injection RPV Water Level (MZIRWL) and is -198 inches.

B is wrong but plausible if the student mistakenly believes that the ECCS design criteria of peak cladding temperature below 2200 degrees F constitutes adequate core cooling.

C is wrong but plausible if the student mistakenly believes that adequate core cooling is lost once the RPV water level lowers below the TAF water level of -161 inches.

D is wrong but plausible if the student mistakenly believes that adequate core cooling is lost once the RPV water level lowers below the TAF water level of -161 inches and believes that the ECCS design criteria of peak cladding temperature below 2200 degrees F constitutes adequate core cooling.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 57 Info			
Question Type:	Multiple Choice		
Status:	Active		
Always select on test?	No		
Authorized for practice?	No		
Points:	1.00		
Time to Complete:	4		
Difficulty:	2.50		
System ID:	1151444		
User-Defined ID:	560666		
Cross Reference Number:	ILT 2016 Q# 57		
Topic:	T-111 - Recognize if Adequate Core Cooling Exists		
RO importance:	4.6		
SRO importance:	4.7		
K/A #:	295031 EK1.01		
Comments:	1		

General Data			
Level	RO		
Tier	1		
Group	1		
KA # and Rating	295031 EK1.01 4.6/4.7		
KA Statement	Reactor Low Water Level Knowledge of the operational implications of the following concepts as they apply to REACTOR LOW WATER LEVEL : EK1.01 Adequate core cooling		
Cognitive level	lower		
10 CFR 55	41.8		
Technical Reference with Revision No:	T-111	Rev #:	15
Justification for Non SRO CFR Link:	n/a		
Question History: (i.e. LGS NRC-05, OYS CERT-04)			
Question Source: (i.e. New, Bank, Modified)	Bank 560666		
Low KA Justification (if required):	n/a		
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
Supplied Ref (If appropriate): (i.e. ABN-##)	none		

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

560666

Question 57 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT
NRC
RO
LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

58

ID: 1151468

Points: 1.00

Unit 2 plant conditions:

- OPCON 1
- SGD-206-3, Refuel Area - SGTS Slide Gate Damper, is closed

While handling a spent fuel pin in the Unit 2 Fuel Pool, the pin is dropped and the Fuel Pool ARM alarms.

WHICH ONE of the following actions is required to control/monitor releases from the refuel floor?

- A. Verify SGTS fans are in service
- B. Isolate Refuel Floor HVAC
- C. Notify RP to perform survey of RF Floor
- D. Ensure Refuel Floor HVAC and associated rad monitors are in service

Answer: D

Answer Explanation

With Slide Gate Damper (SGD 206-3) Closed, SBGT cannot be connected to the RF. With SGD (SGD 206-3) closed, there is no secondary containment. Isolating refuel floor HVAC will have no effect if there is no secondary containment. Do not provide ON-120.

From ON-120, Fuel Handling Problems, Attachment 4, Irradiated Fuel Pin Dropped or Damaged

2.4.5 **PERFORM** the following to control/monitor releases from Refuel Floor Secondary Containment: **(CM-1)**

1. **IF** Refuel Floor Secondary Containment is established, **THEN VERIFY** Normal Ventilation is isolated **AND** SGTS is initiated.
IF Normal Ventilation has not isolated **THEN ISOLATE** Ventilation per S76.8.B Section titled "Refuel Floor Secondary Containment Manual Pushbutton Isolation Initiation"
2. **IF** Refuel Floor Secondary Containment is not established, **AND** SGTS not initiated **THEN ENSURE** Normal Refuel Floor ventilation **AND** associated rad monitoring in service.
3. **VERIFY** Refuel Floor Secondary Containment breaches have been covered per the Barrier Breach Contingency Plans.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 58 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	3																																																																										
Difficulty:	2.00																																																																										
System ID:	1151468																																																																										
User-Defined ID:	715275																																																																										
Cross Reference Number:	ILT 2016 Q# 58																																																																										
Topic:	ARM alarm due to dropped fuel pin																																																																										
RO importance:	3.6																																																																										
SRO importance:	4.0																																																																										
K/A #:	295023AA2.01																																																																										
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 58 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT
NRC
RO
HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

59

ID: 1151527

Points: 1.00

Unit 1 is at 100% power.

All equipment is in its normal lineup

D14 safeguard bus is out of service for emergent maintenance

A loss of 101 safeguard bus occurs

WHICH ONE of the following describes (1) The status of the CRD pumps, and (2) if a SCRAM were to occur what would be the effect on SCRAM times?

- A. (1) 1A CRD pump is running
(2) SCRAM times are unaffected
- B. (1) No CRD pumps are running
(2) SCRAM times are slower
- C. (1) No CRD pumps are running
(2) SCRAM times are unaffected
- D. (1) 1B CRD pump is running
(2) SCRAM times are slower

Answer: C

Answer Explanation

Normal alignment only 1A CRD pp is running. The examinee must realize that a loss of 101 safeguard bus unaffected. C

A incorrect the previously out of service CRD pump can be started plausible to the examinee who does not understand that the alarm condition is only for the previously running pump

B incorrect the previously out of service CRD pump can be started and the SCRAM times are not affected plausible to the examinee who does not understand that the alarm condition is only for the previously running pump or that the accumulators at rated pressure will SCRAM the rods with no loss of speed. if accumulator pressure were lower than scram times would be affected.

D Incorrect SCRAM times are not affected if reactor pressure were lower this would be true

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 59 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	4																																																																										
Difficulty:	2.00																																																																										
System ID:	1151527																																																																										
User-Defined ID:	NEW																																																																										
Cross Reference Number:	ILT 2016 Q# 59																																																																										
Topic:	affect on plant from a trip of crd pp																																																																										
RO importance:	3.6																																																																										
SRO importance:	3.7																																																																										
K/A #:	295022Ak1.02																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295022AK1.02 3.6/3.7</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">295022 Loss of CRD Pumps Knowledge of the operational implications of the following concepts as they apply to LOSS OF CRD PUMPS: AK1.02 Reactivity control</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">lower</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>ON-107</td> <td>Rev #:</td> <td>18</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <th colspan="4">ILT</th> </tr> <tr> <td>Supplied Ref (if appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <th colspan="4">LOR</th> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	1			Group	2			KA # and Rating	295022AK1.02 3.6/3.7			KA Statement	295022 Loss of CRD Pumps Knowledge of the operational implications of the following concepts as they apply to LOSS OF CRD PUMPS: AK1.02 Reactivity control			Cognitive level	lower			10 CFR 55	41.7			Technical Reference with Revision No:	ON-107	Rev #:	18	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (if appropriate): (i.e. ABN-##)	None			LOR				PRA: (i.e. Yes or No or #)			
General Data																																																																											
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Low KA Justification (if required):	N/A																																																																										
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PRA: (i.e. Yes or No or #)																																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A- Systems or B- Procedures)	
	Comments	

Question 59 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

60

ID: 1151588

Points: 1.00

Unit 1 LOCA is in progress, with the following:

- Drywell pressure is 2.4 psig and rising
- Drywell temperature is 168°F and rising

CRS orders that Drywell Cooling isolations be bypassed and drywell cooling maximized.

WHICH ONE of the following describes the allowable configuration that will result in the maximum drywell cooling?

- A. Two Chillers operating
Both Drywell Chilled Water Pumps operating
Two fans operating for each Drywell Unit Cooler
- B. One Chiller operating
One Drywell Chilled Water Pump operating
One fan operating for each Drywell Unit Cooler
- C. One Chiller operating
Both Drywell Chilled Water Pumps operating
One fan operating for each Drywell Unit Cooler
- D. One Chiller operating
Both Drywell Chilled Water Pumps operating
Two fans operating for each Drywell Unit Cooler

Answer: C

Answer Explanation

Maximizing Drywell Cooling requires one chiller and both Drywell Chilled Water pumps operating and one fan operating for each (8) Drywell Unit Cooler

Question 60 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	1151588
User-Defined ID:	562204
Cross Reference Number:	ILT 2016 Q# 60
Topic:	Recall Maximized DW Cooling Configuration
RO importance:	3.6
SRO importance:	3.7
K/A #:	295012. AK2.02
Comments:	
General Data	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Level	RO		
Tier	1		
Group	2		
KA # and Rating	295012 AK2.02		
KA Statement	High Drywell Temperature Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Drywell cooling		
Cognitive level	low		
10 CFR 55	41.7		
Technical Reference with Revision No:	T-102 bases	Rev #:	2 5
Justification for Non SRO CFR Link:	N/A		
Question History: (i.e. LGS NRC-05, OYS CERT-04)	ILT Cert Exam 2005		
Question Source: (i.e. New, Bank, Modified)	562204 bank		
Low KA Justification (if required):	N/A		
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
Supplied Ref (if appropriate): (i.e. ABN-##)	None		
LORT			
PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e, A-Systems or B-Procedures)			
Comments			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 60 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

61

ID: 1151589

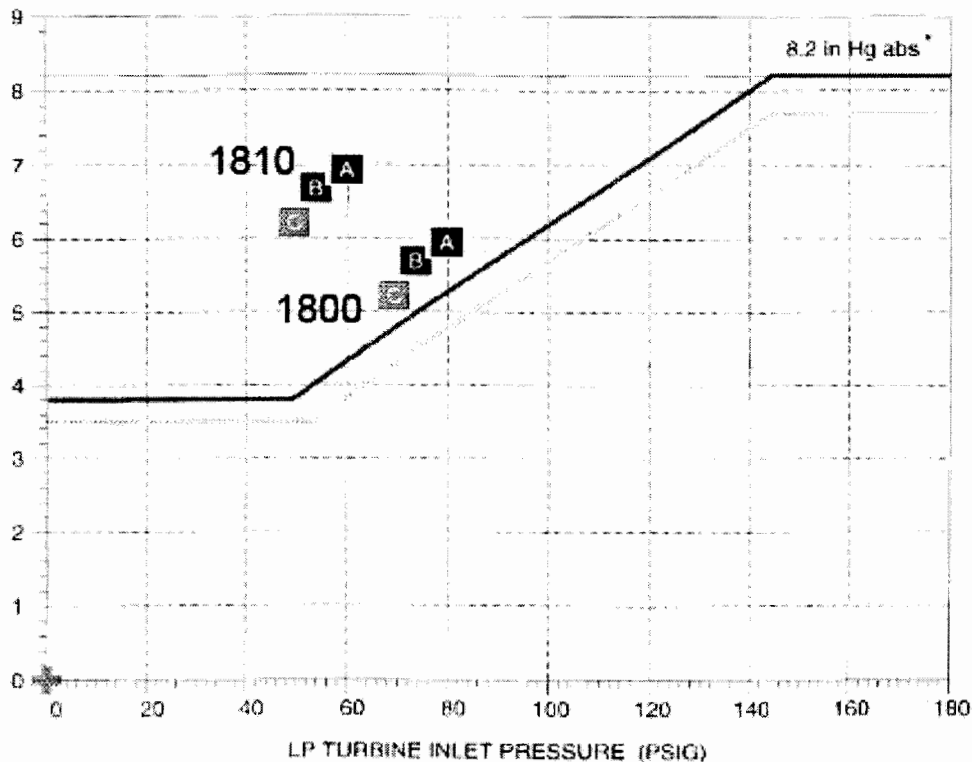
Points: 1.00

Unit 1 is operating at 100% power when main condenser vacuum starts degrading. A power reduction was initiated.

Main turbine back pressure is as shown below at times 1800 and 1810.

WHICH ONE of the following describes (1) the required action for these conditions and (2) the reason for the actions?

TURBINE BACKPRESSURE OPERATION LIMITS



- A. (1) If back pressure exceed 8.2" Hg abs. perform a GP-3 shutdown
(2) Prevents Turbine damage due to excessive moisture in the steam from the Moisture Separators
- B. (1) If back pressure exceed 8.2" Hg abs. perform a GP-3 shutdown
(2) Prevents Turbine damage due to excessive windage, vibration and Last Stage Blade Heating
- C. (1) Immediately perform a GP-4 shutdown
(2) Prevents Turbine damage due to excessive moisture in the steam from the Moisture Separators
- D. (1) Immediately perform a GP-4 shutdown
(2) Prevents Turbine damage due to excessive windage, vibration and Last Stage Blade Heating

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Answer: D

Answer Explanation

From the stem, the student is expected to determine the turbine has been operating in "Limited Operation" area of the Turbine Backpressure Limits curve (Attachment 5 of GP-5 App. 2). From GP-5 App. 2, If Main Turbine Backpressure cannot be restored to "Unlimited Operation" region within 5 minutes, Then Perform GP-4, Rapid Plant Shutdown.

The reason for this is that Low vacuum (or high backpressure) operation can result in excessive Windage, vibration, and heating of the last stage blades of the L.P. turbines.

"D" is correct for the above reasons

"A" is wrong but plausible to the examinee who does not interpret 8.2" Hg Abs. as 21.5" Hg. which is the turbine trip set point and would require a manual turbine trip if the auto trip did not occur, and if the student confuses the reason for Moisture Separator High Level Turbine Trip with the impacts of low condenser vacuum on the turbine.

"B" is wrong but plausible to the examinee who does not interpret 8.2" Hg Abs. as 21.5" Hg. which is the turbine trip set point and would require a manual turbine trip if the auto trip did not occur.

"C" is wrong if the student confuses the reason for Moisture Separator High Level Turbine Trip with the impacts of low condenser vacuum on the turbine.

Question 61 Info																	
Question Type:	Multiple Choice																
Status:	Active																
Always select on test?	No																
Authorized for practice?	No																
Points:	1.00																
Time to Complete:	3																
Difficulty:	3.00																
System ID:	1151589																
User-Defined ID:	NEW																
Cross Reference Number:	ILT 2016 Q# 61																
Topic:	Loss of condenser vacuum effect on reactor parameters																
RO importance:	3.4																
SRO importance:	3.4																
K/A #:	295002AK3.02																
Comments:	<table border="1"> <thead> <tr> <th colspan="2">General Data</th></tr> </thead> <tbody> <tr> <td>Level</td><td>RO</td></tr> <tr> <td>Tier</td><td>1</td></tr> <tr> <td>Group</td><td>2</td></tr> <tr> <td>KA # and Rating</td><td>295002AK3.02 3.4/3.4</td></tr> <tr> <td>KA Statement</td><td>295002 Loss of Main Condenser Vacuum AK3. Knowledge of the reasons for the following responses as they apply to LOSS OF MAIN CONDENSER VACUUM : AK3.02 Turbine trip</td></tr> <tr> <td>Cognitive level</td><td>Higher</td></tr> <tr> <td>10 CFR 55</td><td>41.5</td></tr> </tbody> </table>	General Data		Level	RO	Tier	1	Group	2	KA # and Rating	295002AK3.02 3.4/3.4	KA Statement	295002 Loss of Main Condenser Vacuum AK3. Knowledge of the reasons for the following responses as they apply to LOSS OF MAIN CONDENSER VACUUM : AK3.02 Turbine trip	Cognitive level	Higher	10 CFR 55	41.5
General Data																	
Level	RO																
Tier	1																
Group	2																
KA # and Rating	295002AK3.02 3.4/3.4																
KA Statement	295002 Loss of Main Condenser Vacuum AK3. Knowledge of the reasons for the following responses as they apply to LOSS OF MAIN CONDENSER VACUUM : AK3.02 Turbine trip																
Cognitive level	Higher																
10 CFR 55	41.5																

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Technical Reference with Revision No:	OT-116, GP-5app.2	Rev #:	38 83
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)	New		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)	None		
	LORT			
	PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

Question 61 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

62

ID: 1151607

Points: 1.00

Unit 2 is preparing to shutdown due to a fuel failure when a feedwater transient occurs.

Plant conditions are as follows:

- Reactor level is +120 inches and up slow
- The MSIVs are closed
- Reactor pressure is 600 psig up slow

WHICH ONE of the following is the required method to reduce reactor level?

- A. A or C SRV
- B. B or C SRV
- C. B or N SRV
- D. A or J SRV

Answer: B

Answer Explanation

Justification

- A Incorrect per OT-110 B,C, or J SRV should be used method
- B correct with steam lines flooded and pressure less than is directed per OT-110
- C Incorrect B,C, or J SRVs are directed if reactor pressure is <700 psig or > 1096 psig
- D Incorrect per OT-110 HPCI is isolated at +100 inches

Question 62 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	0										
Difficulty:	3.00										
System ID:	1151607										
User-Defined ID:	NEW										
Cross Reference Number:	ILT 2016 Q# 62										
Topic:	Reactor hi level drain path										
RO importance:	3.3										
SRO importance:	3.3										
K/A #:	295008AA1.09										
Comments:	<table><tr><th colspan="2">System Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>1</td></tr><tr><td>Group</td><td>2</td></tr><tr><td>KA # and Rating</td><td>295008AA1.09 3.3/3.3</td></tr></table>	System Data		Level	RO	Tier	1	Group	2	KA # and Rating	295008AA1.09 3.3/3.3
System Data											
Level	RO										
Tier	1										
Group	2										
KA # and Rating	295008AA1.09 3.3/3.3										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement	295008 High Reactor Water Level Ability to operate and/or monitor the following as they apply to HIGH REACTOR WATER LEVEL :AA1.09 Ability to drain:		
	Cognitive level	low		
	10 CFR 55	41.5, 41.10		
	Technical Reference with Revision No:	OT-110	Rev #:	30
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)	N/A		
	Question Source: (i.e. New, Bank, Modified)	NEW		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	Supplied Ref (If appropriate): (i.e. ABN-##)	None		
PRA: (i.e. Yes or No or #)				
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 62 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

63

ID: 1151608

Points: 1.00

Unit 2 has scrambled, with the following:

- Drywell pressure is 1.4 psig, up slow
- RPV level shrank to -20" before recovering to +35"
- Reactor Enclosure ventilation exhaust duct radiation is 1.6 mR/hr

WHICH ONE of the following identifies the radiation monitoring instruments that are currently monitoring Reactor Enclosure radiation levels?

- A. North Stack, only
- B. Reactor Enclosure Vent Exhaust Duct and North Stack, only
- C. Reactor Enclosure Vent Exhaust Duct and South Stack, only
- D. Reactor Enclosure Vent Exhaust Duct, North Stack, and South Stack

Answer: B

Answer Explanation

Even though an isolation signal is present, RERS still recirculates RE air past the RE vent exhaust duct rad monitors. Since SGTS is in service, the North Stack is also monitoring RE air. South Stack will not receive any air flow when the RE is isolated, which makes a, c, and d incorrect but plausible to the examinee who does not recall the flow path during an isolation.

Question 63 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	3										
Difficulty:	2.50										
System ID:	1151608										
User-Defined ID:	562210										
Cross Reference Number:	ILT 2016 Q# 63										
Topic:	Determine Rad Monitors that are monitoring RE HVAC Rad Levels										
RO importance:	3.8										
SRO importance:	4.2										
K/A #:	295034 EA2.01										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>1</td></tr><tr><td>Group</td><td>2</td></tr><tr><td>KA # and Rating</td><td>295034 EA2.01 3.8/4.2</td></tr></table>	General Data		Level	RO	Tier	1	Group	2	KA # and Rating	295034 EA2.01 3.8/4.2
General Data											
Level	RO										
Tier	1										
Group	2										
KA # and Rating	295034 EA2.01 3.8/4.2										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		Secondary Containment Ventilation High Radiation Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT VENTILATION HIGH RADIATION : EA2.01 Ventilation radiation levels	
	Cognitive level		high	
	10 CFR 55		41.10	
	Technical Reference with Revision No:		M-0076 sh 3	Rev #: 031
	Justification for Non SRO CFR Link:		N/A	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)		From ILT Cert Exam 2005	
	Question Source: (i.e. New, Bank, Modified)		Bank 562210	
	Low KA Justification (if required):		N/A	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)		None	
	LORT			
PRA: (i.e. Yes or No or #)		N		
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				
M-76 P&IDs, M-26 P&IDs				

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 63 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

64

ID: 1153627

Points: 1.00

Unit 1 plant conditions are as follows:

- Reactor power is 100%
- Annunciator ARC-MCR-109, RAD, G2, "1 AIR EJECTOR OFFGAS DISCHARGE HI RADIATION" is alarming
- Air Ejector discharge radiation level is 4.1×10^5 mR/hour UP SLOW

WHICH ONE of the following actions is required to reduce Air Ejector discharge radiation levels below 2.1×10^4 mR/hour and the reason for lowering Air Ejector discharge radiation levels?

	<u>Actions Required to Reduce Air Ejector Radiation Levels</u>	<u>Reason for Lowering Air Ejector Discharge Radiation Levels And Expected Release Point</u>
A.	Reduce Reactor Power	Limit offsite release through the North Stack
B.	Reduce Reactor Power	Limit offsite release through the South Stack
C.	Isolate Steam Jet Air Ejectors	Limit offsite release through the North Stack
D.	Isolate Steam Jet Air Ejectors	Limit offsite release through the South Stack

Answer: A

Answer Explanation

Per ON-102 Bases, reduction in reactor power results in acceptable short term offgas releases after a delay in the charcoal absorbers. The Offgas System discharges to the environment via the North Stack.

distractors B and D are use the incorrect stack plausible to examinee who does not recall off gas release point

distractors C and D are incorrect. if rad levels continued to rise at 3 times normal full power background the MSIV would have to be closed to isolate the source .

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 64 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	2																																																																										
Difficulty:	2.00																																																																										
System ID:	1153627																																																																										
User-Defined ID:	562308																																																																										
Cross Reference Number:	ILT 2016 Q# 64																																																																										
Topic:	Unit 1 Air Ejector Discharge High Radiation																																																																										
RO importance:	4.2																																																																										
SRO importance:	4.2																																																																										
K/A #:	295017 2.4.47																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data:</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295017 2.4.47 4.2/4.2</td> </tr> <tr> <td>KA Statement</td> <td colspan="3"> 295017 High Off-Site Release Rate 2.4.47 Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. </td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">high</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.10</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>ON-102</td> <td>Re v #: 28</td> <td></td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">2005 NRC</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">562308 bank</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">none</td> </tr> <tr> <td colspan="4">LORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data:				Level	RO			Tier	1			Group	2			KA # and Rating	295017 2.4.47 4.2/4.2			KA Statement	295017 High Off-Site Release Rate 2.4.47 Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.			Cognitive level	high			10 CFR 55	41.10			Technical Reference with Revision No:	ON-102	Re v #: 28		Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	2005 NRC			Question Source: (i.e. New, Bank, Modified)	562308 bank			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	none			LORT				PRA: (i.e. Yes or No or #)			
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ILT																																																																											
Supplied Ref (If appropriate): (i.e. ABN-##)	none																																																																										
LORT																																																																											
PRA: (i.e. Yes or No or #)																																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e. A-Systems or B- Procedures)	
	Comments	
	<p>Per ON-102 basis, reduction of power results in acceptable short term off-gas releases after a delay in the charcoal absorbers. Off gas discharges to the North Stack.</p> <p>ON-102</p>	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

65

ID: 1153187

Points: 1.00

Unit 1 was at 70%, shutting down for a fuel failure when a seismic event occurred:

Unit 1 plant conditions are as follows:

- Reactor is scrammed.
- Div 1 125 VDC is de-energized.
- Div 2 125 VDC is de-energized.
- D14 Bus is deenergized.

10 minutes later

- A steam leak in the HPCI room has been confirmed.
- Room temperature slowly rises to 195°F.
- Radiation levels slowly rise to 200 mr/hr.

WHICH ONE of the following describes the release path from the Unit 1 HPCI Pump Room and the required response?

	<u>Release Path</u>	<u>Required Response</u>
A.	A filtered release to the South Stack exists	Close the HPCI outboard isolation valve
B.	A filtered release to the South Stack exists.	Close the HPCI inboard isolation valve
C.	A filtered release to the North Stack exists.	Close the HPCI inboard isolation valve
D.	A filtered release to the North Stack exists.	Close the HPCI outboard isolation valve

Answer: D

Answer Explanation

Justification:

- A. Incorrect but plausible since normally HV-55-F003 "HPCI Steam Line Outboard Isolation Valve" would close on high room temperature. However, the signal for closing HV-55-F003 is powered from Div 2.
- B. Incorrect but plausible since the Steam Flooding Isolation Dampers normally close on a high d/P signal. However, with the loss of Div 1 and Div 2 the solenoids to the actuating arm will be de-energized. These solenoids need to energize to release the actuating arm for the dampers.
- C. Incorrect but plausible since most all of the dampers associated with the RE HVAC system close on a loss of DC power. However, the solenoids associated with the Steam Flooding Isolation Dampers need to energize to release the actuating arm for the dampers.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

- D. Correct – Conditions within the HPCI equipment room will continue to worsen. HV-155-F003 receives its isolation signal from Div 2, which means with HV-55-1F002 failed open, an unisolable leak path exists from the ruptured HPCI steam supply line into the HPCI Equipment Room. The RE HVAC system dampers are supplied by 125V DC from Div 1 and Div 2 and on a loss of power the exhaust and supply dampers would close. This would confine the steam and radiation within the RE HVAC and eventually would reach the North Stack through the filtered flowpath provided by the SGTS.

Question 65 Info																																																			
Question Type:	Multiple Choice																																																		
Status:	Active																																																		
Always select on test?	No																																																		
Authorized for practice?	No																																																		
Points:	1.00																																																		
Time to Complete:	0																																																		
Difficulty:	0.00																																																		
System ID:	1153187																																																		
User-Defined ID:	MODIFIED																																																		
Cross Reference Number:	ILT 2016 Q# 65																																																		
Topic:	HPCI leak																																																		
RO importance:	3.9																																																		
SRO importance:	4.0																																																		
K/A #:	295033EA1.05																																																		
Comments:	<table><tr><th colspan="4">General Data</th></tr><tr><td>Level</td><td colspan="3">RO</td></tr><tr><td>Tier</td><td colspan="3">1</td></tr><tr><td>Group</td><td colspan="3">2</td></tr><tr><td>KA # and Rating</td><td colspan="3">295033 EA1.05 3.9/4.0</td></tr><tr><td>KA Statement</td><td colspan="3">295033 Secondary Containment Area Radiation Levels EA1.05 – Ability to operate and/or monitor the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : Affected systems so as to isolate damaged portions</td></tr><tr><td>Cognitive level</td><td colspan="3">higher</td></tr><tr><td>10 CFR 55</td><td colspan="3">41.7</td></tr><tr><td>Technical Reference with Revision No:</td><td>E-D14 E-1FA E-1FB</td><td>Rev #:</td><td>9 11 12</td></tr><tr><td>Justification for Non SRO CFR Link:</td><td colspan="3"></td></tr><tr><td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td colspan="3"></td></tr><tr><td>Question Source: (i.e. New, Bank, Modified)</td><td colspan="3">bank modified 2008 LGS ILT exam (NRC Developed)</td></tr></table>			General Data				Level	RO			Tier	1			Group	2			KA # and Rating	295033 EA1.05 3.9/4.0			KA Statement	295033 Secondary Containment Area Radiation Levels EA1.05 – Ability to operate and/or monitor the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : Affected systems so as to isolate damaged portions			Cognitive level	higher			10 CFR 55	41.7			Technical Reference with Revision No:	E-D14 E-1FA E-1FB	Rev #:	9 11 12	Justification for Non SRO CFR Link:				Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	bank modified 2008 LGS ILT exam (NRC Developed)		
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Low KA Justification (if required):	N/A
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
		ILT
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
		LORT
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 65 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT
NRC
RO
HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

66

ID: 1240591

Points: 1.00

Both units are at 100% power. Several I&C tests have arrived at the MCR all requiring the attention of the associated RO and PRO.

WHICH ONE of the following identifies the General Requirements for the number of tests that are allowed to be performed at a time?

- (1) Number of tests to be performed for Unit 1 at a time
- (2) Number of tests to be performed for the Common Unit (PRO) at a time

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

Answer: A

Answer Explanation

OP-LG-102-1001, Operations On-Line Work Management Attachment 6, Operations and LMI Testing Interface Agreement. The General Requirements states -

Only one test that requires the attention of the Unit RO Shall be scheduled at a time.

Only one test that requires the attention of the PRO (i.e. Fire testing) shall be scheduled at a time.

B is Plausible if the candidate incorrectly believes that two tests are allowed at once (this would be the case if no more than one required the attention of the PRO (i.e. testing brings in no alarms)

B is Plausible if the candidate incorrectly believes that two tests are allowed at once (this would be the case if no more than one required the attention of the RO (i.e. testing brings in no alarms)

C is Plausible if the candidate incorrectly believes that two tests are allowed at once (this would be the case if no more than one required the attention of the RO (i.e. testing brings in no alarms) and if the candidate incorrectly believes that two tests are allowed at once (this would be the case if no more than one required the attention of the PRO (i.e. testing brings in no alarms)

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 66 Info																																																																			
Question Type:	Multiple Choice																																																																		
Status:	Active																																																																		
Always select on test?	No																																																																		
Authorized for practice?	No																																																																		
Points:	1.00																																																																		
Time to Complete:	3																																																																		
Difficulty:	2.00																																																																		
System ID:	1240591																																																																		
User-Defined ID:	NEW																																																																		
Cross Reference Number:	ILT 2016 Q# 66																																																																		
Topic:	Conduct of OPS - direct personnel activities inside the CR																																																																		
RO importance:	2.9																																																																		
SRO importance:	4.5																																																																		
K/A #:	2.1.9																																																																		
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">3</td> </tr> <tr> <td>Group</td> <td colspan="3">2.1.9</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.1.9</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Conduct of OPS - ability to direct personnel activities inside the Control Room</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.10</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>OP-LG-102-1001</td> <td>Rev #:</td> <td>21</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	RO			Tier	3			Group	2.1.9			KA # and Rating	2.1.9			KA Statement	Conduct of OPS - ability to direct personnel activities inside the Control Room			Cognitive level	Low			10 CFR 55	41.10			Technical Reference with Revision No:	OP-LG-102-1001	Rev #:	21	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				Supplied Ref (If appropriate): (i.e. ABN-##)	None			PRA: (i.e. Yes or No or #)			
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PRA: (i.e. Yes or No or #)																																																																			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A- Systems or B- Procedures)	
	Comments	

Question 66 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

LIMERICK LO Question Category

ILT
NRC
RO
LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

67

ID: 1153971

Points: 1.00

The Unit Supervisor has directed you to perform S44.1.B UNISOLATE/STARTUP IDLE RWCU RECIRCULATION PUMP

WHICH ONE of the following describes the MINIMUM electrical safety precautions required to install jumpers for the low flow trip bypass per step 4.4 in 10-C602 panel?

All metal removed and ...

- A. safety glasses only
- B. safety glasses, electrical safety coat and rubber gloves
- C. safety glasses, long sleeve cotton shirt and rubber gloves
- D. Safety glasses, electrical safety coat, face shield and rubber gloves

Answer: C

Answer Explanation

SA-AA-129 states that for the voltage in the area being worked 50-240 volts the minimum PPE is all metal removed, long sleeve cotton shirt, safety glasses and rubber gloves

C is correct for the above reasons

A,B,D incorrect but plausible to the examinee who does not recall the appropriate PPE

Question 67 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	0										
Difficulty:	0.00										
System ID:	1153971										
User-Defined ID:	BANK DRESDEN										
Cross Reference Number:	ILT 2016 Q# 67										
Topic:	Electrical Safety requirements										
RO importance:	3.4										
SRO importance:	3.6										
K/A #:	2.1.26										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>3</td></tr><tr><td>Group</td><td>generic</td></tr><tr><td>KA # and Rating</td><td>2.1.26 3.4/3.6</td></tr></table>	General Data		Level	RO	Tier	3	Group	generic	KA # and Rating	2.1.26 3.4/3.6
General Data											
Level	RO										
Tier	3										
Group	generic										
KA # and Rating	2.1.26 3.4/3.6										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen).	
	Cognitive level		low	
	10 CFR 55		41.10	
	Technical Reference with Revision No:		SA-AA-129	Rev #: 7
	Justification for Non SRO CFR Link:		N/A	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)		Dresden 2012 NRC exam	
	Question Source: (i.e. New, Bank, Modified)			
	Low KA Justification (if required):		N/A	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	Supplied Ref (If appropriate): (i.e. ABN-##)		None	
	PRA: (i.e. Yes or No or #)			
	LORT Question Section: (i.e. A-Systems or B-Procedures)			
	Comments			

Question 67 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

68

ID: 1153968

Points: 1.00

WHICH ONE of the following describes the ability to use:

- ESW to make up to the Unit 1 Spent Fuel Pool (Unit 1 and Unit 2 fuel pools are not connected),
- RHRSW to spray the Unit 2 Drywell from the MCR?

UNIT 1 SPENT FUEL POOL MAKE UP

UNIT 2 DRYWELL SPRAY

A.	'A' ESW	'A' RHRSW
B.	'B' ESW	'B' RHRSW
C.	'A' ESW	'B' RHRSW
D.	'B' ESW	'A' RHRSW

Answer: A

Answer Explanation

A is correct A ESW supplies unit 1 spent fuel pool emergency make up and B ESW supplies unit 2 spent fuel pool emergency make up. For DW spray RHRSW B loop supplies 1B RHR header for unit 1 and A RHRSW supplies 2A RHR header for unit 2.

For the above reasons A is correct. B-D are incorrect but, plausible to the examinee who does not recall the correct line up for each unit and flow path.

Question 68 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	0										
Difficulty:	0.00										
System ID:	1153968										
User-Defined ID:	NEW										
Cross Reference Number:	ILT 2016 Q# 68										
Topic:	unit diff										
RO importance:	3.6										
SRO importance:	3.6										
K/A #:	2.2.4										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>3</td></tr><tr><td>Group</td><td>N/A</td></tr><tr><td>KA # and Rating</td><td>2.2.4 3.6/3.6</td></tr></table>	General Data		Level	RO	Tier	3	Group	N/A	KA # and Rating	2.2.4 3.6/3.6
General Data											
Level	RO										
Tier	3										
Group	N/A										
KA # and Rating	2.2.4 3.6/3.6										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.	
	Cognitive level		low	
	10 CFR 55		41.7	
	Technical Reference with Revision No:		S53.0.A T-225	Rev #: 26 22
	Justification for Non SRO CFR Link:		N/A	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)		new	
	Low KA Justification (if required):		N/A	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)		None	
	LORT			
	PRA: (i.e. Yes or No or #)			
	LORT Question Section: (i.e, A-Systems or B-Procedures)			
	Comments			

Question 68 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

69

ID: 1153700

Points: 1.00

Unit 1 was operating at rated conditions when a LOCA occurred. RCIC is running in the Level Control Mode when the following timeline of indications occur:

TIME	RPV Pressure	RCIC Pump Suction Pressure	RCIC Turbine Exhaust pressure
1500	850	25 psig	15 psig
1505	650	20 psig	28 psig
1510	450	8 psig	30 psig
1515	250	5" Hg (vac)	57 psig
1520	50	10" Hg (vac)	65 psig

If RCIC fails to automatically trip; at what time above is an automatic trip threshold **FIRST EXCEEDED** that will require operators to manually trip RCIC?

- A. 1505
- B. 1510
- C. 1515
- D. 1520

Answer: C

Answer Explanation

RCIC trips on the following

- a. High turbine exhaust pressure - 50 psig
- b. Low RCIC pump suction press. - 20" Hg Vac
- c. RCIC Isolation Division 1 Logic System actuated d. RCIC Isolation Division 3 Logic System actuated e. Remote manual trip (Control Room push button)
- f. Turbine Trip - Mechanical overspeed trip operates at 125% rated speed.

- A Incorrect plausible to the examinee who confuses 20 in vac with 20 psig for suct presss trip
- B Incorrect plausible to the examinee who does not recall the correct turbine exhaust pressure
- C Correct at 1515 RCIC has exceeded the high turb exhaust pressure trip set point
- D Incorrect plausible to the examinee who does not recall the correct exhaust pressure or suction pressure

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 69 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	0																																																						
Difficulty:	3.00																																																						
System ID:	1153700																																																						
User-Defined ID:	BANK MONTICELLO																																																						
Cross Reference Number:	ILT 2016 Q# 69																																																						
Topic:	RCIC Trip signals																																																						
RO importance:	4.2																																																						
SRO importance:	4.4																																																						
K/A #:	2.2.44																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">3</td> </tr> <tr> <td>Group</td> <td colspan="3">2.2.44</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.2.44 4.2/4.4</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">2.2.44 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.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">lower</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.7</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>ARC-MCR-116 C2</td> <td>Rev #:</td> <td>12</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">2013 MNGP ILT NRC Q15</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3"></td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	3			Group	2.2.44			KA # and Rating	2.2.44 4.2/4.4			KA Statement	2.2.44 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.			Cognitive level	lower			10 CFR 55	41.7			Technical Reference with Revision No:	ARC-MCR-116 C2	Rev #:	12	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	2013 MNGP ILT NRC Q15			Question Source: (i.e. New, Bank, Modified)				Low KA Justification (if required):	N/A		
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Question Source: (i.e. New, Bank, Modified)																																																							
Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 69 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

70

ID: 1241008

Points: 1.00

Unit 1 was operating at 100% power when a partial loss of feedwater heating occurred.

20 minutes later, the following plant conditions exist:

- Main Steam Line Radiation Monitors indicate 800 mr/hr
- Offgas Radiation Monitors have risen and continue to rise
- Several Turbine Building Area Radiation Monitors are in alarm (but on-scale)
- Turbine Building ΔP is positive
- The Turbine Building EO reports seeing a steam plume coming from behind the turbine shield wall
- All control rods indicate full-in
- The Shift Manager has declared an Alert due to Offsite release above ALERT level per EP-AA-1008 Addendum 3

WHICH ONE of the following identifies the required action?

- A. Close the MSIVs IAW T-104 Radioactivity Release Control
- B. Close the MSIVs IAW T-103 Secondary Containment Control
- C. Emergency Depressurize the RPV IAW T-104 Radioactivity Release Control
- D. Emergency Depressurize the RPV IAW T-103 Secondary Containment Control

Answer: A

Answer Explanation

The question states that a loss of FW heating had occurred. The conditions show that MSL and offgas radiation has increased, TB ARMs are in alarm and that TB ΔP is positive. These indicate a primary steam leak in the TB. The stem also shows that an alert emergency condition has been declared due to radiological effluents. This is an entry condition into the Radioactivity release Control EOP T-104. Step RR-8 is to isolate primary systems discharging outside the primary and secondary containments. Closing the MSIVs would stop the leak into the TB. Answer A is correct. requires closing the MSIVs when MSL radiation is > 800 mr/hr and rising slowly. Answer B is incorrect. The Radioactivity Release Control EOP does require ED, but only after a GE is declared. Answer C is incorrect. ED is also required in the Secondary Containment Control EOP, but the MAX SAFE must first be exceeded (with a primary leak in the RB) in 2 areas first. Answer D is incorrect.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 70 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	2																																																																										
Difficulty:	2.50																																																																										
System ID:	1241008																																																																										
User-Defined ID:																																																																											
Cross Reference Number:	ILT 2016 Q# 70																																																																										
Topic:	RRC Isolate to minimize release																																																																										
RO importance:	3.8																																																																										
SRO importance:	4.3																																																																										
K/A #:	2.3.11																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">3</td> </tr> <tr> <td>Group</td> <td colspan="3">N/A</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.3.11 3.8/4.3</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Ability to control radiation releases.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">high</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T-104</td> <td>Rev #:</td> <td>1 3</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">667779 OC bank</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3"></td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <td colspan="4">LORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	3			Group	N/A			KA # and Rating	2.3.11 3.8/4.3			KA Statement	Ability to control radiation releases.			Cognitive level	high			10 CFR 55	43.5			Technical Reference with Revision No:	T-104	Rev #:	1 3	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	667779 OC bank			Low KA Justification (if required):				Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	None			LORT				PRA: (i.e. Yes or No or #)			
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PRA: (i.e. Yes or No or #)																																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e., A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

71

ID: 1248730

Points: 1.00

A transient has resulted in RPV level lowering to -50" and is now trending up slowly.

WHICH ONE of the following describes (1) the status of the Drywell Leak Detector and (2) the ability to bypass the Drywell Leak Detector isolation signal if present.

- A. (1) Isolated
(2) Isolation signal can be bypassed.
- B. (1) Not isolated
(2) isolation signal cannot be bypassed.
- C. (1) Isolated
(2) Isolation signal cannot be bypassed.
- D. (1) Not Isolated
(2) Isolation signal can be bypassed.

Answer: C

Answer Explanation

C is correct: The Drywell leak detector isolates at -38 inches reactor level and has no bypass capability. The distractors are plausible to the examinee who does not recall the correct isolation setpoint or does not recall which isolations can be bypassed.

Question 71 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	1										
Difficulty:	0.00										
System ID:	1248730										
User-Defined ID:	953060 MODIFIED										
Cross Reference Number:	ILT 2016 Q# 71										
Topic:	A transient has resulted in RPV level lowering to -50" Wide Range and is now trending up slowly.										
RO importance:	2.9										
SRO importance:	3.1										
K/A #:	2.3.15										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>3</td></tr><tr><td>Group</td><td>N/A</td></tr><tr><td>KA # and Rating</td><td>2.3.15 2.9/3.1</td></tr></table>	General Data		Level	RO	Tier	3	Group	N/A	KA # and Rating	2.3.15 2.9/3.1
General Data											
Level	RO										
Tier	3										
Group	N/A										
KA # and Rating	2.3.15 2.9/3.1										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement	Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.	
	Cognitive level	High	
	10 CFR 55	41.12	
	Technical Reference with Revision No:	GP-8	Rev #:
	Justification for Non SRO CFR Link:	N/A	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)	2012 clinton NRC exam	
	Question Source: (i.e. New, Bank, Modified)	Bank clinton Modified	
	Low KA Justification (if required):	N/A	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)		
	ILT		
	Supplied Ref (If appropriate): (i.e. ABN-##)	None	
	LORT		
	PRA: (i.e. Yes or No or #)		
LORT Question Section: (i.e, A-Systems or B-Procedures)			
Comments			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

72

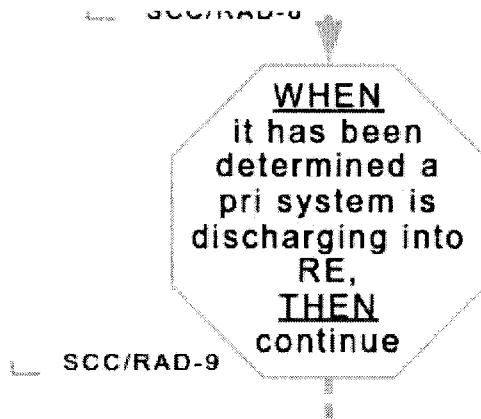
ID: 1151771

Points: 1.00

Unit 2 Reactor Enclosure radiation level is rising.

Given the TRIP step below;

WHICH ONE of the following requires continuing to SCC/RAD-10?



- A. A Feedwater line break in the Outboard MSIV room
- B. A leak on HV-057-214 Drywell Purge Exhaust causing primary containment to discharge into the Reactor Enclosure.
- C. A Suppression Pool leak causing B Core Spray room water level to exceed MNO value
- D. A RWCU leak in the RWCU valve room

Answer: D

Answer Explanation

T-103 Bases defines primary system as follows:

As used in this step, the term "pri system" is defined as the pipes, valves, and other equipment which connect directly to the RPV such that a reduction in RPV pressure will effect a decrease in the flow of steam or water being discharged through an unisolated break in the system.

D is correct, Depressurizing the reactor would reduce the leak rate from RWCU

A incorrect, plausible to examinee who sees feedwater directly feeding the vessel and at high tem. and pressure but does not understand the definition of primary system.

B incorrect. plausible to examinee who sees primary containment discharging into secondary containment

C incorrect, plausible to examinee who sees exceeding an MNO value as a response to a primary system discharging

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 72 Info																																																															
Question Type:	Multiple Choice																																																														
Status:	Active																																																														
Always select on test?	No																																																														
Authorized for practice?	No																																																														
Points:	1.00																																																														
Time to Complete:	0																																																														
Difficulty:	2.50																																																														
System ID:	1151771																																																														
User-Defined ID:	NEW																																																														
Cross Reference Number:	ILT 2016 Q# 72																																																														
Topic:	EOP definition																																																														
RO importance:	3.9																																																														
SRO importance:	4.3																																																														
K/A #:	2.4.17																																																														
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">3</td> </tr> <tr> <td>Group</td> <td colspan="3">N/A</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.4.17 3.9/4.3</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">2.4.17 Knowledge of EOP terms and definitions.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.10</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T-103</td> <td>Rev #:</td> <td>23</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">New</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">NONE</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	3			Group	N/A			KA # and Rating	2.4.17 3.9/4.3			KA Statement	2.4.17 Knowledge of EOP terms and definitions.			Cognitive level	higher			10 CFR 55	41.10			Technical Reference with Revision No:	T-103	Rev #:	23	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	New			Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				Supplied Ref (If appropriate): (i.e. ABN-##)	NONE		
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Supplied Ref (If appropriate): (i.e. ABN-##)	NONE																																																														

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 72 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT

NRC

RO

HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

73

ID: 1151787

Points: 1.00

Given the following conditions:

- A reactor startup is in progress
- Power is on Range 2 of the IRM's
- The "A" IRM increases to 124/125 of scale
- The "F" IRM increases to 123/125 of scale
- An "A" side half scram occurs

WHICH ONE of the following describes the unit RO expected actions?

- A. Immediately scram the reactor
- B. Range up on "F" IRM and continue the startup
- C. Range up on "A" IRM and reset the "A" side half scram, continue the startup
- D. Range up on "A" and "F" IRM, reset the "A" side half scram continue the startup

Answer: A

Answer Explanation

A,C,E,&G IRM input to A RPS. B,D,F&H IRM input to the B RPS. IRM SCRAM setpoint is 120/125 of scale. from the stem both A and F IRM have exceeded their SCRAM setpoint as such a full SCRAM should have occurred.

A Correct for reasons stated above

B-D Incorrect up ranging the IRM and resetting the half are not appropriate because an actual scram setpoint is being exceeded. these are plausible to the examinee who does not recall the upscale trip setpoint for the IRM's or the divisional breakdown

Question 73 Info							
Question Type:	Multiple Choice						
Status:	Active						
Always select on test?	No						
Authorized for practice?	No						
Points:	1.00						
Time to Complete:	0						
Difficulty:	2.00						
System ID:	1151787						
User-Defined ID:	556719						
Cross Reference Number:	ILT 2016 Q# 73						
Topic:	Given the following conditions: - A reactor startup is in progress - Power is on Range 2 of the IR						
RO importance:	4.6						
SRO importance:	4.10						
K/A #:	2.4.49						
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>RO</td></tr><tr><td>Tier</td><td>3</td></tr></table>	General Data		Level	RO	Tier	3
General Data							
Level	RO						
Tier	3						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Group	2.4		
	KA # and Rating	2.4.49 4.6/4.4		
	KA Statement	2.4.49 Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.		
	Cognitive level	Lower		
	10 CFR 55	41.10		
	Technical Reference with Revision No:	OT-117	Re v #:	11
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)	Bank		
	Question Source: (i.e. New, Bank, Modified)	Bank 556719		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)	None		
	LORT			
	PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e, A-Systems or B-Procedures)				
Comments				

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 73 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.41 RO WRITTEN EXAMINATION

LIMERICK LO Question Category

NRC

RO

LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

74

ID: 1153607

Points: 1.00

A startup is in progress on UNIT 1, reactor power is 3%.

- Power ascension is on hold due to a SBLC issue
- The drywell is posted as a high radiation area
- The clearance to repair SLC is being removed
- RP escort is not qualified to perform IVOR/CV activities at LGS

WHICH ONE of the following describes the actions required to restore the 48-1F036 "SBLC Inboard manual injection valve" to service while maintaining dose rates ALARA?

- A. Independent Verification of Removal (IVOR) is required for required Safety-related, Tech Spec, TRM equipment, and may not be **waived**.
- B. Shift manager may approve Concurrent Verification of removal instead of IVOR.
- C. The Floor Supervisor may **WAIVE** verification requirements. No other action is required.
- D. The Shift Manager may **WAIVE** verification requirements. Position indicating lights on 10-C603 shall be used to verify position of 48-1F036 valve.

Answer: D

Answer Explanation

Per HU-AA-101

4.3.2. During plant operations or outages, perform appropriate verifications on systems that could result in an immediate and irrecoverable threat to safe and continuous operation as defined by Plant Management. Attachment 5, Graded Approach to Clearance and Tagging Verification, should be used to determine the appropriate verification method involving clearances/tagouts. Where specific verification practices are not stated by the procedure or governing document, supervisors may assign an appropriate verification method to be used. Attachment 2, Verification Method Selection Guide, may be used to determine the appropriate verification method when such guidance is not provided or in the development of procedures.

(CM-1, CM-2, CM-3)

1. The Shift Manager may **WAIVE** verification requirements for ALARA concerns. Alternate verification techniques shall be considered.

A incorrect but plausible to examinee who does not recall 4.3.2.1 allowance for waiver for ALARA

B incorrect plausible to examinee who believes CV will require less people there for dose reduction

C Incorrect plausible to examinee who does not recall that the manual valve 48-1F036 has position indication on 10C-603 or recall the second part of 4.3.2.1 Alternate verification techniques shall be considered.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 74 Info																																																															
Question Type:	Multiple Choice																																																														
Status:	Active																																																														
Always select on test?	No																																																														
Authorized for practice?	No																																																														
Points:	1.00																																																														
Time to Complete:	0																																																														
Difficulty:	0.00																																																														
System ID:	1153607																																																														
User-Defined ID:	NEW																																																														
Cross Reference Number:	ILT 2016 Q# 74																																																														
Topic:	ALARA																																																														
RO importance:																																																															
SRO importance:	4.0																																																														
K/A #:																																																															
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">RO</td> </tr> <tr> <td>Tier</td> <td colspan="3">generic</td> </tr> <tr> <td>Group</td> <td colspan="3">2.3.12</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.3.12 3.2/3.7</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">2.3.12 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">41.12</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>HU-AA-101</td> <td>Re v #:</td> <td>009</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">new</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">new</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">none</td> </tr> </tbody> </table>			General Data				Level	RO			Tier	generic			Group	2.3.12			KA # and Rating	2.3.12 3.2/3.7			KA Statement	2.3.12 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.			Cognitive level	low			10 CFR 55	41.12			Technical Reference with Revision No:	HU-AA-101	Re v #:	009	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	new			Question Source: (i.e. New, Bank, Modified)	new			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				Supplied Ref (If appropriate): (i.e. ABN-##)	none		
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 74 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.12 Radiological safety principles and procedures.

10 CFR 55.41 RO WRITTEN EXAMINATION

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

75

ID: 1240611

Points: 1.00

Unit 1 is at 100% power when the '1A' Reactor Feedpump trips.

WHICH ONE of the following identifies the required protocol during Transient Response in accordance with OP-LG-103-102-1002, Strategies for Successful Transient Mitigation?

A Peer Check (1) required for reactivity manipulations.

If during a Crew Brief, ARC-MCR-107 F5 (Div 1 Steam Leak Det Sys Hi Temp/Trouble) alarms, the RO (2) expected to interrupt the brief to report the alarm.

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

Answer: B

Answer Explanation

The stem of the question tells the candidates that Unit 1 is in a transient due to the trip of the 1A Feedpump. OP-LG-103-102-1002, Strategies for Successful Transient Mitigation states that peer checks are waived when in Transient Response (Step 2.1.2, Transient Response Standard).

The stem also identifies a Steam Leak Detection Alarm is received. This alarm is a T-103 entry and is unrelated to the current transient. Based on this, the RO should interrupt the brief to announce this alarm.

A is Plausible if the candidate incorrectly believes that the alarm does not need to be reported (or the report should wait until the brief is over)

C is Plausible if the candidate incorrectly believes that peer checks remain required for reactivity manipulations and if the candidate incorrectly believes that the alarm does not need to be reported (or the report should wait until the brief is over).

D is Plausible if the candidate incorrectly believes that peer checks remain required for reactivity manipulations.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 75 Info																																																																							
Question Type:	Multiple Choice																																																																						
Status:	Active																																																																						
Always select on test?	No																																																																						
Authorized for practice?	No																																																																						
Points:	1.00																																																																						
Time to Complete:	2																																																																						
Difficulty:	2.00																																																																						
System ID:	1240611																																																																						
User-Defined ID:	HATCH MODIFIED																																																																						
Cross Reference Number:	ILT 2016 Q# 75																																																																						
Topic:	Conduct of OPS - Mange crew during plant transients																																																																						
RO importance:	3.8																																																																						
SRO importance:	4.8																																																																						
K/A #:	2.1.6																																																																						
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CERT																																																																							

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 75 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

LIMERICK LO Question Category

ILT
NRC
RO
LOW COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

76

ID: 1150039

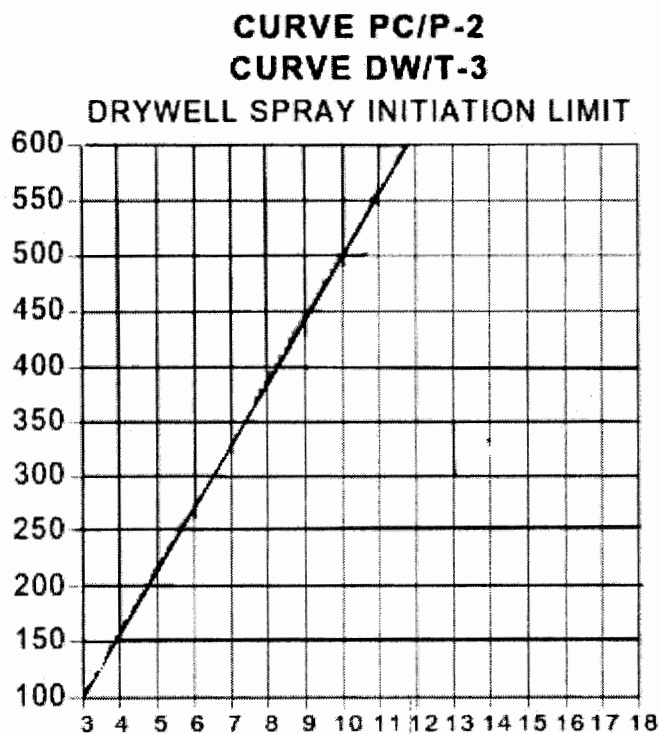
Points: 1.00

*****SRO ONLY*****

Plant conditions are as follows:

- Both seals have failed for the 1A Reactor recirc pump
- The 1A Reactor recirc pump discharge valve HV-043-1F031A has failed to close from the MCR
- Drywell pressure has risen to 5 psig
- Drywell temperature is 140 degrees

Without assuming any trend for drywell temperature or pressure



WHICH ONE of the following actions are directed by T-102 concerning Drywell Spray and Drywell Chilled Water Systems?

	<u>Initiate Drywell Spray</u>	<u>Bypass and restore Drywell Chilled Water</u>
A.	Directed	Directed
B.	Directed	Not directed
C.	Not directed	Not directed
D.	Not directed	Directed

Answer: C

Answer Explanation

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Per T-102 Drywell Spray initiation limit curve provided (without safe /Unsafe information) examinee should determine safe to spray. However in the Drywell pressure leg Drywell spray is not authorized until >7.5 psig pool pressure and per the temperature leg Drywell Spray and bypassing isolation of DWCW is not authorized until >145 degrees Drywell temperature or that > 145 degrees will be exceeded.

C correct neither actions are directed for reasons stated above

A incorrect plausible to the examinee who recall that safe to spray per the initiation curve but does not recognize suppression pool pressure must be >7.5 psig or that DW temp is <145 degrees

B incorrect plausible to the examinee who recall that safe to spray per the initiation curve but does not recognize suppression pool pressure must be >7.5 psig

D incorrect plausible to the examinee who does not recall that 145 degree Drywell temperature must be exceeded or a reasonable expectation that it will be exceeded, prior to bypassing DWCW isolation. From the stem the examinee should recognize that it would take 1 hour to exceed 145 degrees F, while the valve will be closed in 15 minutes

Question 76 Info																																																			
Question Type:	Multiple Choice																																																		
Status:	Active																																																		
Always select on test?	No																																																		
Authorized for practice?	No																																																		
Points:	1.00																																																		
Time to Complete:	0																																																		
Difficulty:	2.40																																																		
System ID:	1150039																																																		
User-Defined ID:	NEW																																																		
Cross Reference Number:	ILT 2016 Q# 76																																																		
Topic:	SRO Dw temp and press action																																																		
RO importance:	3.9																																																		
SRO importance:	4.0																																																		
K/A #:	295024.EA2.01																																																		
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Question History: (i.e. LGS NRC-05, OYS CERT-04)	New																																																		
Question Source: (i.e. New, Bank, Modified)	New																																																		

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Low KA Justification (if required):	N/A
	Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	N/A
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	
LORT Question Section: (i.e. A-Systems or B-Procedures)		
Comments		

Question 76 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

10 CFR 55.43 SRO WRITTEN EXAMINATION

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

LIMERICK LO Question Category

ILT

NRC

SRO

HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

77

ID: 1150228

Points: 1.00

*****SRO ONLY*****

Unit 2 Plant conditions are as follows:

- The Unit 2 control room has been abandoned due to a fire in the cable spreading room.
- SE-1 Remote Shutdown has been entered.
- A small leak has developed in the drywell.
- Drywell pressure is 1.4 psig up slow

Which of the following describes the ability to (1) monitor suppression pool pressure and (2) the action that must be taken to mitigate the affects of the leak?

- A. (1) Use drywell pressure and suppression pool level to calculate suppression pool pressure
(2) Spray the suppression pool per T-225
- B. (1) Use suppression pool pressure indicator on 20-C201
(2) Depressurize the reactor per SE-1 with A,C,N SRV's
- C. (1) Use drywell pressure and suppression pool level to calculate suppression pool pressure
(2) Depressurize the reactor per SE-1 with A,C,N SRV's
- D. (1) Use suppression pool pressure indicator on 20-C201
(2) Spray the suppression pool per T-225

Answer: C

Answer Explanation

Examinee must recall instrumentation available on the Remote Shutdown Panel (RSP) there is no suppression pool pressure indication on 20-C201 RSP so pool pressure must be calculated. At 1.4 psig in the drywell suppression pool pressure has not changed spraying the pool will have no effect on drywell at this time for the above reasons C is correct

a. incorrect At 1.4 psig in the drywell suppression pool pressure has not changed spraying the pool will have no effect on drywell at this time

b.and d. incorrect There is no suppression pool pressure indication on 20-C201

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 77 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
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Cross Reference Number:	ILT 2016 Q# 77																																																																										
Topic:	SRO MCR abandon pool pressure																																																																										
RO importance:	3.2																																																																										
SRO importance:	3.4																																																																										
K/A #:	2950016.AA2.07																																																																										
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 77 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

10 CFR 55.43 SRO WRITTEN EXAMINATION

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

LIMERICK LO Question Category

ILT

NRC

SRO

HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

78

ID: 1150117

Points: 1.00

*****SRO ONLY*****

Unit 1 is at 100% power

- A Loss of Off-Site power occurs
- 20 control rods failed to insert
- All SRM and IRM detectors were selected
- Power On and Drive- in Pushbuttons have been depressed for the SRMs and IRMs

5 minutes later

- All SRM are reading 15,000 CPS and lowering
- IRMs are reading downscale on range 2
- No boron has been injected
- 20 control rods are still withdrawn
- APRM downscale alarm is in

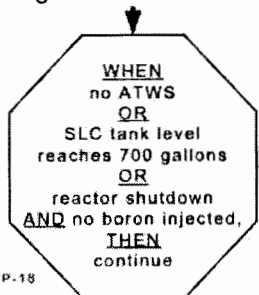
Which of the following correctly identifies the SRM and IRM status; and if a cool down should be established per T-101?

	<u>SRM and IRM status</u>	<u>Cool down permitted</u>
A.	Inserted	Yes
B.	Withdrawn	Yes
C.	Inserted	No
D.	Withdrawn	No

Answer: D

Answer Explanation

TRIP note 16 SHUTDOWN - reactor is subcritical with power below the heating range as defined by IRMs below range 6 OR SRMs below 50,000 CPS. The stem indicates that both of these are true however the instruments will not insert into the core with a loss of offsite power. The drive motors are powered from non-safeguard AC.



RC/P-18

A is incorrect SRM and IRMs are not inserted a cooldown should not be established. plausible to examinee who does not know power supply to the SRM/IRM drive motors

B incorrect plausible to the examinee who believe that APRM downscale is sufficient to depressurize the reactor during an ATWS

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

C incorrect plausible to the examinee who does not know the power supply to the SRM/IRM drive motors or that cooldown during an ATWS is allowed as long as power is below the heating range as defined by IRMs below range 6 OR SRMs below 50,000 CPS
D correct for the reasons stated above

Question 78 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	0																																																										
Difficulty:	2.50																																																										
System ID:	1150117																																																										
User-Defined ID:	NEW																																																										
Cross Reference Number:	ILT 2016 Q# 78																																																										
Topic:	SRO SRM IRM status with loop																																																										
RO importance:	4.2																																																										
SRO importance:	4.3																																																										
K/A #:	295003.AA2.02																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295003 Partial or Complete Loss of AC power 4.2/4.3</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">AA2.02 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Reactor power, pressure, and level</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">Higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T-101</td> <td>Rev #:</td> <td>22</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">NA</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">NEW</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">NEW</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3">N/A</td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	1			Group	1			KA # and Rating	295003 Partial or Complete Loss of AC power 4.2/4.3			KA Statement	AA2.02 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Reactor power, pressure, and level			Cognitive level	Higher			10 CFR 55	43.5			Technical Reference with Revision No:	T-101	Rev #:	22	Justification for Non SRO CFR Link:	NA			Question History: (i.e. LGS NRC-05, OYS CERT-04)	NEW			Question Source: (i.e. New, Bank, Modified)	NEW			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	N/A		
General Data																																																											
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Question History: (i.e. LGS NRC-05, OYS CERT-04)	NEW																																																										
Question Source: (i.e. New, Bank, Modified)	NEW																																																										
Low KA Justification (if required):	N/A																																																										
Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	N/A																																																										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 78 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

10 CFR 55.43 SRO WRITTEN EXAMINATION

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

LIMERICK LO Question Category

ILT

NRC

SRO

HI COG

References

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

79

ID: 1150230

Points: 1.00

*****SRO ONLY*****

Unit 1 plant conditions are as follows:

- A loss of Feedwater has occurred coincident with a leak in RWCU Isolation Valve Room 510
- Temperature in the 510 room is 165°F
- The HPCI aux oil pump tripped on magnetics during the initial start
- 1C and 1D RHR pumps are running on minimum flow

RPV level indications are as follows:

- Wide Range (XR-42-1R623A) -130" steady
- Wide Range (XR-42-1R623B) -150" steady
- Fuel Zone (LR-42-1R615) -170" down slow

WHICH ONE of the following identifies (1) the level instrument(s) that are **USABLE and Indicating Actual** RPV level and (2) the required action based on that level?

- A. (1) Wide Range (1R623A), only
(2) Enter T-111 then T-112 and perform an emergency blowdown
- B. (1) Wide Range (1R623A) and Wide Range (1R623B)
(2) Reset HPCI aux oil pump magnetics and inject with HPCI to restore reactor level
- C. (1) Fuel Zone (1R615), only
(2) Enter T-111 then T-112 and perform an emergency blowdown
- D. (1) Fuel Zone (1R615) and Wide Range (1R623B) only
(2) Reset HPCI aux oil pump magnetics and inject with HPCI to restore reactor level

Answer: C

Answer Explanation

Refer to T-291, Attachment 1, page 4 of 7.

An instrument is **USABLE** if the area temperature is < MRT, OR the level is > MIL.

An instrument is **NOT USABLE** if the area temperature is > MRT, AND the level is < MIL.

Wide Range (1R623A) is **NOT USABLE** because area temperature is > MRT (164 F), AND level is < MIL (-124").

Wide Range (1R623B) is **USABLE** because it is not impacted by the RWCU leak in this area (Rm 510).

Fuel Zone (1R610) is **USABLE** because area temperature is > MRT (127 F), but level is also > MIL (-303").

'C' is correct. FZ (1R615) is **USABLE**; WR (1R623A) is **NOT USABLE**. with level below TAF a blowdown is directed from T-111

'A' is wrong because it suggests that WR (1R623A) is **USABLE**; it is **NOT USABLE**. with level below TAF a blowdown is directed from T-111

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

'B' is wrong because it suggests that only WR (1R523B) is USABLE; it is not. with level below TAF a blowdown is directed from T-111

'D' is wrong because it suggests that all three level instruments are USABLE; not true. with level below TAF a blowdown is directed from T-111

Each distractor is plausible to the examinee who fails to carefully review the table for this area.

Question 79 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	6																																																						
Difficulty:	2.75																																																						
System ID:	1150230																																																						
User-Defined ID:	986264 MODIFIED																																																						
Cross Reference Number:	ILT 2016 Q# 79																																																						
Topic:	SRO Using T-291 to Determine Usable RPV Level Instruments																																																						
RO importance:	4.2																																																						
SRO importance:	4.2																																																						
K/A #:	295031 2.4.47																																																						
Comments:	<table><tr><th colspan="4">General Data</th></tr><tr><td>Level</td><td colspan="3">SRO</td></tr><tr><td>Tier</td><td colspan="3">1</td></tr><tr><td>Group</td><td colspan="3">1</td></tr><tr><td>KA # and Rating</td><td colspan="3">295031 2.4.47 4.2/4.2</td></tr><tr><td>KA Statement</td><td colspan="3">Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material</td></tr><tr><td>Cognitive level</td><td colspan="3">higher</td></tr><tr><td>10 CFR 55</td><td colspan="3">43.5</td></tr><tr><td>Technical Reference with Revision No:</td><td>T-291</td><td>Rev #:</td><td>18</td></tr><tr><td>Justification for Non SRO CFR Link:</td><td colspan="3">N/A</td></tr><tr><td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td colspan="3">Bank 986264 modified</td></tr><tr><td>Question Source: (i.e. New, Bank, Modified)</td><td colspan="3">Significantly Modified 986264 to change values to make level <- 161". Added second part to question what actions to take to make SRO only</td></tr><tr><td>Low KA Justification (if required):</td><td colspan="3">N/A</td></tr></table>			General Data				Level	SRO			Tier	1			Group	1			KA # and Rating	295031 2.4.47 4.2/4.2			KA Statement	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material			Cognitive level	higher			10 CFR 55	43.5			Technical Reference with Revision No:	T-291	Rev #:	18	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	Bank 986264 modified			Question Source: (i.e. New, Bank, Modified)	Significantly Modified 986264 to change values to make level <- 161". Added second part to question what actions to take to make SRO only			Low KA Justification (if required):	N/A		
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Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	T-291, 'Temperature Effects on Reactor Level Instruments,' Attachment 1, page 5 of 7
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 79 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

10 CFR 55.43 SRO WRITTEN EXAMINATION

LIMERICK LO Question Category

ILT
NRC
SRO
HI COG
References

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

80

ID: 1240823

Points: 1.00

*****SRO ONLY*****

Unit 1 was last shutdown on 8/12/15 for a refueling outage

On 1/28/16 a major earthquake causes a reactor SCRAM for both Units.

The earthquake has resulted in the breach of a wall in the Unit 1 Spent Fuel Pool (SFP).

Unit 1 SFP level is slowly lowering, with the following:

- Operators are not able to mitigate the SFP level problem using makeup strategies
- Operators estimate the leakage rate is 620 gpm
- Refuel floor is still accessible

Operators enter TSG-4.1, 'Operational Contingency Guidelines.'

WHICH ONE of the following:

- (1) identifies the basis for spray cooling of the SFP for the above conditions, and
(2) identifies the maximum time allowed to implement the spray strategy to minimize fuel damage?

- A. (1) The Refuel Floor is expected to become inaccessible
(2) 2 hours
- B. (1) The Refuel Floor is expected to become inaccessible
(2) 5 hours
- C. (1) The Spent Fuel Leakage exceeds 500 GPM
(2) 2 hours
- D. (1) The Spent Fuel Leakage exceeds 500 GPM
(2) 5 hours

Answer: C

Answer Explanation

This question tests the examinee's ability to use the Alternate (B.5.b) Strategies of TSG-4.1. Key points in the stem are: an estimated SFP leakage rate of 620 gpm, and the fact that the one operating cycle discharged fuel in the Spent Fuel was last in a reactor 122 days ago

The examinee needs to review Section I (SFP Cooling & Makeup), specifically, including its flowchart ("Generalized Decision Process for SFP Makeup versus Spray") and step 1.2.4 to determine the cut off between 2 hrs and 5 hrs to establish spray cooling is 295 days passing since reactor shutdown.

Following the decision points on this flowchart...i.e., **SFP Area Accessible? (YES); SFP Leakage Excessive (YES;** see Note 3 at the bottom of the page...anything below 500 gpm is NOT excessive).

'C' is correct for the above reasons. (1) The Spent Fuel Leakage exceeds 500 GPM (2) 2 hours

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

'A' is wrong. (1) The Refuel Floor is expected to become inaccessible (2) 2 hours; but plausible if the candidate incorrectly believes that the since the Refuel Floor is expected to become inaccessible the sprays should be established

'B' is wrong. (1) The Refuel Floor is expected to become inaccessible (2) 5 hours; but plausible if the candidate incorrectly believes that the since the Refuel Floor is expected to become inaccessible the sprays should be established and incorrectly determines that the the reactor was shutdown greater than 295 days ago

'D' is wrong. (1) The Spent Fuel Leakage exceeds 500 GPM (2) 2 hours; but plausible if the candidate incorrectly determines that the the reactor was shutdown greater than 295 days ago

Question 80 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	6																																																						
Difficulty:	2.50																																																						
System ID:	1240823																																																						
User-Defined ID:	NEW																																																						
Cross Reference Number:	ILT 2016 Q# 80																																																						
Topic:	SRO Selecting B.5.b Strategy per TSG-4.1																																																						
RO importance:																																																							
SRO importance:	4.0																																																						
K/A #:	295038 - 2.4.35																																																						
Comments:	<table><tr><th colspan="4">General Data</th></tr><tr><td>Level</td><td colspan="3">SRO</td></tr><tr><td>Tier</td><td colspan="3">1</td></tr><tr><td>Group</td><td colspan="3">1</td></tr><tr><td>KA # and Rating</td><td colspan="3">295038 2.4.35</td></tr><tr><td>KA Statement</td><td colspan="3">295038 High Off-site Release Rate 2.4.35 - Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.</td></tr><tr><td>Cognitive level</td><td colspan="3">High</td></tr><tr><td>10 CFR 55</td><td colspan="3">43 (4) Radiation Hazards</td></tr><tr><td>Technical Reference with Revision No:</td><td>TSG-4.1</td><td>Rev #:</td><td>17</td></tr><tr><td>Justification for Non SRO CFR Link:</td><td colspan="3"></td></tr><tr><td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td colspan="3">Referenced 974218</td></tr><tr><td>Question Source: (i.e. New, Bank, Modified)</td><td colspan="3">New</td></tr><tr><td>Low KA Justification (if required):</td><td colspan="3"></td></tr></table>			General Data				Level	SRO			Tier	1			Group	1			KA # and Rating	295038 2.4.35			KA Statement	295038 High Off-site Release Rate 2.4.35 - Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.			Cognitive level	High			10 CFR 55	43 (4) Radiation Hazards			Technical Reference with Revision No:	TSG-4.1	Rev #:	17	Justification for Non SRO CFR Link:				Question History: (i.e. LGS NRC-05, OYS CERT-04)	Referenced 974218			Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):			
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Question Source: (i.e. New, Bank, Modified)	New																																																						
Low KA Justification (if required):																																																							

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	Supplied Ref (If appropriate): (i.e. ABN-##)	TSG-4.1
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 80 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

LIMERICK LO Question Category

ILT
NRC
SRO
HI COG
References

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

81

ID: 1150507

Points: 1.00

*****SRO ONLY*****

Consider the following plant conditions:

- Both Control Enclosure Chillers are tripped
- Both units are at 100% reactor power
- Main Control Room Air temperature is 82°F (TI-78-024A)
- Aux Equipment room temperature is 76°F (TITSH-78-065)
- Relative humidity is 60% (MISL 78-028A)
- Outside air temperature is 77°F

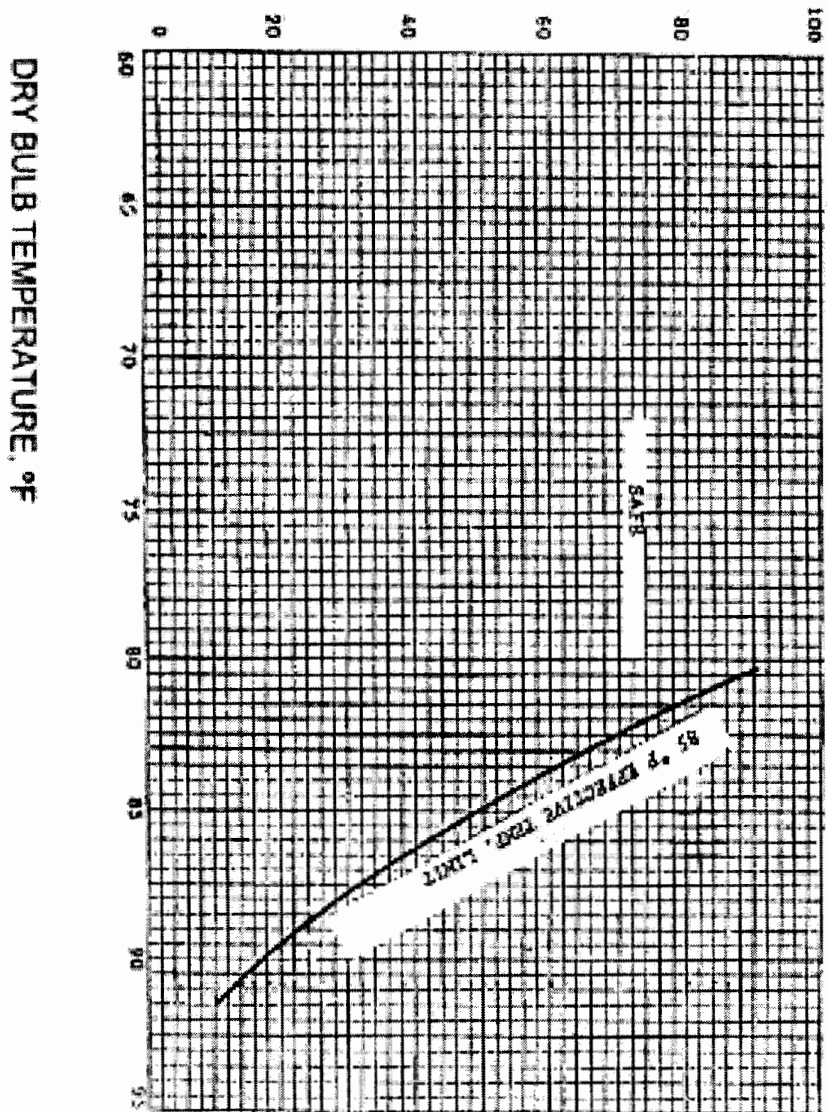
Given the graph on the following page, which one of the following correctly describes the actions to be taken for the given conditions?

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

RELATIVE HUMIDITY, %

DRYBULB TEMPERATURE VERSUS EFFECTIVE TEMPERATURE



EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

- A. Begin a purge of the Main Control Room per ON-115.
- B. Begin a purge of the Auxiliary Equipment Room per ON-115.
- C. Begin a purge of the Main Control Room and the Auxiliary Equipment Room per ON-115.
- D. Begin a plant shutdown to satisfy the requirements of Tech Spec 3.7.2. and 3.0.3.

Answer: A

Answer Explanation

Per T.S 3.7.2 /4.7.2.1.a, MCR > 85 degree effective temperature would render both CREFAS trains INOP. Per ON-115 purge is only authorized if outside air temperature is below that of the room to be purged.

- A Correct per the attached graph effective temp. is < 85 degrees and outside air temp is less than MCR so MCR purge is correct
- B Incorrect Outside air temp is above Aux equip. room temp. Plausible to examinee who does not recall outside air temp must be less than aux. equip. room
- C Incorrect Outside air temp is above Aux equip. room temp. Plausible to examinee who does not recall outside air temp must be less than aux. equip. room
- D Incorrect per the attached graph effective temp. is < 85 degrees plausible to Examinee who interprets the graph incorrectly

Question 81 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	8										
Difficulty:	3.00										
System ID:	1150507										
User-Defined ID:	767961 MODIFIED										
Cross Reference Number:	ILT 2016 Q# 81										
Topic:	SRO Loss of Component Cooling Water - AOPs										
RO importance:	4.0										
SRO importance:	4.2										
K/A #:	295018 2.4.11										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>SRO</td></tr><tr><td>Tier</td><td>1</td></tr><tr><td>Group</td><td>1</td></tr><tr><td>KA # and Rating</td><td>295018 2.4.11 40/4.2</td></tr></table>	General Data		Level	SRO	Tier	1	Group	1	KA # and Rating	295018 2.4.11 40/4.2
General Data											
Level	SRO										
Tier	1										
Group	1										
KA # and Rating	295018 2.4.11 40/4.2										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		Partial or Complete Loss of Component Cooling Water. Emergency Procedures / Plan 2.4.11 Knowledge of abnormal condition procedures.	
	Cognitive level		Higher	
	10 CFR 55		43.5	
	Technical Reference with Revision No:		ON-115	Rev #: 2 1
	Justification for Non SRO CFR Link:			
	Question History: (i.e. LGS NRC-05, OYS CERT-04)		Bank 767961	
	Question Source: (i.e. New, Bank, Modified)		Bank 767961 modified	
	Low KA Justification (if required):		NA	
	Revision History: Revision History: (i.e. Modified distractor “b” to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)		None	
	LORT			
	PRA: (i.e. Yes or No or #)			
	LORT Question Section: (i.e, A-Systems or B-Procedures)			
	Comments			

Question 81 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

10 CFR 55.43 SRO WRITTEN EXAMINATION

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

LIMERICK LO Question Category

ILT

NRC

SRO

HI COG

EXAMINATION ANSWER KEY

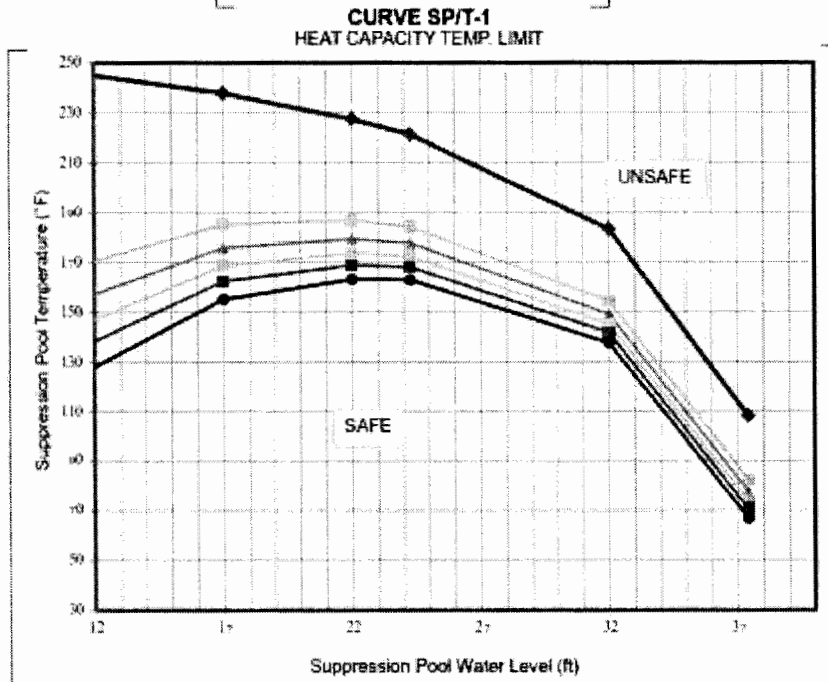
LGS 2016 ILT NRC EXAM SRO

82

ID: 1151469

Points: 1.00

*****SRO ONLY*****



CURVE SP/T-1 LEGEND

CURVE

RPV PRESS



0 - 55 psig



56 - 300 psig



301 - 500 psig



501 - 700 psig



701 - 900 psig



901 - 1170 psig

Plant conditions:

- An ATWS is in progress
- Reactor power is 30%
- Reactor pressure is 930 psig
- Suppression Pool level is 23'
- Suppression Pool temperature is 155°F rising slowly

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

WHICH ONE of the following identifies the required action?

- A. Stabilize reactor pressure at 930 psig per T-102
- B. Reduce reactor pressure to between 701 and 900 psig per T-102
- C. Raise Suppression Pool level to 26 ft per T-102
- D. Perform Emergency Depressurization per T-112

Answer: B

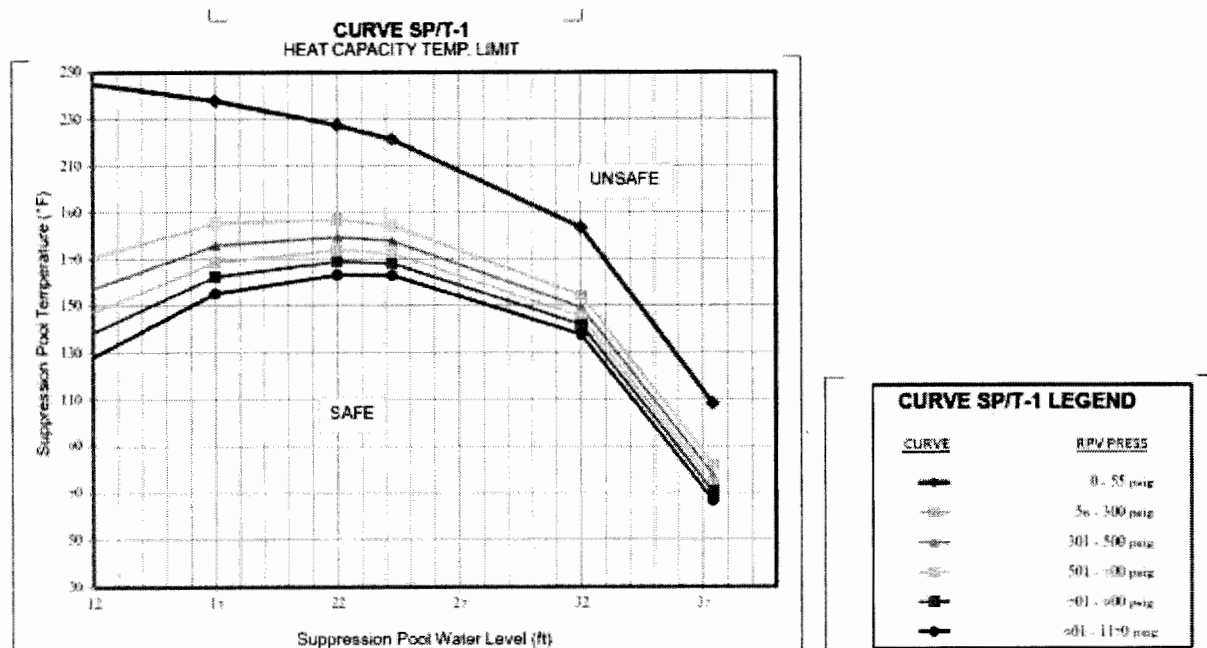
Answer Explanation

SP/T-7 IF Supp Pool temp CANNOT be maintained on safe side of Curve SP/T-1, THEN maintain RPV press on safe side of Curve SP/T-1

LGS TRIP Step SP/T-78 directs actions to control RPV pressure below the Heat Capacity Temperature Limit (HCTL, CURVE SP/T-1) when the actions to control suppression pool temperature below the curve have proven unsuccessful.

If the actions being taken to limit the suppression pool temperature rise are inadequate or not effective, RPV pressure must be reduced in order to remain on the safe side of the HCTL. RPV pressure control actions have, therefore, been added to the suppression pool temperature (SP/T) control flowpath to accommodate these requirements. Failure to do so could lead to a failure of the primary containment or a loss of equipment necessary for the safe shutdown of the plant.

It should be noted that if during the initial evaluation of the HCTL curve, the operating point is on the unsafe side of the HCTL, no action may be taken to restore and maintain the safe side of the HCTL. The heat capacity of the suppression pool has been lost and emergency RPV depressurization is required.



EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 82 Info																																																																							
Question Type:	Multiple Choice																																																																						
Status:	Active																																																																						
Always select on test?	No																																																																						
Authorized for practice?	No																																																																						
Points:	1.00																																																																						
Time to Complete:	3																																																																						
Difficulty:	2.00																																																																						
System ID:	1151469																																																																						
User-Defined ID:	560797 MODIFIED																																																																						
Cross Reference Number:	ILT 2016 Q# 82																																																																						
Topic:	SRO ONLY - With an ATWS is in progress, select appropriate action																																																																						
RO importance:	3.9																																																																						
SRO importance:	4.0																																																																						
K/A #:	295026 EA2.03																																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295026 EA2.03 3.9/4.0</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Suppression Pool High Water Temperature Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: EA2.03 Reactor pressur</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">High</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T-102</td> <td>Rev #:</td> <td>25</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">n/a</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">560797 modified</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3"></td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT 2016</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-#)</td> <td colspan="3">none</td> </tr> <tr> <td colspan="4">LORI</td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	1			Group	1			KA # and Rating	295026 EA2.03 3.9/4.0			KA Statement	Suppression Pool High Water Temperature Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: EA2.03 Reactor pressur			Cognitive level	High			10 CFR 55	43.5			Technical Reference with Revision No:	T-102	Rev #:	25	Justification for Non SRO CFR Link:	n/a			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	560797 modified			Low KA Justification (if required):				Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT 2016				Supplied Ref (If appropriate): (i.e. ABN-#)	none			LORI			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 82 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

10 CFR 55.43 SRO WRITTEN EXAMINATION

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

83

ID: 1151493

Points: 1.00

*****SRO ONLY*****

Unit 1 is operating at 100% power, plant conditions are as follows:

- Loss of 10Y101 has occurred

Which one of the following describes (1) the H₂O₂ Analyzer that remains operable and (2) a required TRM action, if any?

- A. (1) 10S205
(2) Initiate the preplanned alternate monitoring method within 72 hours
- B. (1) 10S205
(2) No TRM action is required
- C. (1) 10S206
(2) Initiate the preplanned alternate monitoring method within 72 hours
- D. (1) 10S206
(2) No TRM action is required

Answer: B

Answer Explanation

10Y101 (DIV 1) is INOP

10S206 analyzer has no return path and is therefore INOP
TRM 3.3.7.5 requires only 1 monitor to be operable

A Incorrect No TRM action is required.

B Correct 10S205 is operable no TRM action is required

C Incorrect 10S206 is not operable no additional TRM action required

D incorrect 10S206 is not operable

The above distractors are plausible to the examinee who does incorrectly interprets OP AID 95-008

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 83 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	3																																																						
Difficulty:	2.00																																																						
System ID:	1151493																																																						
User-Defined ID:	561314																																																						
Cross Reference Number:	ILT 2016 Q# 83																																																						
Topic:	SRO Describe the effect on H2O2 analyzers with a loss of power to 10Y101																																																						
RO importance:	3.2 (3.1)																																																						
SRO importance:	3.3 (3.5)																																																						
K/A #:	223001 K1.03 (500000 EA2.01)																																																						
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Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	OP-AID-95-008 and TRM 3.3.7.5 pages 3-84 through 3-86
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	
561314		

Question 83 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

10 CFR 55.43 SRO WRITTEN EXAMINATION

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

LIMERICK LO Question Category

ILT
NRC
SRO
HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

84

ID: 1151508

Points: 1.00

*****SRO ONLY*****

Plant conditions are as follows:

- A generator lockout has occurred
- Reactor power is 45%
- Reactor level is -75 inches being controlled with Feedwater
- Reactor pressure is cycling between 1130 psig and 1174 psig every 20 seconds

Which one of the following describes (1) the required pressure band per T-101 and (2) the basis for this pressure band?

- A. (1) 900 psig - 1000 psig
(2) Maximize bypass valve usage, while allowing scram reset
- B. (1) 990 psig - 1096 psig.
(2) To gain suppression pool temperature margin to HTCL
- C. (1) 990 psig - 1096 psig.
(2) Maximize bypass valve usage, while allowing scram reset
- D. (1) 900 psig - 1000 psig.
(2) To gain suppression pool temperature margin to HTCL

Answer: C

Answer Explanation

Per the Stem an ATWS is in progress T-101 is the appropriate procedure to start T-101 bases Step RC/P-8 directs actions to reduce RPV pressure to the RPV pressure that corresponds to the point at which all main turbine bypass valves will be fully open (990 psig), a value much lower than the lowest SRV safety lift setpoint.

RC/P-13 Stabilize RPV press below 1096 psig:

RPV pressure is stabilized at a value below the high RPV pressure scram setpoint (1096 psig) to avoid safety relief valve (SRV) actuation and to permit the scram logic to be reset

C is correct for the reasons stated above

A is incorrect plausible to the examinee who incorrectly recalls and directs the normal post scram pressure band

B is incorrect plausible to the examinee who recalls the correct pressure band but incorrectly recalls the HTCL curve

D is incorrect for the reasons stated in A & B

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 84 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	0																																																						
Difficulty:	0.00																																																						
System ID:	1151508																																																						
User-Defined ID:	NEW																																																						
Cross Reference Number:	ILT 2016 Q# 84																																																						
Topic:	SRO Evaluate Reactor High Pressure																																																						
RO importance:	4.4																																																						
SRO importance:	4.7																																																						
K/A #:	295007 2.1.7																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295007</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">295007 High Reactor Pressure 2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">lower</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T-101 basis</td> <td>Re v #:</td> <td>22</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">New</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	1			Group	2			KA # and Rating	295007			KA Statement	295007 High Reactor Pressure 2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.			Cognitive level	lower			10 CFR 55	43.5			Technical Reference with Revision No:	T-101 basis	Re v #:	22	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	New			Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A		
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Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

Question 84 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

85

ID: 1245382

Points: 1.00

*****SRO ONLY*****

Unit 1 plant startup is in progress, with the following:

- Reactor power is 2%
- RPV pressure is 850 psig

The running CRD pump trips on overload, and the standby pump will not start.

Accumulator trouble alarms are received for two withdrawn control rods, EO reports the following pressures:

- 38-39 930 psig
- 42-59 950 psig

WHICH ONE of the following describes the required Tech. Spec. action?

- A. Raise reactor pressure to greater than 900 psig
- B. Place the reactor mode switch in "SHUTDOWN"
- C. Insert control rods 38-39 and 42-59, and disarm their directional control valves
- D. Maintain control rods 38-39 and 42-59 in their current positions, and disarm their directional control valves

Answer: B

Answer Explanation

With the conditions given:

- Reactor pressure less than 900 psig
- NO CRD pumps running
- Two accumulators for withdrawn Control rods INOP (Less than 955 psig)

The required action per T.S. LCO 3.1.3.5 action a.2.a.2 is to place the mode switch in Shutdown

ANSWER: Place the reactor mode switch in the "SHUTDOWN" : see above

DISTRACTORS:

Raise reactor pressure to greater than 900 psig: see above

Insert control rods 38-39 and 42-59, and disarm their directional control valves: see above

Maintain control rods 38-39 and 42-59 in their current positions, and disarm their directional control valves: see above

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 85 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
Points:	1.00																																																																										
Time to Complete:	3																																																																										
Difficulty:	3.00																																																																										
System ID:	1245382																																																																										
User-Defined ID:	562377																																																																										
Cross Reference Number:	ILT 2016 Q# 85																																																																										
Topic:	SRO ONLY Unit 1 plant startup is in progress with the following conditions: Reactor power is 2% RP																																																																										
RO importance:	3.3																																																																										
SRO importance:	3.4																																																																										
K/A #:	295022 AA2.02																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">1</td> </tr> <tr> <td>Group</td> <td colspan="3">2</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">295022 AA2.02 3.3/3.4</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Loss of CRD Pumps Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS : AA2.02 CRD system status</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.2</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T.S</td> <td>Rev #:</td> <td></td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">NRC-05, LGS ILT07-1 CERT</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">562377 bank</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">NONE</td> </tr> <tr> <td colspan="4">LORT</td> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	1			Group	2			KA # and Rating	295022 AA2.02 3.3/3.4			KA Statement	Loss of CRD Pumps Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS : AA2.02 CRD system status			Cognitive level	higher			10 CFR 55	43.2			Technical Reference with Revision No:	T.S	Rev #:		Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	NRC-05, LGS ILT07-1 CERT			Question Source: (i.e. New, Bank, Modified)	562377 bank			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	NONE			LORT				PRA: (i.e. Yes or No or #)			
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PRA: (i.e. Yes or No or #)																																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e., A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

86

ID: 1241209

Points: 1.00

*****SRO ONLY*****

- D23 EDG is in day 5 of a System Outage Window and is Unavailable

A LOOP occurs affecting both Units

Unit 1 experiences a Large Break LOCA

All equipment responded as expected to the U1 LOCA/LOOP

- D114 Safeguard Load Center Load is 370 kW
- The "A" loop of Core Spray is being used to maintain Reactor Level
- 1A RHR and 0A RHRSW Pump are providing Suppression Pool Cooling
- Replacement Diesel Fuel is **NOT** available

SE-10 Tables

Maximum Load to Ensure 7 Day Fuel Supply			
EDG	Load (KW)	EDG	Load (KW)
D11	2394	D21	1893
D12	2397	D22	2062
D13	2214	D23	2134
D14	2147	D24	2106

EDG Loads in KW

<u>Load</u>	<u>KW</u>
RHR Pump	1002
Core Spray Pump	480
RHRSW Pump	557
ESW Pump	405
MCR Chiller	329
RERS Fan	151

Based on the above information (1) what is the approximate load on D11 EDG and (2) what action is required to ensure a 7 day fuel supply for the D11 EDG?

	<u>Approximate D11 EDG load (kW)</u>	<u>Required SE-10 action to ensure 7 Day Fuel Supply for D11 EDG</u>
A.	2409	Secure the 0A ESW Pump per S11.2.A
B.	2409	Secure the 0A RHRSW Pump per S12.2.A
C.	2814	Secure the 0A ESW Pump per S11.2.A
D.	2814	Secure the 0A RHRSW Pump per S12.2.A

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Answer: D

Answer Explanation

This question is challenge the SROs ability to determine LOCA/LOOP effects and the SE-10 procedural actions to address these conditions.

From the stem a LOOP has occurred affecting both units and a LOCA signal is received on Unit 1. The loads being carried by the D11 EDG are as follows:

D114 - Load Center (370 kW)
1A RHR Pump (1002 kW)
1A Core Spray Pump(480 kW)
0A RHRSW Pump (557 kW)
0A ESW Pump (405 kW)

Expected load on D11 EDG is $(370 + 1002 + 480 + 557 + 405) = 2814$ kW

'D' is correct. The expected load is 2814 kW, from the first table it is identified that this in excess of the 2394 kW limit for a 7 day fuel supply for D11 EDG. Securing the 0A RHRSW Pump will lower load below 2394 kW.

'A' is wrong but plausible if the student omits the 0A ESW Pump from their addition then mistakenly determines that securing the 0A ESW Pump is the correct action. With D23 EDG Unavailable, the 0C ESW Pump is also unavailable, resulting in no cooling for D11, D13, D21, and D23 EDGs.

'B' is wrong but plausible if the student omits the 0A ESW Pump from their addition.

'C' is wrong but placable if the student mistakenly determines that securing the 0A ESW Pump is the correct action. With D23 EDG Unavailable, the 0C ESW Pump is also unavailable, resulting in no cooling for D11, D13, D21, and D23 EDGs.

Question 86 Info											
Question Type:	Multiple Choice										
Status:	Active										
Always select on test?	No										
Authorized for practice?	No										
Points:	1.00										
Time to Complete:	3										
Difficulty:	2.50										
System ID:	1241209										
User-Defined ID:	NEW										
Cross Reference Number:	ILT 2016 Q# 86										
Topic:	SRO - LOCA affects on EDG										
RO importance:											
SRO importance:	4.2										
K/A #:	264000 A2.10										
Comments:	<table><tr><th colspan="2">General Data</th></tr><tr><td>Level</td><td>SRO</td></tr><tr><td>Tier</td><td>2</td></tr><tr><td>Group</td><td>1</td></tr><tr><td>KA # and Rating</td><td>264000 A2.10 4.2</td></tr></table>	General Data		Level	SRO	Tier	2	Group	1	KA # and Rating	264000 A2.10 4.2
General Data											
Level	SRO										
Tier	2										
Group	1										
KA # and Rating	264000 A2.10 4.2										

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA Statement		264000 - Emergency Diesel Generators A2.10 Ability to (a) predict the impacts of the following on the EMERGENCY GENERATORS (DIESEL/JET) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: LOCA	
	Cognitive level		High	
	10 CFR 55		43 (b) (5)	
	Technical Reference with Revision No:		SE-10	Rev #: 59
	Justification for Non SRO CFR Link:			
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)		New	
	Low KA Justification (if required):		N/A	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)		None	
	LORT			
	PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)				
Comments				

Question 86 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

LIMERICK LO Question Category

ILT
NRC
SRO
HI COG

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

87

ID: 1241219

Points: 1.00

*****SRO ONLY*****

A unit 2 plant startup is in progress per GP-2 with the following conditions:

- Reactor Mode Switch in STARTUP
- All IRMs are on range 10
- APRM #1 13.2%
- APRM #2 12.3%
- APRM #3 11.5%
- APRM #4 11.8%
- No rod blocks exist

WHICH ONE of the following describes the number of INOP APRM Rod Block Channels and the required action?

	<u>INOP APRM Rod Block Channels</u>	<u>Required Action</u>
A.	1	T.S 3.3.6 action a only
B.	1	T.S 3.3.6 action a and b
C.	2	T.S 3.3.6 action a only
D.	2	T.S 3.3.6 action a and b

Answer: A

Answer Explanation

Withdrawal Rod block only generated at 12%-13%(<13% channel is inop) Rx power with mode switch not in Run for at least 1 APRM in trip. Rx scram at 15%-20% with mode switch not in Run for at least 2 APRM's in trip.T.S requires 3 of 4 to be operable only action a would apply

A is correct only #1 APRM rod block function is INOP since only 3 channels required only action a applies
B incorrect plausible to examinee who does not determine only 3 of 4 channels needs to be operable
C -d incorrect plausible to examinee who does not recognize that #2 APRM is within the allowable band

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 87 Info																																																																																			
Question Type:	Multiple Choice																																																																																		
Status:	Active																																																																																		
Always select on test?	No																																																																																		
Authorized for practice?	No																																																																																		
Points:	1.00																																																																																		
Time to Complete:	0																																																																																		
Difficulty:	1.00																																																																																		
System ID:	1241219																																																																																		
User-Defined ID:	NEW																																																																																		
Cross Reference Number:	ILT 2016 Q# 87																																																																																		
Topic:	SRO APRM Tech Spec Assessment																																																																																		
RO importance:	3.6																																																																																		
SRO importance:	3.7																																																																																		
K/A #:	215005 A2.02																																																																																		
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">215005A2.02 3.6/3.7</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">215005 Average Power Range Monitor/Local Power Range Monitor System</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.2</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T.S 3.6.6</td> <td>Rev #:</td> <td></td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">New</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <th colspan="4">ILT</th> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">T.S 3.3.6 3-57trough3-60a</td> </tr> <tr> <th colspan="4">LORT</th> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> <tr> <td>LORT Question Section: (i.e. A-Systems or B-Procedures)</td> <td colspan="3"></td> </tr> <tr> <td>Comments</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	2			Group	1			KA # and Rating	215005A2.02 3.6/3.7			KA Statement	215005 Average Power Range Monitor/Local Power Range Monitor System			Cognitive level	higher			10 CFR 55	43.2			Technical Reference with Revision No:	T.S 3.6.6	Rev #:		Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	New			Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	T.S 3.3.6 3-57trough3-60a			LORT				PRA: (i.e. Yes or No or #)				LORT Question Section: (i.e. A-Systems or B-Procedures)				Comments			
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Comments																																																																																			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

88

ID: 1241399

Points: 1.00

*****SRO ONLY*****

Unit 1 is operating at 100% power.

- I&C has completed ST-2-042-449 (Calibration/Functional Test of RPS and NSSSS).
- I&C has determined that LIS-42-1N680A (Reactor Vessel Water Level-Low) is +10" and they have been unsuccessful in adjusting the trip setpoint.

WHICH ONE of the following satisfies the **MOST LIMITING** Tech Spec required action?

- A. Verify that Channel 'C' is OPERABLE within 1 hour.
- B. Place Channel 'A' in a tripped condition within 12 hours.
- C. Place Channel 'A' in a tripped condition within 24 hours.
- D. Restore Channel 'A' to OPERABLE status within 6 hours; otherwise, place the channel in a tripped condition.

Answer: A

Answer Explanation

As the title of the ST implies this instrument (Channel 'A' LIS-41-1N680A, Reactor Vessel Water Level-Low (Level 3) is common to both RPS (TS 3.3.1) and Isolation Actuation (TS 3.3.2). To determine how the as-found setpoint (+10") compares to the Tech Spec required setpoint value, we refer to the Isolation Actuation Table 3.3.2-2, specifically TRIP FUNCTION 2.a, where we find an "Allowable Value" of $\geq +11.0$ ". Therefore, the as-found setpoint is less conservative than the Tech Spec requirement, and because I&C cannot re-adjust it back to its required value, it remains that way. Because this instrument answers to TS 3.3.2, we review those ACTIONS first. ACTION a) applies because the as-found setpoint is (and remains) less conservative. **"Declare Channel 'A' inoperable"**. From here, we proceed to ACTION b), which applies simply because the inoperable Channel 'A' leaves us less than the two OPERABLE channels (per Trip System) required by Table 3.3.2-1, TRIP FUNCTION 2.a. ACTION b)2 applies because placing Channel 'A' in a tripped condition will NOT cause an isolation. Finally, ACTION b)2.a) applies because the instrument is common to RPS... **"Place Channel 'A' in a tripped condition within 12 hours."**

We now review the RPS LCO 3.3.1. The purpose in doing this is to determine which ACTION (that of Isolation, or that of RPS) is the most limiting. ACTION 'a' is the first that applies here...translated, that Action requires us to **verify that the Channel 'C' instrument is OPERABLE within 1 hour**. Note - this action satisfies the MOST LIMITING Tech Spec required action and is therefore the correct answer for this question. As a matter of information...ACTION 'b' applies next...that ACTION is essentially identical to the Isolation ACTION b)2.a), already discussed... **"Place Channel 'A' in a tripped condition within 12 hours."**

'A' is correct for the above reasons. **Verify that the Channel 'C' instrument is OPERABLE within 1 hour.**

'B' is wrong. **Place Channel 'A' in a tripped condition within 12 hours.** For reasons already discussed, although this ACTION is required, it is not the MOST LIMITING.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

'C' is wrong. **Place Channel 'A' in a tripped condition within 24 hours.** This is taken from LCO 3.3.2, ACTION b)2.b), which would apply if the instrument were not common with RPS.

'D' is wrong. **Restore Channel 'A' to OPERABLE status within 6 hours; otherwise, place the channel in a tripped condition.** This is taken from LCO 3.3.2, ACTION b)1), which doesn't apply because tripping the channel will not cause an isolation.

Question 88 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	6																																																										
Difficulty:	3.00																																																										
System ID:	1241399																																																										
User-Defined ID:	554711																																																										
Cross Reference Number:	ILT 2016 Q# 88																																																										
Topic:	(SRO ONLY) - Tech Spec - Determine Action for Inop Level 3 Channel																																																										
RO importance:	3.9																																																										
SRO importance:	4.6																																																										
K/A #:	212000 G2.2.42																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">3</td> </tr> <tr> <td>Group</td> <td colspan="3">2.2.42</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.2.42 - 212000 SRO - 4.6</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">2.2.42 - Ability to recognize system parameters that are entry-level conditions for Technical Specifications.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">High</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.2</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>Tech Spec Table 3.3.2-2</td> <td>Rev #:</td> <td></td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3"></td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">Bank - 554711</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3"></td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	3			Group	2.2.42			KA # and Rating	2.2.42 - 212000 SRO - 4.6			KA Statement	2.2.42 - Ability to recognize system parameters that are entry-level conditions for Technical Specifications.			Cognitive level	High			10 CFR 55	43.2			Technical Reference with Revision No:	Tech Spec Table 3.3.2-2	Rev #:		Justification for Non SRO CFR Link:				Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	Bank - 554711			Low KA Justification (if required):				Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

89

ID: 1245767

Points: 1.00

*****SRO ONLY*****

Both Unit 1 and Unit 2 are at 100% with the following equipment out of service:

- D11 EDG
- D24 EDG
- 0A ESW Pump
- 0B ESW Pump

The following Tech Spec Action was entered 24 hours ago:

4. With three ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 72 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

(1) Which of below actions will allow the above action to be exited?

(2) What is the basis for the above Tech Spec Action?

- A. (1) Restore D24 EDG
(2) To ensure adequate onsite power sources to ESW during a LOOP
- B. (1) Restore D24 EDG
(2) To ensure sufficient ESW pumps will have power during a LOCA
- C. (1) Restore 0A ESW
(2) To ensure adequate onsite power sources to ESW during a LOOP
- D. (1) Restore 0A ESW
(2) To ensure sufficient ESW pumps will have power during a LOCA

Answer: A

Answer Explanation

This question tests the candidate's knowledge of the unit difference of power supplies to the ESW Pumps and the bases behind the Pump/EDG Pairs Tech Spec.

From the stem the candidate should identify that the following Pump/EDG Pairs are not complete:

0A ESW / D11 EDG - due to 0A ESW and D11 Inoperability

0B ESW / D12 EDG - Due to 0B ESW Inoperability

0D ESW / D24 EDG - Due to D24 EDG Inoperability

Restoration of D24 will restore the 0D ESW / D24 EDG pump pair. The bases for this taken from Tech Spec section 3/4.7.1 and states, "In order to ensure adequate onsite power sources to the systems during a loss of offsite power event, the inoperability of these supplies are restricted in system ACTION statements."

For the above reasons 'A' is correct.

Restoring the 0A ESW is wrong because the pair requirements will remain not met due to the D11 EDG remaining INOP. This is plausible if the candidate identifies the incorrect power supply for the 0A ESW Pump.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

To ensure sufficient ESW pumps will have power during a LOCA is not the reason for the tech spec action. This is plausible if the student focuses on all the ESW loads that need cooling following a LOCA rather than the power source for the ESW pumps.. The power source for the ESW pumps with offsite power available is NOT the EDGs.

Question 89 Info																																									
Question Type:	Multiple Choice																																								
Status:	Active																																								
Always select on test?	No																																								
Authorized for practice?	No																																								
Points:	1.00																																								
Time to Complete:	0																																								
Difficulty:	0.00																																								
System ID:	1245767																																								
User-Defined ID:	NEW																																								
Cross Reference Number:	ILT 2016 Q# 89																																								
Topic:	SRO Only Cooling System Unit Differences																																								
RO importance:	3.6																																								
SRO importance:	3.6																																								
K/A #:	400000 2.2.4																																								
Comments:	<table border="1"> <thead> <tr> <th colspan="3">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="2">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="2">2</td> </tr> <tr> <td>Group</td> <td colspan="2">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="2">400000 Component Cooling Water 2.2.4 SRO 3.6</td> </tr> <tr> <td>KA Statement</td> <td colspan="2">400000 Component Cooling Water 2.2.4 (multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="2">High</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="2">43.2</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T.S.3.4.7.1</td> <td>Rev #:</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="2">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="2"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="2">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="2">N/A</td> </tr> </tbody> </table>		General Data			Level	SRO		Tier	2		Group	1		KA # and Rating	400000 Component Cooling Water 2.2.4 SRO 3.6		KA Statement	400000 Component Cooling Water 2.2.4 (multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.		Cognitive level	High		10 CFR 55	43.2		Technical Reference with Revision No:	T.S.3.4.7.1	Rev #:	Justification for Non SRO CFR Link:	N/A		Question History: (i.e. LGS NRC-05, OYS CERT-04)			Question Source: (i.e. New, Bank, Modified)	New		Low KA Justification (if required):	N/A	
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Low KA Justification (if required):	N/A																																								

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 89 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

90

ID: 1241571

Points: 1.00

*****SRO ONLY*****

A large break LOCA occurred 5 minutes ago.
Unit 1 plant parameters are:

- Drywell pressure is 20 psig, up slow
- Suppression Pool pressure is 15 psig, up slow
- Suppression Pool temperature is 117 degrees F up slow
- Reactor level is -158 inches, up slow
- 1A RHR is injecting
- HV-051-1F048A Heat Exchanger Bypass is open
- 0A RHRSW pump is running

Regarding HV-051-1F048A Heat Exchanger Bypass valve;

Which one of the following describes (1) the T-111 action that the CRS must direct and the basis for the action?

- A. (1) Maintain HV-051-1F048A open
(2) Maximize flow to the vessel
- B. (1) Close HV-051-1F048A
(2) Prevent PUMP runout
- C. (1) Close HV-051-1F048A
(2) Promotes rapid removal of decay heat from the primary containment
- D. (1) Maintain HV-051-1F048A open
(2) This is the ECCS injection position for this valve

Answer: C

Answer Explanation

- A **Incorrect (1) The Heat exchanger bypass valve should be left open (2) Maximize flow to the vessel.**
Plausible to the examinee who recognizes that the additional flow path would increase flow slightly but does not recall that the note under LPCI injection in T-111 states through the heat exchanger ASAP
- B **Incorrect (1) Close the heat exchanger bypass valve. (2) Prevent PUMP runout.**
part 1 is correct part 2 is incorrect but plausible to the examinee who does not recall the basis for directing flow through the HTX, also although flow will be slightly higher it will not reach pump runout conditions
- C **Correct (1) Close the heat exchanger bypass valve. (2) Promotes rapid removal of decay heat from the primary containment.**
- D **Incorrect (1) The Heat exchanger bypass valve should be left open (2) This is the ECCS injection position for this valve.** Plausible to the examinee who recalls that the heat exchanger bypass valve auto opens on a LPCI initiation signal.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 90 Info																																																																							
Question Type:	Multiple Choice																																																																						
Status:	Active																																																																						
Always select on test?	No																																																																						
Authorized for practice?	No																																																																						
Points:	1.00																																																																						
Time to Complete:	0																																																																						
Difficulty:	0.00																																																																						
System ID:	1241571																																																																						
User-Defined ID:	NEW																																																																						
Cross Reference Number:	ILT 2016 Q# 90																																																																						
Topic:	SRO loca position of HV-51-1F048																																																																						
RO importance:	4.6																																																																						
SRO importance:	4.3																																																																						
K/A #:	203000 2.1.31																																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">2</td> </tr> <tr> <td>Group</td> <td colspan="3">1</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">203000 2.1.31</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">203000 Residual Heat Removal /Low Pressure Coolant Injection: Injection Mode 2.1.31 Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>T-111 basis</td> <td>Rev #:</td> <td>15</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">new</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">new</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">ILT</td> </tr> <tr> <td>Supplied Ref (If appropriate): (i.e. ABN-##)</td> <td colspan="3">none</td> </tr> <tr> <td colspan="4">LORT</td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	2			Group	1			KA # and Rating	203000 2.1.31			KA Statement	203000 Residual Heat Removal /Low Pressure Coolant Injection: Injection Mode 2.1.31 Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.			Cognitive level	higher			10 CFR 55	43.5			Technical Reference with Revision No:	T-111 basis	Rev #:	15	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	new			Question Source: (i.e. New, Bank, Modified)	new			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (If appropriate): (i.e. ABN-##)	none			LORT			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

Question 90 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

91

ID: 1245271

Points: 1.00

*****SRO ONLY*****

A Design Basis Loss of Coolant Accident (LOCA) has occurred on Unit 1.

- The 1A Loop of Core Spray is the only injection source available and is injecting at 6,500 GPM
- Reactor Level is -215" and steady
- Reactor Pressure is 30 psig down slow
- Drywell Pressure is 25 psig up slow

- (1) What RPV component failure could be a contributor to the RPV level condition?
(2) What procedure actions are required for the above conditions?

- A. (1) A failed Fuel Support Piece
(2) Remain in T-111
- B. (1) A failed Fuel Support Piece
(2) Enter SAMP-1 and SAMP-2
- C. (1) A failed Jet Pump
(2) Remain in T-111
- D. (1) A failed Jet Pump
(2) Enter SAMP-1 and SAMP-2

Answer: D

Answer Explanation

The stem gives conditions for T-111 Step LR-21 "IF RPV level CANNOT be restored and maintained above -211" with core spray pool flow greater than or equal to 6,250 gpm THEN enter SAMP-1 and SAMP-2. The stem also provides that the 1A Core Spray loop is the only injection source available. Give this information SAMP-1 and SAMP-2 should be entered.

Maintaining Core Spray flow greater than or equal to 6,250 gpm is plausible if the candidate does not recognize the need to enter SAMP-1 and SAMP-2 due to RPV level not being maintained above -211".

A failed Jet pump would challenge the 2/3 core coverage (-211") reference Tech Spec 3.4.1 Recirculation System Bases, "... in case of a design-basis-accident, increase the blowdown area and reduce the capability of reflooding the core"

A failed Fuel Support Piece would not contribute to additional leakage from the 2/3 core coverage, it is not part of the shroud to jet pump suction boundary. This is plausible if the candidate identifies the location of the recirc suction as inside the shroud instead of outside the shroud.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

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Difficulty:	2.00																																																																						
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Cross Reference Number:	ILT 2016 Q # 91																																																																						
Topic:	SRO Only - Vessel Internal - and LOCA																																																																						
RO importance:	3.7																																																																						
SRO importance:	4.0																																																																						
K/A #:	290002 A2.01																																																																						
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e., A-Systems or B-Procedures)	
	Comments	

Question 91 Table-Item Links

NRC EXAM - 10 CFR 55 Operators' Licenses

10 CFR 55.43 SRO WRITTEN EXAMINATION

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

LIMERICK LO Question Category

ILT
NRC
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

92

ID: 1152711

Points: 1.00

*****SRO ONLY*****

Unit 1 is in a refueling outage with the U1 Cooling Tower drained. The Backup Diesel Driven Fire Pump and Fire Water Storage Tank (FWST) are aligned for automatic operation.

Nine (9) days later a leak is discovered from the FWST and level is at 290,000 gallons down slow.

What is the TRM action and basis for the FWST minimum levels?

	<u>TRM Action</u>	<u>FWST Minimum Level Basis</u>
A.	Restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply	24 hour water supply for continuous operation of both fire pumps
B.	Restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply	2 hour water supply for manual hose streams plus largest plant sprinkler flow
C.	Establish a backup fire suppression water system within 24 hours	24 hour water supply for continuous operation of both fire pumps
D.	Establish a backup fire suppression water system within 24 hours	2 hour water supply for manual hose streams plus largest plant sprinkler flow

Answer: B

Answer Explanation

The stem provides information that the FWST is now INOPERABLE due to having less than the redried 311,000 gallons.

From TRM 3.7.6 Bases:

Action a states that "With one fire pump and/or one water supply inoperable, restore the inoperable equipment to operable status within 7 days or provide an alternate pump or supply. The provisions of TRM Section 3.0.3 are not applicable." With the Diesel Driven Fire Pump (00-P511) or the Motor Driven Fire Pump (00-P512) or one of the cooling tower water supplies inoperable Action a is met by placing the Backup Diesel Driven Fire Pump (10-P402) and its water supply (10-T402) in service within 7 days.

Should the backup fire system be unavailable, then another alternate pump or supply would need to be provided in order to meet the requirements of Action a. Failure to do so within 7 days would impose no further TRM action because the requirements of 3.0.3 are not applicable to Action a. However, a CR would be required for non-compliance with TRM Action a.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

If the backup fire system is placed in service to comply with Action a and it subsequently becomes inoperable, then the backup fire system must be returned or an alternate pump and supply must be placed in service within 7 days or a CR would be required for non-compliance with TRM Action a. The loss of the backup fire system, while in Action a does not make the fire suppression water system "otherwise inoperable" as referred to in Action b which states "With the fire suppression water system otherwise inoperable establish a backup fire suppression water system within 24 hours." However, compliance with Action a is no longer being met. In this case, compliance with Action a should be achieved within 7 days. Again, failure to comply would not require additional actions even if the 7 day allowance were to be exceeded because the requirements of 3.0.3 are not applicable. A CR would be required as addressed above.

The minimum contained volume of 311,000 gallons is based on the CMEB BTP 9.5-1 requirement of 500 gpm for manual hose streams plus the largest design demand of any sprinkler or deluge system for a period of 2 hours. The largest plant sprinkler system flow is 2090 gpm for the turbine condenser compartment.

The source of water for the fire protection system is two cooling tower basins that have a capacity of 7,200,000 gallons each, for a total capacity of 14,400,000 gallons. For a system pumping capacity of 5000 gpm, this allows continuous operation of both fire pumps for 48 hours. If one cooling tower basin or supply line is not available, the remaining water source provides both fire pumps with a 24-hour supply of water.

B is correct for the above reasons.

A is wrong but plausible if the student mistakenly identifies the bases discussion around the cooling tower capacity

C is wrong but plausible if the student mistakenly identifies that the Fire system is Otherwise INOPERABLE and applies TRM action 3.7.6.1.b

D is wrong but plausible if the student mistakenly identifies that the Fire system is Otherwise INOPERABLE and applies TRM action 3.7.6.1.b and if he student mistakenly identifies the bases discussion around the cooling tower capacity

Question 92 Info									
Question Type:	Multiple Choice								
Status:	Active								
Always select on test?	No								
Authorized for practice?	No								
Points:	1.00								
Time to Complete:	6								
Difficulty:	2.50								
System ID:	1152711								
User-Defined ID:	MODIFIED 974388								
Cross Reference Number:	ILT 2016 Q# 92								
Topic:	SRO Recognize TRM Entry for Fire Detection/Suppression								
RO importance:	3.2								
SRO importance:	4.2								
K/A #:	286000 G2.2.25								
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General Data									
Level	SRO								
Tier	2								
Group	2								

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	KA # and Rating	286000 2.2.25 3.2/4.2		
	KA Statement	Fire protection 2.2.25 Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.		
	Cognitive level	high		
	10 CFR 55	43.2		
	Technical Reference with Revision No:	U/1 TRM 3.7.6.1	Re v #:	
	Justification for Non SRO CFR Link:	N/A		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)			
	Question Source: (i.e. New, Bank, Modified)	New		
	Low KA Justification (if required):	N/A		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
	ILT			
	Supplied Ref (If appropriate): (i.e. ABN-##)	TRM 3.7.6.1 (page 7-19) TRM 3.7.6.1 Bases (NOT page 7-4, only pages 7-4a and 7-4b)		
	LORT			
	PRA: (i.e. Yes or No or #)	N		
LORT Question Section: (i.e. A-Systems or B-Procedures)	B			
Comments				

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

93

ID: 1245323

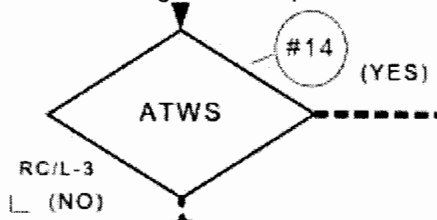
Points: 1.00

*****SRO ONLY*****

Unit 1 plant conditions are as follows:

- The MCR has been evacuated
- While performing immediate operator actions RPS did not drop out
- ARI was initiated, but the MCR was evacuated prior to determining if all rods inserted

You are evaluating T-101 step RC/L3



Which of the following should the CRS direct the RO to perform to determine if an ATWS is in progress (ARI not successful)?

- A. At 10-C608 Power Range Neutron Monitoring Cabinet verify APRMs reading less than 4% power
- B. At 10-C609/611 RPS A & B vertical boards remove C71A-F14A and C71A-F14B A1 and B1 Auto SCRAM fuses
- C. At 10-C616 Rod Drive Control Cabinet verify both lights for "FI" rods NOT full in are not lit
- D. Verify all SCRAM inlet and outlet valves Open at the HCU's

Answer: C

Answer Explanation

Per trip note 14 An ATWS is defined as (TSG- 3. 10)

- All rods NOT inserted to OR beyond 02
- AND
- The reactor has NOT been determined to be shutdown under all conditions without boron.

- A Incorrect APRM down scale is used for EAL determination plausible to the examinee who recall the MA2 EAL setpoints
- B Incorrect removing SCRAM fuses will deenergize the solenoids but will not ensure all rods in
- C Correct both light for FI rods not full in not lit means all rods are at position 00
- D Incorrect plausible to the examinee who recognizes that verification of SCRAM valves open will allow the rods to move but it is not a verification that all rods inserted to at least position 02

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

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Topic:	SRO RPIS verify rod status outside MCR																																																																														
RO importance:	4.2																																																																														
SRO importance:	4.1																																																																														
K/A #:	214000 2.4.34																																																																														
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

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Question 93 Table-Item Links

LIMERICK LO Question Category

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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

94

ID: 1241568

Points: 1.00

*****SRO ONLY*****

Unit 1 plant conditions:

- Mode Switch is in REFUEL
- Core Alterations are in progress
- All control rods are fully inserted
- A fuel bundle is being moved from the Spent Fuel Pool to core location 43-38 ('B' Quadrant)
- Control rod 06-15 is currently selected ('D' Quadrant)
- There is NO requirement to maintain control rod withdraw capability

The ROD BLOCK INTERLOCK #2 status indication did not illuminate as the bundle entered the reactor cavity from the fuel transfer canal.

WHICH ONE of the following actions will allow unrestricted fuel movement and satisfy Tech Specs?

- A. Lock the Mode Switch in SHUTDOWN
- B. Place 'B' SRM drawer mode switch in STANDBY
- C. Lock the Mode Switch in STARTUP/HOT STANDBY
- D. Place 'C' IRM drawer mode switch in STANDBY

Answer: D

Answer Explanation

Tech Spec 3.9.1 requires the Mode Switch to be locked in the REFUEL or SHUTDOWN positions. In REFUEL, the Refueling Platform (over-core) position switches shall be OPERABLE. With any of the Refueling Platform (over-core) position switches inoperable, CORE ALTERATIONS must be suspended OR (1) verify all control rods are fully inserted and disable withdraw capabilities of all control rods OR (2) verify the refueling platform is not over-core and disable refueling platform travel over-core OR (3) verify that no refueling platform hoist is loaded and disable all refueling platform hoists from picking up (grappling) a load.

GP-6.1, Shutdown Operations, Core Alteration and Core Off Loading contains the following guidance in multiple locations: "Tech Spec 3.9.1.c specifies actions which may be taken in lieu of suspending core alterations if the Refuel Platform Refuel position interlocks become inoperable. The following step implements Tech Spec Action 3.9.1.c.1." The step following the note is: "IF the Refuel Platform interlocks become inoperable AND there is no requirement to maintain control rod withdraw capability THEN PERFORM Attachment 10."

GP-6.1, Attachment 10 provides two options to insert a control rod withdrawal as follows: PLACE Scram Discharge Volume High Level Bypass Keylock Switch on panel 10C603 in "BYPASS" (Preferred) OR IF conditions permit, THEN PLACE an unbypassed IRM mode switch out of 'OPERATE'.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Each of the distracters will generate a control rod block; the Reactor Mode Switch in STARTUP/HOT STANDBY will inhibit refueling bridge motion over-core (Bridge Reverse Stop #2, which is the potentially failed limit switch). The reactor mode switch in SHUTDOWN will provide a control rod block at all times, however, the permissive for bridge motion over core is not present (Bridge Reverse Stop #2, which is the potentially failed limit switch). The B SRM mode switch in STANDBY will generate an SRM inoperative control rod block, and this is allowed by Technical Specification 3.9.2, since core alterations are being conducted in Quadrant 4 (near SRM D), but this is not allowed by GP-6.1, Attachment 10.

Question 94 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	6																																																										
Difficulty:	3.00																																																										
System ID:	1241568																																																										
User-Defined ID:	703135																																																										
Cross Reference Number:	ILT 2016 Q# 94																																																										
Topic:	SRO ONLY Refueling Interlock Technical Specification																																																										
RO importance:	2.5																																																										
SRO importance:	3.4																																																										
K/A #:	2.1.42																																																										
Comments:	<table><tr><th colspan="4">General Data</th></tr><tr><td>Level</td><td colspan="3">SRO</td></tr><tr><td>Tier</td><td colspan="3">3</td></tr><tr><td>Group</td><td colspan="3">N/A</td></tr><tr><td>KA # and Rating</td><td colspan="3">2.1.42 2.5/3.4</td></tr><tr><td>KA Statement</td><td colspan="3">Knowledge of new and spent fuel movement procedures.</td></tr><tr><td>Cognitive level</td><td colspan="3">higher</td></tr><tr><td>10 CFR 55</td><td colspan="3">43.7</td></tr><tr><td>Technical Reference with Revision No:</td><td>Tech Spec 3.9.1 GP-6.1</td><td>Rev #:</td><td>30</td></tr><tr><td>Justification for Non SRO CFR Link:</td><td colspan="3">N/A</td></tr><tr><td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td colspan="3"></td></tr><tr><td>Question Source: (i.e. New, Bank, Modified)</td><td colspan="3">703135 Bank</td></tr><tr><td>Low KA Justification (if required):</td><td colspan="3">N/A</td></tr><tr><td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td><td colspan="3"></td></tr></table>			General Data				Level	SRO			Tier	3			Group	N/A			KA # and Rating	2.1.42 2.5/3.4			KA Statement	Knowledge of new and spent fuel movement procedures.			Cognitive level	higher			10 CFR 55	43.7			Technical Reference with Revision No:	Tech Spec 3.9.1 GP-6.1	Rev #:	30	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	703135 Bank			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
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Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)																																																											

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	U/1 TS 3.9.1 U/1 GP-6.1, section 3.5.11, Att.10, and Att.11
	LORT	
	PRA: (i.e. Yes or No or #)	No
	LORT Question Section: (i.e. A-Systems or B-Procedures)	B
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

95

ID: 1245558

Points: 1.00

*****SRO ONLY*****

Unit 1 is in OPCON 4

- All equipment is operable
- Reactor coolant temperature is 170 degrees F
- 0650 the crew is briefing placing the mode switch in STARTUP
- 0700 A SBGT is declared INOP (return to operable is estimated to be 18 hours)

Which of the following describes (1) if the mode switch is allowed to be placed in STARTUP and (2) the required action to support this determination?

- A. (1) Yes
(2) Perform a risk assessment.
- B. (1) No
(2) Initiate a "B" side reactor HVAC Isolation within 7 hours.
- C. (1) Yes
(2) A risk assessment is not required.
- D. (1) No
(2) Be in HOT SHUTDOWN within 7 hours.

Answer: A

Answer Explanation

T.S. 3.6.5.3 Two independent standby gas treatment subsystems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, and when (1) irradiated fuel is being handled in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

ACTION:

a. In OPERATIONAL CONDITION 1, 2, or 3:

1. With one standby gas treatment subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

3.0.4 When a Limiting Condition for Operation is not met, entry into an OPERATIONAL CONDITION or other specified condition in the Applicability shall only be made:

a. When the associated ACTION requirements to be entered permit continued operation in the OPERATIONAL CONDITION or other specified condition in the Applicability for an unlimited period of time; or

b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the OPERATIONAL CONDITION or other specified

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications; or

c. When an allowance is stated in the individual value, parameter, or other Specification.

- A Correct Startup may continue after a risk assesment is performed. T.S 3.6.5 would require a shutdown in seven days so 3.0.4.b applies.
- B Incorrect, plausible to the examinee who confesses the SBTG T.S with the OPCON4/5 CREFAS T.S which directs placing an isolation in
- C Incorrect, plausible to the examinee who believe continued operation is allowed with 1 SBTG system INOP
- D Incorrect, plausible to the examinee who believe that a T.S. 3.0.3 shutdown is required

Question 95 Info																							
Question Type:	Multiple Choice																						
Status:	Active																						
Always select on test?	No																						
Authorized for practice?	No																						
Points:	1.00																						
Time to Complete:	0																						
Difficulty:	0.00																						
System ID:	1245558																						
User-Defined ID:	NEW																						
Cross Reference Number:	ILT 2016 Q# 95																						
Topic:	SRO determine OPCON and Action																						
RO importance:	3.6																						
SRO importance:	4.5																						
K/A #:	2.2.35																						
Comments:	<table border="1"> <thead> <tr> <th colspan="2">General Data</th></tr> </thead> <tbody> <tr> <td>Level</td><td>SRO</td></tr> <tr> <td>Tier</td><td>3</td></tr> <tr> <td>Group</td><td>N/A</td></tr> <tr> <td>KA # and Rating</td><td>2.2.35 3.6/4.5</td></tr> <tr> <td>KA Statement</td><td>Ability to determine Technical Specification Mode of Operation.</td></tr> <tr> <td>Cognitive level</td><td>higher</td></tr> <tr> <td>10 CFR 55</td><td>43.2</td></tr> <tr> <td>Technical Reference with Revision No:</td><td>unit 1 T.S</td></tr> <tr> <td>Justification for Non SRO CFR Link:</td><td>N/A</td></tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td><td>New</td></tr> </tbody> </table>	General Data		Level	SRO	Tier	3	Group	N/A	KA # and Rating	2.2.35 3.6/4.5	KA Statement	Ability to determine Technical Specification Mode of Operation.	Cognitive level	higher	10 CFR 55	43.2	Technical Reference with Revision No:	unit 1 T.S	Justification for Non SRO CFR Link:	N/A	Question History: (i.e. LGS NRC-05, OYS CERT-04)	New
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Justification for Non SRO CFR Link:	N/A																						
Question History: (i.e. LGS NRC-05, OYS CERT-04)	New																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Question Source: (i.e. New, Bank, Modified)	
	Low KA Justification (if required):	N/A
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
Comments		

Question 95 Table-Item Links

LIMERICK LO Question Category

ILT

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

96

ID: 1245788

Points: 1.00

*****SRO ONLY*****

Unit 1 is operating at 100% power.

Unit 2 is in OPGON 5, with the following:

- RHR Pump 'A' in Shutdown Cooling
- Refueling is in progress

Control Room Normal Fresh Air Radiation Monitors 'A' and 'B' are declared inoperable.

WHICH ONE of the following identifies the Tech Spec required action, if any?

- A. No action required.
- B. Initiate CREFAS in the radiation isolation mode of operation within 1 hour
- C. Restore either the 'A' or 'B' radiation monitor to operable within 6 hours, or initiate and maintain operation of CREFAS in the radiation isolation mode of operation.
- D. Install a portable, operable continuous monitor with the same alarm setpoint in the same area as the inoperable monitor. Maintain it in service anytime fuel is being moved.

Answer: B

Answer Explanation

U1 is in OPGON 1 - action 70 is applicable (with 2 inop - 1 hr, with 1 inop, 7 days or rad isolation w/in 6 hr)
U2 is in OPGON 5 - But, Because not recently irradiated fuel and 2 channels inop, no action 70

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

TABLE 3.3.7.1-1

RADIATION MONITORING INSTRUMENTATION

<u>INSTRUMENTATION</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE CONDITIONS</u>	<u>ALARM/TR SETPOINT</u>
1. Main Control Room Normal Fresh Air Supply Radiation Monitor	4	1, 2, 3, and *	1×10^{-5}
2. Area Monitors			
a. Criticality Monitors			
1) Spent Fuel Storage Pool	2	(a)	$\geq 5 \text{ mR/h}$
b. Control Room Direct Radiation Monitor	At All Times	N.A. (b)	73
3. Reactor Enclosure Cooling Water Radiation Monitor	1	At All Times	$\leq 3 \times \text{Ba}$

***When irradiated fuel RECENTLY IRRADIATED FUEL is being handled in the secondary containment or during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.**

- (a) With fuel in the spent fuel storage pool
- (b) Alarm only.

ACTION 70 - With one monitor inoperable, restore the inoperable monitor to the OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of the control room emergency filtration system in the radiation isolation mode of operation.

With two or more of the monitors inoperable, within one hour, initiate and maintain operation of the control room emergency filtration system in the radiation mode of operation.

ACTION 71 - With one of the required monitor inoperable, assure a portable continuous monitor with the same alarm setpoint is OPERABLE in the vicinity of the installed monitor during any fuel movement. If no fuel movement is being made, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 72 - With the required monitor inoperable, obtain and analyze at least one grab sample of the monitored parameter at least once per 24 hours.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

ACTION 73 - With the required monitor inoperable, assure a portable alarming monitor is OPERABLE in the vicinity of the installed monitor or perform area surveys of the monitored area with portable monitor-ing instrumentation at least once per 24 hours.

Question 96 Info																																																							
Question Type:	Multiple Choice																																																						
Status:	Active																																																						
Always select on test?	No																																																						
Authorized for practice?	No																																																						
Points:	1.00																																																						
Time to Complete:	5																																																						
Difficulty:	3.00																																																						
System ID:	1245788																																																						
User-Defined ID:	717295																																																						
Cross Reference Number:	ILT 2016 Q# 96																																																						
Topic:	SRO ONLY - Unit 1 is in OPCON 5, with RHR pump "A" in shutdown cooling mode. Refueling is in progres																																																						
RO importance:	2.9																																																						
SRO importance:	3.1																																																						
K/A #:	2.3.15																																																						
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">3</td> </tr> <tr> <td>Group</td> <td colspan="3">N/A</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.3.15 2.9/3.1</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">low</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.2,4</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>LGS Technical Specification 3.3.7.1</td> <td>Rev #:</td> <td></td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3"></td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">717295 Bank</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	3			Group	N/A			KA # and Rating	2.3.15 2.9/3.1			KA Statement	Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.			Cognitive level	low			10 CFR 55	43.2,4			Technical Reference with Revision No:	LGS Technical Specification 3.3.7.1	Rev #:		Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)				Question Source: (i.e. New, Bank, Modified)	717295 Bank			Low KA Justification (if required):	N/A		
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Low KA Justification (if required):	N/A																																																						

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)	
	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e, A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

97

ID: 1151792

Points: 1.00

*****SRO ONLY*****

A hostile action is in progress at LGS the TSC cannot be staffed. The EOF is fully staffed and is ready to assume command and control function. Per EP-AA-112-F-01 which of the following responsibilities are retained by the shift emergency director?

- A. Control of field monitoring teams.
- B. state and local notifications.
- C. Event Classification.
- D. No transfers are permitted until TSC is activated.

Answer: C

Answer Explanation

Per EP-AA-112-F-01

5. Upon the transfer of Command and Control, the following will be performed by:

- a. Event Classification..... • CR • TSC
- b. PAR Decision-Making • CR • TSC • EOF
- c. State/Local Notifications..... • CR • TSC • EOF
- d. NRC Notifications..... • CR • TSC • EOF
- e. Emergency Exposure Controls • CR • TSC
- f. Control of Field Monitoring Teams..... • CR • TSC • EOF
- g. Responsibility for Dose Assessment..... • CR • TSC • EOF

C correct Event Classification & Emergency Exposure Controls remain on site and since the TSC cannot be staffed they remain with the shift ED

A, B, C are incorrect the all contain at least one function that the EOF will assume. plausible to the examinee who does not recall transferable responsibilities or recognize the TSC is not activated.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 97 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	3																																																										
Difficulty:	2.50																																																										
System ID:	1151792																																																										
User-Defined ID:	NEW																																																										
Cross Reference Number:	ILT 2016 Q# 97																																																										
Topic:	SRO In accordance with the station emergency procedures, take action																																																										
RO importance:	2.4 do not use for																																																										
SRO importance:	4.4																																																										
K/A #:	2.4.38																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">3</td> </tr> <tr> <td>Group</td> <td colspan="3">2.4</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.4.38 2.4/4.4</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">2.4.38 Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">lower</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>EP-AA-112-F-01</td> <td>Rev #:</td> <td>F</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">new</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">New</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">N/A</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	3			Group	2.4			KA # and Rating	2.4.38 2.4/4.4			KA Statement	2.4.38 Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.			Cognitive level	lower			10 CFR 55	43.5			Technical Reference with Revision No:	EP-AA-112-F-01	Rev #:	F	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	new			Question Source: (i.e. New, Bank, Modified)	New			Low KA Justification (if required):	N/A			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	Supplied Ref (If appropriate): (i.e. ABN-##)	None
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	
	Comments	

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

98

ID: 1244804

Points: 1.00

*****SRO ONLY*****

Unit 1 and 2 are operating at 100% power.

- At 0300 hours one of the Three On-Duty Reactor Operators (RO) passes out and is taken to an area hospital
- A call out is made and an RO is responding to the site
- At 0430 hours the responding RO informs the MCR he can not report due to being injured in a vehicle accident

From the following, choose the required Tech. Spec. action(s) for this condition, if any.

- A. NRC must be notified within 24 hours.
- B. No action is required until shift change at 0700.
- C. Immediate action must be taken to restore the minimum shift staffing requirements by 0500 hours.
- D. Immediate action must be taken to restore the minimum shift staffing requirements by 0630 hours.

Answer: C

Answer Explanation

C is correct:

IAW TS 6.2.2 -1. Shift crew composition may be one less than the minimum requirements of 10CFR50.54(m)(2)(i) and Specifications 6.2.2.a for a period of time not to exceed 2 hours to accommodate unexpected absence of on-duty shift crew members, provided immediate action is taken to restore the shift crew composition within the minimum requirements.

Therefore, the requirements of TS 6.2.2 -1. are required to be taken (take immediate action to restore the shift crew composition with 2 hours).

A is incorrect but plausible if the examinee believes that the Incident Assessor or STA fulfills the requirement for one of the two reactor operators required by 10CFR50.54.m(2)(i).

B is incorrect but plausible if the examinee fails to recall the 2 hour limitation in TS 6.2.2 -1.

D is incorrect but plausible if the examinee mistakenly believes the 2 hour requirement re-sets when the Responding RO calls informing the MCR he can not respond.

KA justification - this question meets the KA because the examinee must be able to determine required actions for restoring minimum shift staffing levels detailed in Technical Specifications and Operations procedures (OP-LG-101-111).

SRO only justification - Taking action to restore shift staffing is an SRO only function at LGS and is also linked to 10CFR55.43(b)(1) Conditions and limitations in the facility license.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 98 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	1244804
User-Defined ID:	CLINTON BANK 819063
Cross Reference Number:	ILT 2016 Q# 98
Topic:	SRO both units at 100 % On-Duty Reactor Operators (RO) passes out an
RO importance:	2.9
SRO importance:	3.9
K/A #:	2.1.5

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Comments:	General Data		
	Level	SRO	
	Tier	3	
	Group	2.1.5	
	KA # and Rating	2.1.5 2.9/3.9	
	KA Statement	Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.	
	Cognitive level	high	
	10 CFR 55	43.1	
	Technical Reference with Revision No:	tech Spec 6.2.2-1	Rev #:
	Justification for Non SRO CFR Link:	NA	
	Question History: (i.e. LGS NRC-05, OYS CERT-04)	Clinton bank 819063 modified	
	Question Source: (i.e. New, Bank, Modified)		
	Low KA Justification (if required):	n/a	
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)		
	ILT		
	Supplied Ref (If appropriate): (i.e. ABN-##)	None	
CERT			
PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)			
Comments			

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

99

ID: 1151790

Points: 1.00

*****SRO ONLY*****

Unit 1 is at 100% power with all systems normal when the following alarm is received at 120 D-11: 1A RPS & UPS DISTR PNL TROUBLE

Plant conditions are as follows:

- The PRO states that all Confirming Indications in E-1AY160, Loss of 1A RPS UPS Power, are present
- The Reactor Operator reports RWCU isolation has occurred
- As Control Room Supervisor, you observe various process Rad Monitor Trips and Alarms

WHICH ONE of the following describes the appropriate procedure to implement and the basis for use?

	<u>Procedure</u>	<u>Basis</u>
A.	ON-113 Loss of RECW	Loss of 1AY160 caused RECW Isolation
B.	GP-4 Rapid Plant Shutdown	Loss of 1AY160 caused loss of CRD Flow Controller power
C.	OT-112 Recirculation Pump Trip	Loss of 1AY160 caused Recirc Pump trip
D.	ON-109 Total Loss of SRM, IRM or APRM Systems	Loss of 1AY160 caused loss of power to all IRMs

Answer: A

Answer Explanation

Justification:

- A. Correct. Per stem conditions indicate there has been a loss of 1A RPS UPS power. Per E-1AY160 this will result in RECW isolation. Step 2.1 (Initial Actions) of E-1AY160 specifies "Enter ON-113, Loss of RECW".
- B. Incorrect. Loss of 1AY160 will not affect CRD Flow Controllers (E-1AY160 Section 1.0). Plausible if some other power supply is assumed lost or if associates with RWCU isolation.
- C. Incorrect but plausible. Loss of 1AY160 will not on its own cause a recir pump trip. If Recirc Pumps trip, E-1AY160 directs entering OT-112.
- D. Incorrect but plausible since half of IRMs (A, C, E, and G) will lose power.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Question 99 Info																																																																											
Question Type:	Multiple Choice																																																																										
Status:	Active																																																																										
Always select on test?	No																																																																										
Authorized for practice?	No																																																																										
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Time to Complete:	0																																																																										
Difficulty:	2.50																																																																										
System ID:	1151790																																																																										
User-Defined ID:	1142067																																																																										
Cross Reference Number:	ILT 2016 Q# 99																																																																										
Topic:	SRO loss of 1AY160																																																																										
RO importance:	4.0																																																																										
SRO importance:	4.2																																																																										
K/A #:	G2.4.11																																																																										
Comments:	<table border="1"> <thead> <tr> <th colspan="4">General Data</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td colspan="3">SRO</td> </tr> <tr> <td>Tier</td> <td colspan="3">3</td> </tr> <tr> <td>Group</td> <td colspan="3">2.4</td> </tr> <tr> <td>KA # and Rating</td> <td colspan="3">2.4.11 4.0/4.2</td> </tr> <tr> <td>KA Statement</td> <td colspan="3">2.4.11 Knowledge of abnormal condition procedures.</td> </tr> <tr> <td>Cognitive level</td> <td colspan="3">higher</td> </tr> <tr> <td>10 CFR 55</td> <td colspan="3">43.5</td> </tr> <tr> <td>Technical Reference with Revision No:</td> <td>E-1AY160</td> <td>Rev #:</td> <td>28</td> </tr> <tr> <td>Justification for Non SRO CFR Link:</td> <td colspan="3">N/A</td> </tr> <tr> <td>Question History: (i.e. LGS NRC-05, OYS CERT-04)</td> <td colspan="3">2008 ILT NRC exam</td> </tr> <tr> <td>Question Source: (i.e. New, Bank, Modified)</td> <td colspan="3">2008 ILT NRC exam (NRC developed) 1142067</td> </tr> <tr> <td>Low KA Justification (if required):</td> <td colspan="3">n/a</td> </tr> <tr> <td>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</td> <td colspan="3"></td> </tr> <tr> <th colspan="4">ILT</th> </tr> <tr> <td>Supplied Ref (if appropriate): (i.e. ABN-##)</td> <td colspan="3">None</td> </tr> <tr> <th colspan="4">LORT</th> </tr> <tr> <td>PRA: (i.e. Yes or No or #)</td> <td colspan="3"></td> </tr> </tbody> </table>			General Data				Level	SRO			Tier	3			Group	2.4			KA # and Rating	2.4.11 4.0/4.2			KA Statement	2.4.11 Knowledge of abnormal condition procedures.			Cognitive level	higher			10 CFR 55	43.5			Technical Reference with Revision No:	E-1AY160	Rev #:	28	Justification for Non SRO CFR Link:	N/A			Question History: (i.e. LGS NRC-05, OYS CERT-04)	2008 ILT NRC exam			Question Source: (i.e. New, Bank, Modified)	2008 ILT NRC exam (NRC developed) 1142067			Low KA Justification (if required):	n/a			Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)				ILT				Supplied Ref (if appropriate): (i.e. ABN-##)	None			LORT				PRA: (i.e. Yes or No or #)			
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	LORT Question Section: (i.e. A-Systems or B-Procedures)		
	Comments		
	General Data		
	Technical Reference with Revision No:		Rev #:
	Justification for Non SRO CFR Link:		
	Question History: (i.e. LGS NRC-05, OYS CERT-04)		
	Question Source: (i.e. New, Bank, Modified)	2008 ILT NRC exam (NRC written) 1142067	
	Low KA Justification (if required):		
	Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)		
	ILT		
Supplied Ref (If appropriate): (i.e. ABN-##)			
Excluded Reference: (i.e. Ensure ON-## not provided)			
LORT			
PRA: (i.e. Yes or No or #)			
LORT Question Section: (i.e. A-Systems or B-Procedures)			
G2.4.11 Knowledge of Abnormal Condition Procedures as they relate to Reactor Protection System			

Question 99 Table-Item Links

LIMERICK LO Question Category

ILT
NRC
SRO
LOW COG

NRC EXAM - 10 CFR 55 Operators' Licenses

CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

100

ID: 1241416

Points: 1.00

*****SRO ONLY*****

Unit 1 plant conditions are as follows:

- The reactor is critical with all IRMs operable and on-scale on range 7
- Reactor pressure is 60 psig
- Heat-up is in progress

Startup is suspended for an equipment issue.

20 minutes later, conditions:

- All IRMs are on-scale on range 3
- SRM period indicators are reading infinity
- Estimated time to repair the equipment issue is 1 hour from now

WHICH ONE of the following identifies the required action?

- A. Perform a GP-4, Rapid Plant Shutdown
- B. Immediately insert a manual scram per OT-104
- C. Insert SRMs to maintain count rate 100 CPS to 100,000 CPS and insert control rods until all IRMs are on range 1 per GP-2, App. 1
- D. Insert SRMs to maintain count rate 100 CPS to 100,000 CPS and insert control rods until only the first control rod group in the startup sequence remains withdrawn per GP-2, App. 1

Answer: D

Answer Explanation

GP-2 app1 CAUTION

After achieving criticality a delay in rod withdrawal during reactor heat up or other issues that add negative reactivity can result in the reactor becoming subcritical, as indicated by all of the following:

1. Before reaching the Point of Adding Heat (POAH)
 - Multiple SRM or IRM readings continuously lowering without rod insertions
2. After reaching the Point of Adding Heat (POAH)
 - Multiple SRM or IRM readings continuously lowering without rod insertions **AND**
 - Multiple IRMs have been down ranged through at least two ranges **AND**
 - Multiple IRMs are below range 7

Insert SRMs to maintain count rate 100 CPS to 100,000 CPS and insert control rods until only the first control rod group in the startup sequence remains withdrawn per GP-2, App. 1 is correct per the stem and the caution above the reactor has gone subcritical. response to sub criticality is to Insert SRMs to maintain count rate 100 CPS to 100,000 CPS and insert rods until only the first control rod group in the startup sequence remains withdrawn (GP-2 app1 att 1)

Perform a GP-4, Rapid Plant Shutdown is incorrect. This answer is plausible if they believe that ON-109 entry is required for a loss of neutron monitoring system while the system is required for operation.

EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

Immediately insert a manual scram per OT-104 incorrect SCRAM is only required if reactor goes or may go critical again.

incorrect o Insert SRMs to maintain count rate 100 CPS to 100,000 CPS is correct however rods must be inserted until only the first control rod group in the startup sequence remains withdrawn

Question 100 Info																																																											
Question Type:	Multiple Choice																																																										
Status:	Active																																																										
Always select on test?	No																																																										
Authorized for practice?	No																																																										
Points:	1.00																																																										
Time to Complete:	0																																																										
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Cross Reference Number:	ILT 2016 Q# 100																																																										
Topic:	SRO subcriticality action																																																										
RO importance:	4.5																																																										
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EXAMINATION ANSWER KEY

LGS 2016 ILT NRC EXAM SRO

	ILT	
	Supplied Ref (If appropriate): (i.e. ABN-##)	none
	Excluded Reference: (i.e. Ensure ON-## not provided)	
	LORT	
	PRA: (i.e. Yes or No or #)	
	LORT Question Section: (i.e. A-Systems or B-Procedures)	

KEY VERIFY RESCORE

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USE NO. 2 PENCIL ONLY

EXAMPLE: A B C D E

MAKE DARK MARKS

ERASE COMPLETELY TO CHANGE

MAKE NO STRAY MARKS

TEST RECORD

PART 1

PART 2

TOTAL

Firmware
Ver. 3.3+

NAME

(Last)

(First)

SUBJECT

INSTRUCTOR

DATE

PERIOD

KEY ☐ VERIFY ☐ RESCORE ☐

USE NO. 2 PENCIL ONLY

- EXAMPLE: ☐ A ☐ B ☐ C ☐ D ☐ E
- MAKE **DARK** MARKS
- ERASE **COMPLETELY** TO CHANGE
- MAKE NO STRAY MARKS

TEST RECORD	
PART 1	
PART 2	
TOTAL	

Firmware
Ver. 3.3

Student ID Number

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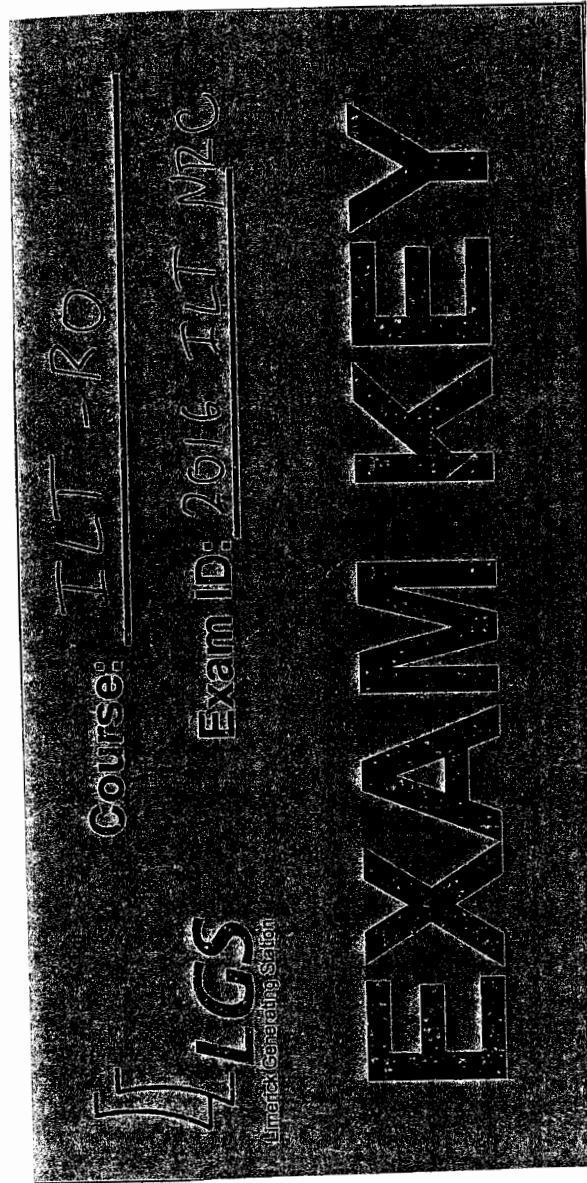
SUBJECT _____ INSTRUCTOR _____

DATE _____ PERIOD _____

APPERSON EDUCATION PRODUCTS 800.827.9219
A1705 - RR 05/10 US Patent No. 6,079,624

(T) (F)

- 1 ☐ A ☐ B ☐ C ☐ D ☐ E
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- 48 ☐ A ☐ B ☐ C ☐ D ☐ E
- 49 ☐ A ☐ B ☐ C ☐ D ☐ E
- 50 ☐ A ☐ B ☐ C ☐ D ☐ E



REORDER
AccuScan™
Advantage™

RESCORE



SCORE

KEY VERIFY RESCORE

Student ID Number

0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9	9

(T) (F)

51	A	B	C	D	E
52	A	B	C	D	E
53	A	B	C	D	E
54	A	B	C	D	E
55	A	B	C	D	E
56	A	B	C	D	E
57	A	B	C	D	E
58	A	B	C	D	E
59	A	B	C	D	E
60	A	B	C	D	E
61	A	B	C	D	E
62	A	B	C	D	E
63	A	B	C	D	E
64	A	B	C	D	E
65	A	B	C	D	E
66	A	B	C	D	E
67	A	B	C	D	E
68	A	B	C	D	E
69	A	B	C	D	E
70	A	B	C	D	E
71	A	B	C	D	E
72	A	B	C	D	E
73	A	B	C	D	E
74	A	B	C	D	E
75	A	B	C	D	E
76	A	B	C	D	E
77	A	B	C	D	E
78	A	B	C	D	E
79	A	B	C	D	E
80	A	B	C	D	E
81	A	B	C	D	E
82	A	B	C	D	E
83	A	B	C	D	E
84	A	B	C	D	E
85	A	B	C	D	E
86	A	B	C	D	E
87	A	B	C	D	E
88	A	B	C	D	E
89	A	B	C	D	E
90	A	B	C	D	E
91	A	B	C	D	E
92	A	B	C	D	E
93	A	B	C	D	E
94	A	B	C	D	E
95	A	B	C	D	E
96	A	B	C	D	E
97	A	B	C	D	E
98	A	B	C	D	E
99	A	B	C	D	E
100	A	B	C	D	E

USE NO. 2 PENCIL ONLY

- EXAMPLE: A B C D E
- MAKE **DARK** MARKS
- ERASE **COMPLETELY** TO CHANGE
- MAKE NO STRAY MARKS

TEST RECORD

PART 1	
PART 2	
TOTAL	

Firmware Ver. 3.3+

NAME _____
(Last) (First)
 SUBJECT _____ INSTRUCTOR _____
 DATE _____ PERIOD _____