2002 LSROI NRC Exam

1

This Exam Level LSRO

	Group 2	Question 1
K/A #	42036AK302	
Importance Rating:	2.9	3.6

Given the following plant conditions:

- The Transfer Carriage is on the containment side.
- All prerequisites are met to utilize the Fuel Transfer and Spent Fuel Handling Machine.

Select which ONE condition below will allow powered operations of the Spent Fuel Handling Machine (SFHM) to enter the transfer canal:

A. Upender bypass key is "ON".

B. Bridge interlocks are bypassed.

C. Spent fuel pool upender is horizontal.

D. New fuel elevator is at the "up limit".

Answer: A

Associated Objective:
L64292 DIRECT OPERATIONS OF THE SPENT FUEL HANDLING MACHINE

Reference Id:	Q20846
Difficulty:	3.00
Time to complete:	3
Cognitive Category:	Comprehension
Question Source:	PV Bank Not Modified
Comment:	Distractor B is incorrect, the bridge interlocks can not be bypassed electrically, only the upender. Distractor C is incorrect, the upender must be vertical to enter. Distractor D is incorrect, the new fuel elevator must be down to enter.

Reference: 78OP-9FX03

KA:

Knowledge of the reasons for the following responses as they apply to the Fuel Handling Incidents:

Interlocks associated with fuel handling equipment

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2

This Exam Level LSRO

	Group 3	Question 9
K/A #	34005K307	
Importance Rating:	3.2	3.6

Given the following conditions:

- Unit 1 is in Mode 6
- Core alterations are in progress
- The CRS informs you that the SDC loop needs to be taken off line

Per Tech Specs, the operating SDC (shutdown cooling) loop may be removed from service for:

A. testing only, not to exceed 8 hours in 24 hours.

B. an unlimited time period, with no fuel movement.

C. 1 hour in each 8 hour period, with no reduction in RCS Boron Concentration.

D. up to a 4 hour period, with water level $\geq$ 23' above the vessel flange.

Answer: C

Associated Objective:

L79568 Given a copy of TS and the TRM Determine if a specific piece of equipment is required to be operable.

L114207 Describe the purpose of the shut down cooling sub system.

Reference Id: Q20843
Difficulty: 3.00
Time to complete: 3
Cognitive Category: Analysis
Question Source: PV Bank Not Modified
Comment: Only the answer "C" contains all of the correct information from the T.S. 3.9.4

Reference: Tech Spec 3.9.4

KA:

Knowledge of the effect that a loss or malfunction of the RHRS will have on the following:

Refueling operations

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3

This Exam Level LSRO

	Group 3	Question 12
K/A #	36062A201	
Importance Rating:	3.4	3.9

Given the following plant conditions:

- Unit 1 is in MODE 6.
- A core reload is in progress.
- The refueling machine is in the process of lowering a fuel assembly
- B Train SDC is in service

A complete loss of bus voltage occurs on PBB-S04 due to degraded offsite power.

Per the guidance contained in 40AO-9ZZ12, "Degraded Electrical Power", the CRS is directed to verify that the DG is providing power to the bus.

Which ONE of the following describes the effect on PBB-S04? Power to PBB-S04 is…

A. maintained throughout the transient by bus transfer logic.

B. maintained throughout the transient by a UPS (Uninterruptable Power Supply).

C. interrupted but restored automatically by the DG following an auto start.

D. interrupted but can be restored manually by closing the DG outlet breaker after the DG restarts automatically.

Answer: C

Associated Objective:

L64314 PROVIDE THE LOCATION OF THE POWER SUPPLY AND THE ACTION REQUIRED TO ENERGIZE OR DE-ENERGIZE THE COMPONENT, INCLUDING ANY SAFETY CONCERNS.

Reference Id:	Q1930
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	New Question
Comment:	This question requires knowledge that the candidate remembers PBB-S04 is powered from the DG on a loss of offsite power. The DG will auto start after a loss of vital bus voltage and automatically close in on the bus if there is no voltage and no fault condition.
Reference:	40AO-9ZZ12, Degraded Electrical

KA:

Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Types of loads that, if de-energized, would degrade or hinder plant operation

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This Exam Level LSRO

	Group 3	Question 13
K/A #	35103A202	
Importance Rating:	2.2	3.2

In preparation for lifting the Upper Guide Structure (UGS) the following conditions are noted:

- Fuel transfer tube quick closure device is open
- Refuel Pool level is 131' 9"
- Fuel Canal level is 131' 8"
- PCN-V118 is open

In accordance with the "Outage GOP", the LSRO should perform the following first:

A. Proceed with direction to raise the UGS.

B. Close PCN-V118, Fuel Transfer Tube Isolation.

C. Raise Fuel Canal Level to match Refuel Pool Level.

D. Lower Spent Fuel Pool Level to match Fuel Canal Level.

Answer: B

Associated Objective:

L64301 DIRECT REQUIRED ACTIONS DURING MODE 6 REFUELING OPERATIONS

L114367 Describe the refueling process.

Reference Id:	Q16750
Difficulty:	3.00
Time to complete:	3
Cognitive Category:	Comprehension
Question Source:	PV Bank Not Modified
Comment:	PCN-V118 can not be open unless minimum Refuel Pool Level of 131ft. 10 in. actual level is attained and both the fuel canal level and refuel pool level are equal.
Reference:	40OP-9ZZ23 App. W step 30 40OP-9ZZ23 step 11.19

KA:

Ability to (a) predict the impacts of the following malfunctions or operations on the containment system-and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations

Necessary plant conditions for work in containment

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This Exam Level LSRO

	Group 3	Question 1
K/A #	42036AK303	
Importance Rating:	3.7	4.1

Given the following plant conditions:

- Unit 1 is at 100% power
- Irradiated Fuel Movement is ongoing in the Fuel building.
- A fuel element is dropped and damaged

Per procedure, which ONE of the following is required?

The control room operator must ensure...

A. CPIAS and CREFAS have actuated.

B. FBEVAS and CRVIAS have actuated.

C. CREFAS and CRVIAS have actuated.

D. FBEVAS and CREFAS have actuated.

Answer: D

Associated Objective:

L96632	Describe, in sequence, the major steps necessary to mitigate a damaged irradiated fuel assemble
L106344	Describe, in sequence, the major steps necessary to mitigate a damaged irradiated fuel assemble

Reference Id:	Q28571
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Analysis
Question Source:	PV Bank Not Modified
Comment:	High Radiation Level in the Fuel Bldg. will lead to both a Fuel Bldg. (FBEVAS) and Control Room Essential Ventilation Actuation (CREFAS) Signals. Distracters A, B, & C do not contain the correct combination.
Reference:	40AO-9ZZ22, Fuel Damage

KA:

Knowledge of the reasons for the following responses as they apply to the Fuel Handling Incidents:

Guidance contained in EOP for fuel handling incident

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6

This Exam Level LSRO

	Group 1	Question 1
K/A #	42036AK103	
Importance Rating:	4.0	4.3

Given the following plant conditions:

- Unit 1 is in Mode 6
- Core off load is in progress
- The Refueling Machine is over the core
- An assembly has been grappled
- The spreader is retracted and the hoist is being raised
- An overload condition occurs and the assembly is observed to be very warped with bubbles coming from the assembly
- The Control Room initiates an evacuation.

Which ONE of the following actions describes the correct LSRO response to this event?

A. Open the grapple, determine the status of adjacent assemblies and evacuate the area.

B. Lower the hoist down to the auto stop, ensure the assembly is in a stable configuration, and evacuate all remaining personnel.

C. Manually raise the assembly and place the assembly in a different location away from all other assemblies and evacuate the area.

D. Bypass the hoist overload and attempt to raise the assembly in order to place this assembly in the upender to ensure a stable configuration, then evacuate all remaining personnel.

Answer: B

Associated Objective:

L64296	DIRECT ACTIONS FOR FUEL DAMAGE
L106344	Describe, in sequence, the major steps necessary to mitigate a damaged irradiated fuel assemble

Reference Id:	Q20826
Difficulty:	4.00
Time to complete:	4
Cognitive Category:	Analysis
Question Source:	PV Bank Not Modified
Comment:	Requires the candidate to recognize that fuel damage has occurred and to direct actions from memory per the procedure. The most stable configuration with the most rad protection is lowered. This will provide protection against a local criticality event.
Reference:	40AO-9ZZ22, Fuel Damage

KA:

Knowledge of the operational implications of the following concepts as they apply to Fuel Handling Incidents:

Indications of approaching criticality

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This Exam Level LSRO

	Group 1	Question 2
K/A #	6192002K110	
Importance Rating:	3.2	3.6

The amount of reactivity by which the reactor is subcritical with the most reactive control rod withdrawn is called:

A. excess reactivity

B. source reactivity

C. shutdown margin

D. reactivity margin

Answer: C

Associated Objective:

6192002K110	K1.10	Define shutdown margin.	3.2	3.6

67901 Define shutdown margin, state how it is used in technical specification limits and explain why minimum shutdown margin must be maintained.

Reference Id: 192002Q025
Difficulty: 2.00
Time to complete: 2
Cognitive Category: Memory
Question Source: INPO Bank Q#25
Comment: Definition of SDM. GFES Question

Reference: Reactor Theory NLA09

KA:

Describe the neutron life cycle using the following terms:

Define SDM

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This Exam Level	LSRO	
	Group 1	Question 3
K/A #	6192002K111	
Importance Rating:	2.9	3.0

Reactivity is defined by which ONE of the following?

A. Neutron multiplication factor for a reactor of finite size.

B. The fractional change of the neutron population per generation.

C. The number of times that power level changes by a factor of ten in one minute.

D. The process by which neutron population, and resultant power level, are kept from reaching zero in a subcritical reactor.

Answer: B

Associated Objective:
6192002K111 Define reactivity.

6192002K111 Define reactivity.

Reference Id:	Q16463
Difficulty:	3.00
Time to complete:	1
Cognitive Category:	Memory
Question Source:	New Question
Comment:	Definition of Reactivity. GFES
Reference:	Reactor Theory, NLA09

KA:

Describe the neutron life cycle using the following terms:

Define reactivity

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This Exam Level LSRO

	Group 1	Question 4
K/A #	32002K614	
Importance Rating:	2.2	2.8

During examination of the Core Support Barrel during core offload it is determined that a crack exists vertically along one side. A subsequent failure of this device could lead to a loss of...

A. cooling for surveillance capsules.

B. mixing flow in the bottom of the core.

C. support for the weight of the fuel assemblies.

D. venting capability for non-condensable gases or steam.

Answer: C

Associated Objective:
L67163 Describe the normal flowpath/operation associated with the Reactor Vessel and Internals.

Reference Id:	Q7267
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	New Question
Comment:	The Core Support Barrel supports the weight of the fuel assemblies.
Reference:	STM Volume 39, Reactor Coolant System; STMGraphicCatalog\RC\RC051-98, Reactor Flow Paths

KA:

Knowledge of the effect or a loss or malfunction on the following RCS components:

Core components

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This Exam Level LSRO

	Group 1	Question 5
K/A #	6193007K104	
Importance Rating:	2.8	3.0

Which ONE of the following best explains the effects of steam formation on the heat transfer process in a single phase (liquid) heat exchangers?

A. A small amount of steam that forms and subsequently collapses will reduce the amount of heat transfer.

B. Steam voids can accumulate and cause blockage, severely limiting heat transfer.

C. Steam voids will increase the heat transfer coefficient of the heat exchanger.

D. The delta temperature across the tubes will decrease in the heat exchanger.

Answer: B

Associated Objective:

6193007G05 Describe how the presence of gases or steam can affect heat transfer and fluid flow in heat exchangers.

6193007K104 K1.04 Describe how the presence of gases or steam can affect heat transfer and fluid flow in heat exchangers. 2.8 3

65841 Describe how the presence of gases, steam, or leakage can affect heat transfer and fluid flow in heat exchangers.

Reference Id: 193007Q015
Difficulty: 3.00
Time to complete: 2
Cognitive Category: Comprehension
Question Source: PV Bank Not Modified
Comment: Distractor A will improve heat transfer.
Distractor C will decrease heat transfer.
Distractor D, the delta Temp will increase.

Reference: Thermodynamics and Fluid Flow Fundamentals

KA:

Describe how the presence of gases or steam can affect heat transfer and fluid flow in HX's

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This Exam Level LSRO

	Group 1	Question 6
K/A #	31004K520	
Importance Rating:	3.6	3.7

Raising the temperature of an ion exchanger resin bed (CVCS system) causes:

A. Boric Acid to be retained by the ion exchanger with a decrease in Reactor power.

B. Boric Acid to be released from the ion exchanger and a subsequent decrease in Reactor power.

C. No change in the affinity of the ion exchanger to absorb or release Boric Acid and therefore no associated change in Reactor power.

D. No change unless the temperature is raised above 105 degrees then all of the Boric acid would be released with a subsequent increase in Reactor power.

Answer: B

Associated Objective:

L59463 Explain how temperature affects the ion exchanger affinity to absorb boric acid.

L113945 Describe the Letdown flowpath of the Chemical and Volume Control System to include these major components:

Letdown Flow Control Valves (CHE-LV-110P/110Q)
Letdown Heat Exchanger (CHN-E02)
Letdown Backpressure Control Valves
Boronometer
Purification Ion Exchangers (CHN-D01A/D01B)
Shutdown Cooling Purification Lines

Reference Id: Q61741
Difficulty: 4.00
Time to complete: 5
Cognitive Category: Analysis
Question Source: PV Bank Modified
Comment: Raising the temperature would cause Boron to be released with a subsequent decrease in power.

Reference: Ion Exchanger Fundamentals

KA:

Knowledge of the operational implications of the following concepts as they apply to the CVCS:

Reactivity effects of XE, Boration, and Dilution

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This Exam Level LSRO

	Group 1	Question 7
K/A #	32002K302	
Importance Rating:	4.2	4.5

Which ONE of the following Reactor Vessel components serves to align and support the upper ends of the fuel assemblies to prevent movement during pressure transients or a severe accident condition and protect the CEAs from the effects of coolant cross flow in the outlet nozzle region?

A. Core Support Barrel

B. Reactor Vessel Head

C. Flow Distribution Plate

D. Upper Guide Structure

Answer: D

Associated Objective:
L68005 Explain the function and construction of the Upper Guide Structure Assembly under normal operating conditions.

Reference Id:	Q19152
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Memory
Question Source:	PV Bank Not Modified
Comment:	Only "D" provides both functions. Distractors A & B provide only one of the functions. Distractor C provides neither function.
Reference:	STM Volume 39, Reactor Coolant System; STM Graphics\01STMGraphicCatalog\RC\RC055-98, Upper Guide Structure Assembly

KA:

Knowledge of the effect that a loss or malfunction of the RCS will have on the following:

Fuel

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This Exam Level LSRO

	Group 1	Question 8
K/A #	2232	
Importance Rating:	2.3	3.3

Given the following plant conditions:

- Unit 2 is performing a core reload evolution
- An irradiated fuel bundle is being inserted into the core
- The bundle is excessively warped and can not be loaded into the core
- Fuel movement is stopped

Which ONE of the following actions is correct?

A. Evacuate the Refueling Floor of all non-essential personnel. Essential personnel may continue working as long as an RP Technician is present.

B. Contact the Control Room and stay in the area as long as the CAM (Continuous Air Monitor) alarm is not activated more than once.

C. Immediately stop all activities and evacuate the Refueling Floor to an area designated by Radiation Protection.

D. Ensure the fuel assembly is placed in a safe condition and notify the Control Room.

Answer: D

Associated Objective:
68322 INPO Bank

Reference Id:	Q61642
Difficulty:	4.00
Time to complete:	4
Cognitive Category:	Analysis
Question Source:	Modified from INPO Bank Question 8989
Comment:	Requires candidate to recognize that fuel damage has not occurred (No evacuation required) and to take appropriate action per procedure from memory.
Reference:	78OP-9FX03, step 7.17.1

KA:

Knowledge of the effects of alterations on core configuration

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This Exam Level LSRO

	Group 2	Question 2
K/A #	5191003K102	
Importance Rating:	2.6	2.7

The Spent Fuel Handling Machine bridge is driven from the plant _____ _____ and has a maximum operating speed of _____fpm when the bridge control switch is taken to the extreme right or left.

A. North or South, 0-30 fpm

B. East or West, 0-15 fpm

C. East or West, 0-30 fpm

D. North or South, 0-15 fpm

Answer: C

Associated Objective:
67319 Function and operation of a DC speed controller.

Reference Id: Q61643
Difficulty: 2.00
Time to complete: 2
Cognitive Category: Memory
Question Source: New Question
Comment: The trolley moves North and South. MaximumFast speed is 30 fpm

Reference: 78OP-9FX03, Appendix A, C

KA:

Function and operation of a speed controller

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This Exam Level LSRO

	Group 2	Question 3
K/A #	5191005K102	
Importance Rating:	2.8	2.9

Which ONE of the following consequences results from motor and generator electrical insulation overheating?

A. decreased electrical current demand

B. increased equipment efficiency

C. decreased power interruptions

D. decreased equipment life

Answer: D

Associated Objective:
5191005G04 Identify the potential consequences of overheating motor and generator electrical insulation or bearings.

Reference Id:	191005Q007
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	INPO Question
Comment:	The major concern is wire to wire or wire to ground short circuits. Overheated insulation would INCREASE power interruptions, DECREASE equipment efficiency, and INCREASE electrical current demand making distractors A, B, & C incorrect.
Reference:	GFES

KA:

Potential consequences of overheating insulation or bearings

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This Exam Level LSRO

	Group 2	Question 4
K/A #	5191005K103	
Importance Rating:	2.7	2.8

Which ONE of the following conditions can result in excessive AC motor currents?

A. overvoltage

B. low slip ratio

C. undervoltage

D. low ambient temperature

Answer: C

Associated Objective:
67689 State what happens to motor current on overvoltage or undervoltage conditions with large motors.

Reference Id:	Q16229
Difficulty:	3.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	PV Bank Not Modified
Comment:	Fundamentals Question
Reference:	GFES

KA:

Causes of excessive current in motors and generators, such as low voltage, overloading, and mechanical binding

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This Exam Level LSRO

	Group 2	Question 5
K/A #	37072K103	
Importance Rating:	3.6	3.7

Given the following plant conditions:

- Unit 1 is operating at rated power.
- RU-145 (Fuel Bldg Vent Exhaust Monitor) fails HIGH.
- All other plant systems are in their normal lineup.

Which ONE of the following describes the expected plant response?

A. Train 'B' FBEVAS actuates ONLY.

B. Both Trains of FBEVAS actuate.

C. Train 'A' FBEVAS actuates ONLY.

D. No actuation will occur due to this failure only.

Answer: B

Associated Objective:
65041 Explain the operation of the FBEVAS Module.

Reference Id:	Q61645
Difficulty:	4.00
Time to complete:	3
Cognitive Category:	Analysis
Question Source:	New Question
Comment:	Both trains will actuate due to cross trip logic in the circuitry.
Reference:	Simplified Control System Drawing

KA:

Knowledge of the physical connections and/or cause-effect relationships between the ARM system and the following systems:

Fuel building isolation

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This Exam Level	LSRO	
	Group 2	Question 6
K/A #	38029K402	
Importance Rating:	2.9	3.1

Given the following plant conditions:

- Unit 2 is in MODE 5.
- The Containment Purge Exhaust Fans are operating and Containment Purge Supply is ON.
- The Containment Coordinator notices that air is flowing into containment from outside through the equipment hatch with the air lock door open.

Which ONE of the following actions should be performed for this condition?

A. No action is necessary.

B. Activate Containment Purge Isolation.

C. Activate Control Room Ventilation Isolation.

D. Start either Fuel Bldg or Aux Bldg Ventilation.

Answer: A

Associated Objective:
74693

Describe the flowpaths to include these major components:
- Containment Refueling Purge Supply AHU
- Containment Refueling Purge Supply Dampers
- Containment Refueling Purge Containment Isolation Dampers
- Containment Refueling Purge Exhaust Fans
- Containment Refueling Purge Exhaust Dampers
- Containment Power Access Purge Supply AHU
- Containment Power Access Purge Supply Dampers
- Containment Power Access Purge Containment Isolation Dampers
- Containment Power Access Purge Containment Exhaust AFU
- Containment Power Access Purge Containment Exhaust Damper
- Containment Power Access Purge Valve

Reference Id:	Q61646
Difficulty:	3.00
Time to complete:	3
Cognitive Category:	Comprehension
Question Source:	INPO Bank
Comment:	Recognize normal ventilation flow is from outside the containment into containment.
Reference:	STM Graphics\CP001-98

KA:

Knowledge of design feature(s) and/or interlock(s) which provide for the following:

Negative pressure in containment

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This Exam Level LSRO

	Group 2	Question 7
K/A #	38033K105	
Importance Rating:	2.7	2.8

Which ONE of the following provides the NORMAL source of borated makeup water to the Spent Fuel Pool?

A. HUT (Holdup Tank)

B. RWT (Refuel Water Tank)

C. CST (Condensate Storage Tank)

D. RMWT (Refuel Makeup Water Tank)

Answer: B

Associated Objective:

L114091 Describe the interface between the RC system and its support/supported systems.

L114043 Describe the flowpaths of the PC System to include these major components:
- Spent Fuel Pool
- PC Cooling Pumps
- PC Heat Exchangers

L114046 Explain the operation of the Spent Fuel Pool under normal operating conditions.

Reference Id: Q61647
Difficulty: 2.00
Time to complete: 2
Cognitive Category: Memory
Question Source: PV Bank Not Modified
Comment: This is the normal "Borated" Source. The CST is a nonborated source. The HUT and RMWT are not normal sources of makeup.

Reference: 40OP-9PC02, Filling and Draining the Refueling Pool Using the CS, LPSI and HPSI Pumps

KA:

Knowledge of the physical connections and/or cause-effect relationships between the Spent Fuel Pool Cooling System and the following systems:

RWST

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This Exam Level LSRO

	Group 2	Question 8
K/A #	38033K401	
Importance Rating:	2.9	3.2

Given the following plant conditions:

- Both Fuel Pool Cooling Pumps are operating on the Spent Fuel Pool.
- A large break occurs in the discharge of one of the pumps.

What feature of the system prevents this failure from uncovering fuel assemblies?

A. Both pumps will trip on low pressure.

B. Anti-siphon holes in the pipes that enter the pool.

C. Excessive flow rates will cause the closure of valves above the water level.

D. Excess flow spring-check valves are installed in the pipes that enter the pool.

Answer: B

Associated Objective:
64128 Identify and discuss the actions required to mitigate the Loss of Spent Fuel Pool Cooling.

L114046 Explain the operation of the Spent Fuel Pool under normal operating conditions.

Reference Id:	Q8296
Difficulty:	3.00
Time to complete:	3
Cognitive Category:	Comprehension
Question Source:	PV Bank Not Modified
Comment:	Distractor A is correct but will not prevent a loss of level in of itself. Distractor C & D are incorrect but if installed would aid in reducing leakage.
Reference:	STM Vol 39, PC Cleanup

KA:

Knowledge of design feature(s) and/or interlock(s) which provide for the following:

Maintenance of spent fuel level

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This Exam Level LSRO

	Group 2	Question 9
K/A #	38033K402	
Importance Rating:	2.5	2.7

The PC (Pool Cleanup) System provides for cleanup of all the following EXCEPT:

A. SFP (Spent Fuel Pool)

B. RWT (Refuel Water Tank)

C. UGS (Upper Guide Structure) Pit

D. RMWT (Reactor Makeup Water Tank)

Answer: D

Associated Objective:
L114044 Describe the flowpaths of the PC Cleanup System to include these major components:
- PC Cleanup Pumps
- PC Cleanup Filters
- PC Cleanup Ion Exchangers

Reference Id:	Q61648
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	New Question
Comment:	The PC System does not provide cleanup of the RMWT.
Reference:	STM Volume 32, SFP Cooling and Cleanup

KA:

Knowledge of design feature(s) and/or interlock(s) which provide for the following:

Maintenance of spent fuel cleanliness

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This Exam Level LSRO

	Group 2	Question 10
K/A #	38033K404	
Importance Rating:	2.7	2.9

Which ONE of the following is the Tech Spec bases for the minimum water level in the fuel storage pool?

A. Ensure neutron radiation is < 2 mrem/hr at the edge of the pool.

B. Ensure radiation levels are no greater than administrative limits for the site.

C. Assumptions made for Iodine Decontamination Factor following a fuel handling accident.

D. Assumptions for airborne levels to stay below one DAC (Derived Air Concentration) following a fuel handling accident.

Answer: C

Associated Objective:
L114054 State LCO 3.7.14, Fuel Storage Pool Water Level, including its bases.

Reference Id:	Q61649
Difficulty:	3.00
Time to complete:	3
Cognitive Category:	Analysis
Question Source:	New Question
Comment:	A distractor is plausible in that the water level is designed to minimize radiation levels. B & D distractor is incorrect in that levels are based on 10 CFR 100 limits for Iodine dose.
Reference:	Tech Spec Bases B.3.9.6

KA:

Knowledge of design feature(s) and/or interlock(s) which provide for the following:

Maintenance of spent fuel pool radiation

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This Exam Level LSRO

	Group 2	Question 11
K/A #	38034K103	
Importance Rating:	2.1	2.7

Which ONE of the following systems interfaces with the Spent Fuel Pool to provide a borated source of water to compensate for normal evaporation and/or system leakage?

A. PC (Pool Cleanup) via the Fuel Pool Cleanup Pumps

B. CD (Condensate) via the Condensate Transfer Pumps

C. SI (Safety Injection) via the LPSI (Low Pressure Safety Injection) Pumps

D. CVCS (Chemical and Volume Control System) via the BAMP (Boric Acid Makeup) Pumps

Answer: D

Associated Objective:
L114046 Explain the operation of the Spent Fuel Pool under normal operating conditions.

Reference Id:	Q61650
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	New Question
Comment:	A,B,&C provide off normal sources of water.
Reference:	STM Volume 32, PC Drawing PC003-98, PC004-98

KA:

Knowledge of the physical connections and/or cause-effect relationships between the Fuel Handling System and the following systems:

CVCS

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This Exam Level LSRO

	Group 2	Question 12
K/A #	38034K105	
Importance Rating:	2.5	3.4

Given the following plant conditions:

- The unit is in Mode 6
- The core is being off-loaded to the Spent Fuel Pool.
- The CRS informs you that the last boron chemistry analysis for the refueling canal is below the minimum concentration specified by the COLR.

Which ONE of the following contains all of the Tech Spec actions that should be taken?

A. Fuel movement may continue. Verify RCS boron concentration within 72 hours and within the guidance specified by the COLR thereafter.

B. Suspend Core alterations, suspend positive reactivity additions and initiate action to restore boron concentration to within limits within 72 hours.

C. Fuel movement may continue. Initiate action to restore boron concentration to within limits immediately.

D. Immediately suspend Core Alterations and positive reactivity additions. Initiate action to restore boron concentration to within limits immediately.

Answer: D

Associated Objective:

L94058 Given a set of plant conditions identify whether or not LCO 3.9.1 is satisfied and any actions or surveillance requirements that would prevent core alterations

Reference Id:	Q8687
Difficulty:	4.00
Time to complete:	5
Cognitive Category:	Analysis
Question Source:	PV Bank Not Modified
Comment:	The candidate must differentiate between fuel movement and core alteration definition. Fuel movement would be allowed but only for the Fuel Building, not inside Containment. Distractors A, B, & C do not contain all of the LCO requirements.
Reference:	Tech Spec section 3.9.1

KA:

Knowledge of the physical connections and/or cause-effect relationships between the Fuel Handling System and the following systems:

Shutdown monitor

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This Exam Level LSRO
Group 2 Question 13
K/A # 38034K106
Importance Rating: 2.4 3.0

Given the following plant conditions:

- The plant is operating at 100% power.
- The nuclear cooling water system has been lost.
- Spent fuel pool temperature is rising.

Which ONE of the following cooling water systems could be used to cool the spent fuel pool?

A. Plant Cooling Water

B. Normal Chilled Water

C. Essential Cooling Water

D. Essential Chill Water

Answer: C

Associated Objective:

L65403	Describe how the Essential Cooling Water system supports the following systems: • Essential Chilled Water (EC) • Safety Injection (SI) • Nuclear Cooling Water (NC) • Fuel Pool Cooling (PC)
N76946	Describe the interface between the Essential Cooling Water system and its support/supported systems.
L114043	Describe the flowpaths of the PC System to include these major components: • Spent Fuel Pool • PC Cooling Pumps • PC Heat Exchangers
L77406	Describe how the PC System interfaces with the following systems: • Essential Cooling Water (EW)

Reference Id: Q7631
Difficulty: 3.00
Time to complete: 3
Cognitive Category: Comprehension
Question Source: New Question
Comment: A, B, & D are all cooling systems at PV, but do not provide normal back up cooling to the spent fuel pool.

Reference: 40AO-9ZZ23, Loss of SFP Level or Cooling

KA:

Knowledge of the physical connections and/or cause-effect relationships between the Fuel Handling System and the following systems:

SFPCS

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This Exam Level LSRO

	Group 2	Question 14
K/A #	34005K307	
Importance Rating:	3.2	3.6

Given the following plant conditions:

- Unit 1 is in MODE 6 with core reload in progress.
- The equipment hatch is open to bring in RCP shafts.
- Both SDC loops become inoperable due to equipment failure.

Which ONE of the following provides the correct guidance concerning this condition?

A. Core reload may continue. The equipment hatch can stay open.

B. Suspend loading fuel assemblies in the core. The equipment hatch must be closed within 4 hours.

C. Core reload may continue if the equipment hatch is capable of being closed and meets its surveillance requirement.

D. Suspend loading fuel assemblies in the core. The equipment hatch can stay open indefinitely if it is capable of being closed.

Answer: B

Associated Objective:
L94060 Given a set of plant conditions identify whether or not LCO 3.9.4 is satisfied and any actions or surveillance requirements that would prevent core alterations

Reference Id:	Q61661
Difficulty:	3.00
Time to complete:	3
Cognitive Category:	Analysis
Question Source:	New Question
Comment:	This requires appropriate Tech Spec usage and interpretation. Note: T.S. 3.9.3 allows continued operation with the hatch open if it is capable of being closed however there is a specific T.S. for loss of SDC that applies.
Reference:	Tech Spec 3.9.4 & 3.9.3

KA:

Knowledge of the effect that a loss or malfunction of the RHRS will have on the following:

Refueling operations

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This Exam Level LSRO

	Group 2	Question 15
K/A #	42036AA102	
Importance Rating:	3.1	3.5

Given the following plant conditions:

- U3 is in MODE 6.
- Core offload is in progress.
- RU-145 is out of service.
- RU-31 (Fuel Pool Area Monitor) fails low.

Which ONE of the following is required by Tech Specs?

A. Immediately suspend all fuel assembly movements in the fuel building.

B. Immediately place the "B" FBEVS train into operation or Immediately secure core alteration.

C. Immediately place one operable FBEVS train in operation or Immediately suspend movement of irradiated fuel assemblies in the fuel building.

D. Immediately verify train "B" FBEVS is capable of being powered from an emergency power source and suspend movement of fuel in the fuel building.

Answer: C

Associated Objective:
L94064 Given a set of plant conditions determine whether or not not TLCO T3.9.104 is satisfied and identify and any actions or surveillance requirements that would prevent core alterations

Reference Id:	Q61681
Difficulty:	4.00
Time to complete:	5
Cognitive Category:	Analysis
Question Source:	New Question
Comment:	Requires candidate to recognize this LCO is contained in the TRM (Technical Requirements Manual) Old carryover TS items. RU-31 is contained in T.S. 3.3.108 not in T.S. 3.9.104
Reference:	T.S. 3.3.108 & T.S. 3.9.104

KA:

Ability to operate and / or monitor the following as they apply to the Fuel Handling Incidents:

ARM System

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This Exam Level LSRO

	Group 3	Question 2
K/A #	32006K302	
Importance Rating:	4.3	4.4

If the Safety Injection Tanks malfunction, which ONE of the events listed below is no longer assured to have a means of keeping the core flooded until SI flow can reach the core?

A. loss of all feedwater accident (LOAF)

B. steam generator tube rupture (SGTR)

C. large excess steam demand accident (ESD)

D. large break loss of coolant accident (LOCA)

Answer: D

Associated Objective:
L114205 Describe the purpose,operation and location of the Safety Injection Tanks.

Reference Id:	Q61683
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	New Question
Comment:	The other listed distractors may cause RCS heatup but the design basis is for the worst case LOCA.
Reference:	STM Volume 40, Safety Injection System

KA:

Knowledge of the effect that a loss or malfunction of the ECCS will have on the following:

Fuel

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This Exam Level LSRO

	Group 3	Question 3
K/A #	42069AA201	
Importance Rating:	3.7	4.3

Given the following plant conditions:

- Unit 2 is in MODE 6
- Core reload is in progress
- The LSRO receives word that the personnel airlocks have malfunctioned and the airlock cannot be properly closed

Which ONE of the following describes the correct operator response to this situation per Tech Specs?

A. Immediately suspend all core alterations and movement of new fuel in containment.

B. Immediately suspend all core alterations and movement of irradiated fuel in containment.

C. Continue with the core alterations. Suspend irradiated fuel movement in containment.

D. Core alterations and fuel movement in containment may continue for up to one hour while attempts are made to close the airlock.

Answer: B

Associated Objective:
L94059 Given a set of plant conditions identify whether or not LCO 3.9.3 is satisfied and any actions or surveillance requirements that would prevent core alterations

Reference Id: Q61701
Difficulty: 3.00
Time to complete: 3
Cognitive Category: Analysis
Question Source: INPO Bank
Comment: Requires candidate to correctly apply T.S. 3.9.3 for airlock door that is NOT capable of being closed. Core alts would be allowed if the door was capable of being closed.

Reference: Tech Spec 3.9.3

KA:

Ability to determine and interpret the following as they apply to the Loss of Containment Integrity:

Loss of containment integrity

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This Exam Level LSRO

	Group 3	Question 4
K/A #	32002K112	
Importance Rating:	3.5	3.6

This system interfaces with the RCS to monitor neutron population in Mode 1 and measure coolant temperature as it exits the core.

A. SDC

B. CVCS

C. Excore Nuclear Instruments

D. Fixed Incore Instruments

Answer: D

Associated Objective:
L113992

Describe how the Reactor Vessel and Internals interface with the following systems:
- Reactor Coolant System (RCS)
- Control Element Drive Mechanism Control System (CEDMCS)
- Fixed Incore Instrumentation System (RI)

Reference Id:	Q61702
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Memory
Question Source:	New Question
Comment:	Distractors A & B interface with the RCS but do not provide input for neutron population or directly monitor core exit temperature. Distractor C only provides for neutron monitoring.
Reference:	STM Volume 39, Reactor Coolant System

KA:

Knowledge of the physical connections and/or cause-effect relationships between the RCS and the following systems:

NIS

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This Exam Level LSRO

	Group 3	Question 5
K/A #	32006K103	
Importance Rating:	4.2	4.3

Which ONE of the following systems may be used to augment fuel pool cooling if the nuclear cooling water system can not handle the heat load during refueling?

A. Essential Chill Water system

B. Plant Cooling Water system

C. Normal Chill Water system

D. Shutdown Cooling system

Answer: D

Associated Objective:

65075 Describe how the SI/SDC System supports the following systems:
- Chemical and Volume Control System (CH)
- Fuel Pool Cooling and Cleanup System (PC)
- Reactor Coolant System (RC)

L65102 Describe the purpose and conditions under which the Shut Down Cooling System is designed to function.

L114043 Describe the flowpaths of the PC System to include these major components:
- Spent Fuel Pool
- PC Cooling Pumps
- PC Heat Exchangers

Reference Id:	Q7275
Difficulty:	2.00
Time to complete:	3
Cognitive Category:	Comprehension
Question Source:	PV Bank Not Modified
Comment:	Requires candidate to differentiate between a loss of normal cooling vs reduction in cooling. A loss would require a backup source of cooling to the HX, i.e. EW. A reduction would require additional cooling medium, i.e. SDC.
Reference:	40AO-9ZZ23, Loss of SFP Level or Cooling

KA:

Knowledge of the physical connections and/or cause-effect relationships between the ECCS and the following systems:

RCS

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This Exam Level LSRO

	Group 3	Question 6
K/A #	2227	
Importance Rating:	2.6	3.5

What effect would a decreasing Spent Fuel Pool Level from elevation 132'6" to Elevation 132'1" have on the operation of the Spent Fuel System or the working area adjacent to the Spent Fuel Pool?

A. SFP temperature will increase to greater than Tech Spec limit.

B. Complete loss of NPSH to SFP cooling pumps.

C. Boron concentration will decrease.

D. Radiation levels will increase.

Answer: D

Associated Objective:
Reference Id: Q67350
Difficulty: 2.00
Time to complete: 2
Cognitive Category: Comprehension
Question Source: INPO Bank Question #420
Comment:

Reference: INPO Bank

KA:

Knowledge of the refueling process.

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This Exam Level LSRO

	Group 3	Question 7
K/A #	32002A204	
Importance Rating:	4.3	4.6

Given the following plant conditions:

- Mode 6.
- Refueling operations in progress.
- The refueling machine is moving to retrieve an irradiated fuel bundle in the upender.
- The LSRO notifies the Control Room that he has noticed a lowering fuel pool level of approximately 1/2 inch over the last 3 minutes.
- Using the Lower Mode Functional Recovery Procedure (LMFRP), the CRS directs the LSRO to ensure that PCN-V118 Fuel Transfer Tube Isolation Valve is capable of being closed and to place the fuel in a safe condition.

Which ONE of the following meets the requirements of the LMFRP for the proper safe location of the fuel and location of the upender/carriage?

The LSRO takes action to place the:

A. Fuel in the upender and retain the upender vertical.

B. Fuel in the reactor vessel and retain the fuel carriage in containment.

C. Fuel in the intermediate storage rack and send the fuel carriage to the Fuel Building.

D. Fuel grappled at the uplimit on the RFM (Refuel Machine) and lower the upender horizontal.

Answer: B

Associated Objective:

L64295 DIRECT ACTIONS FOR LOSS OF REFUELING POOL LEVEL FROM THE REFUELING DECK.

L94081 Describe, in sequence, the major steps necessary to mitigate Loss of Spent Fuel Pool Level

Reference Id:	Q20838
Difficulty:	3.00
Time to complete:	3
Cognitive Category:	Analysis
Question Source:	PV Bank Not Modified
Comment:	Requires knowledge of the requirement of the LMFRP to resolve where to put the fuel and maintain capability for operations to close PCN-V118.
Reference:	LMFRP, 40EP-9EO11, IC-4

KA:

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

Loss of heat sinks

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This Exam Level LSRO

	Group 3	Question 8
K/A #	2230	
Importance Rating:	3.5	3.3

Given the following plant conditions:

- Unit 3 is in Mode 6.
- A core offload is in progress.
- The control room has received a valid FBEVAS alarm.
- No other conditions or alarms are present.

The control room operator will perform all of the following EXCEPT:

A. Alert Radiation Protection to the alarm and cause.

B. Inform personnel of the Fuel Bldg alarm and which detector caused the FBEVAS.

C. Re-align one train of the Fuel Bldg essential AFU (Air Filtration Unit) to the Aux Bldg.

D. Monitor RU-31 (Fuel Bldg ARM) and RU-145 (Fuel Bldg Ventilation Exhaust) to determine if radiation levels are increasing or decreasing.

Answer: C

Associated Objective:
L114131 Explain the operation of the Fuel Building/Auxiliary Building Essential Exhaust Air Filtration Units.

Reference Id:	Q61703
Difficulty:	4.00
Time to complete:	4
Cognitive Category:	Analysis
Question Source:	New Question
Comment:	C Distractor is a correct statement if a SIAS condition occurred in conjunction with this event.
Reference:	41AL-1RK5A, FBEVAS Alarm Window

KA:

Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.

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This Exam Level LSRO

	Group 3	Question 10
K/A #	34076K301	
Importance Rating:	3.4	3.6

Given the following plant conditions:

- Unit 1 is in MODE 1.
- Nuclear cooling water is lost due to a pipe rupture in the yard.

Which ONE of the following identifies the plant operations required to supply Nuclear Cooling Water Train 'A' and Train 'B' loads from Essential Cooling Water (EW)?

A. The Train B EW system can be aligned to supply NCW from the control room. In order to align Train A EW, manual valve operations are required in the Auxiliary Building.

B. The Train A EW system can be aligned to supply NCW from the control room. In order to align Train B EW, manual valve operations are required in the Auxiliary Building.

C. Both train A & B EW systems require manual valve operations from the Auxiliary Building to be aligned to supply NCW.

D. Both train A & B EW systems can be aligned to supply NCW from the Control Room.

Answer: B

Associated Objective:
L114272 Explain the operation of the NC/EW Crosstie under normal operating conditions.

Reference Id:	Q6831
Difficulty:	3.00
Time to complete:	3
Cognitive Category:	Comprehension
Question Source:	PV Bank Not Modified
Comment:	Question requires knowledge of the fact that the Train 'B' crosstie valve is manual, Train 'A' valves are operated from the Control Room.
Reference:	40AO-9ZZ03, Loss of Cooling Water

KA:

Knowledge of the effect that a loss or malfunction of the SWS will have on the following:

Closed cooling water

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This Exam Level LSRO

	Group 3	Question 11
K/A #	35022K403	
Importance Rating:	3.6	4.0

Given the following plant conditions:

- Unit 1 is operating at 100% power.
- An inadvertent Containment Isolation Signal (CIAS) has occurred.
- Not other signals are present

Which ONE of the following systems will receive an isolation signal?

A. EW (Essential Cooling Water)

B. NC (Nuclear Cooling Water)

C. SQ (Radiation Monitor)

D. DW (Demin Water)

Answer: C

Associated Objective:

L114080	Given a Radiation Monitor number and name, describe the purposes and sample points of the Radiation Monitors at PVNGS.
69379	Describe the interlocks associated with selected Radiation Monitors..

Reference Id:	Q7530
Difficulty:	4.00
Time to complete:	5
Cognitive Category:	Comprehension
Question Source:	New question
Comment:	Distracters A, B, & D do not isolate on a CIAS signal but do provide a path through to containment.

Reference: 40AO-9ZZ17, INADVERTENT PPS-ESFAS ACTUATIONS

KA:

Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following:

Automatic containment isolation

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This Exam Level LSRO

	Group 3	Question 14
K/A #	37015A107	
Importance Rating:	3.3	3.4

Given the following plant conditions:

- A reactor startup is in progress.
- Reactor Power is 2×10^{-7}%
- A Boron Dilution alarm is received in the control room.

Which ONE the following describes the cause of the alarm and the required operator action?

A. The reactor is critical and the boron dilution alarm system (BDAS) should be turned off.

B. The startup channel caused the alarm and the operator should immediately borate the RCS.

C. The flux in the reactor has increased above the BDAS alarm setpoint and the BDAS should be reset.

D. The high counts per second bistable caused the alarm and the high voltage to the startup detectors should be de-energized.

Answer: C

Associated Objective:

L75667	Explain the operation of the Boron Dilution Alarm System (BDAS) under normal operating conditions.
L105679	Perform boron dilution alarm check
L75667	Explain the operation of the Boron Dilution Alarm System (BDAS) under normal operating conditions.

Reference Id:	Q3730
Difficulty:	4.00
Time to complete:	5
Cognitive Category:	Analysis
Question Source:	PV Bank Not Modified
Comment:	Requires knowledge of BDAS initial alarm setpoint and automatic functions related to the system. The BDAS alarm is normal and expected during startup and needs only to be reset. Actions in distractors A, B, & D are incorrect.
Reference:	STM Volume 53, Excore Nuclear Instrumentation

KA:

Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the NIS controls including:

Changes in boron concentration

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This Exam Level LSRO

	Group 3	Question 15
K/A #	213	
Importance Rating:	3.0	3.4

Which ONE of the following is NOT considered part of a shift turnover?

A. Unusual or notable equipment operation.

B. Difficult assemblies and/or use of the spreader.

C. Determine dose allocation of the Refuel Machine Operator.

D. Current status of the MBA (Material Balance Accountability) set.

Answer: C

Associated Objective:
L114540 State the function of shift turnover

Reference Id:	Q61722
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Memory
Question Source:	New Question
Comment:	Distractors A, B, & D would all fall into the guidelines of normal "Shift Turnover" items.
Reference:	40DP-9OP33, Shift Turnover

KA:

Knowledge of shift turnover practices.

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This Exam Level LSRO

	Group 3	Question 16
K/A #	214	
Importance Rating:	2.3	3.4

If a LSRO is going to exceed his overtime limitations while covering a shift, approval must first be obtained from the...

A. Shift Manager.

B. Control Room Supervisor.

C. Director Level of Management.

D. Respective Unit's Department Leader.

Answer: C

Associated Objective:

L115374 Identify who approves exceeding overtime limitations for work related activities.

L64501 Describe how the Operating Department prevents exceeding overtime limitations.

Reference Id:	Q10146
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Memory
Question Source:	PV Bank Not Modified
Comment:	Indentify overtime authorization. Distractors A, B, & D are leadership positions but are not at a high enough level to be correct.
Reference:	01DP-9EM01, Overtime Limitations

KA:

Knowledge of shift staffing requirements.

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This Exam Level LSRO

	Group 3	Question 17
K/A #	216	
Importance Rating:	2.1	4.3

Given the following plant conditions:

- Defueling section of Outage GOP in progress.
- CEA support plate is ready for lifting.

Which ONE of the following identifies the required communications between the LSRO and the Control Room at this point in the evolution? **The LSRO:**

A. Is not required to communicate portions of this evolution to the Control Room per the Sensitive Issues procedure.

B. Is in constant communications with the Containment Coordinator per Technical Specifications.

C. Receives permission from the Control Room to lift the CEA support plate per the Outage GOP procedure.

D. Informs the Control Room as a courtesy prior to granting Maintenance permission to lift the CEA support plate per the Outage GOP procedure.

Answer: C

Associated Objective:

L64308	DIRECT CORE RELOADING
L67367	Describe the communication principles applicable to LSRO activates

Reference Id:	Q10388
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	PV Bank Not Modified
Comment:	Core Reload communication criteria. Permission is required for this specific event. Distractors A,B, & D contain incorrect communication guidelines.
Reference:	40OP-9ZZ23, Outage GOP

KA:

Ability to supervise and assume a management role during plant transients and upset conditions.

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This Exam Level LSRO

	Group 3	Question 18
K/A #	2226	
Importance Rating:	2.5	3.7

The refueling machine bridge/trolley is allowed to operate in fast speed when the bridge/trolley is:

A. in the "core clear zone" with the hoist at the "up limit".

B. in the “alignment pin zone” with the hoist at the "up limit".

C. in the "trolley storage rack zone" and the hoist is extended.

D. outside the "refueling transfer machine zone" and the hoist is extended.

Answer: A

Associated Objective:

L64306	DIRECT REFUELING MACHINE OPERATIONS
L114360	Identify the precautions and limitation concerning the refuel machine.

Reference Id:	Q20847
Difficulty:	2.00
Time to complete:	3
Cognitive Category:	Memory
Question Source:	PV Bank Not Modified
Comment:	Requires knowledge of various interlocks from memory. Requires correct combination of zone and hoist positions. Distractors B, C, & D have at least one that is incorrect.
Reference:	78OP-9FX01, Refueling Machine Operations, Appendix A

KA:

Knowledge of refueling administrative requirements.

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This Exam Level	LSRO	
	Group 3	Question 20
K/A #	2425	
Importance Rating:	2.9	3.4

While passing through the 140' Auxiliary Building you hear a high pitch beep in 1 second bursts.

This emergency warning signal is for:

A. Fire

B. Assembly

C. Evacuation

D. All clear signal

Answer: A

Associated Objective:
L114320

Describe how the Fire Protection System is supported by the following systems:
- Domestic Water System (DS)
- In-Plant Communications System (QF)

Reference Id:	Q61728
Difficulty:	2.00
Time to complete:	1
Cognitive Category:	Memory
Question Source:	New Question
Comment:	General Employee Training
Reference:	G.E.T.

KA:

Knowledge of fire protection procedures.

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This Exam Level LSRO

	Group 3	Question 19
K/A #	32006K201	
Importance Rating:	3.6	3.9

Which ONE of the following relationships is true?

A. SI (Safety Injection) and SDC (Shutdown Cooling) pump motors are powered via their respective train 13.8 KV bus.

B. SI (Safety Injection) and SDC (Shutdown Cooling) pump motors are powered via their respective train 4.16 KV bus.

C. SI (Safety Injection) and SDC (Shutdown Cooling) pump motors are powered via their respective train 480 VAC bus.

D. SI (Safety Injection) and SDC (Shutdown Cooling) pump motors are powered via their respective train 110 VAC bus.

Answer: B

Associated Objective:
L114202 Describe the interface between the Safety Injection system and its support/supported systems.

Reference Id:	Q61727
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Memory
Question Source:	New Question
Comment:	Requires knowledge of power supply loads from memory
Reference:	STM Volume 28, Class IE 4.16 KV Power System

KA:

Knowledge of bus power supplies to the following:

ECCS Pumps

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This Exam Level LSRO

	Group 3	Question 21
K/A #	2437	
Importance Rating:	2.0	3.5

Given the following plant conditions:

- Fuel movement is in progress in Unit 1 Containment
- A fuel bundle is dropped causing an increase in airborne activity that exceeds 10 CFR 100 limits.

Who is initially responsible for classifying this condition per EPIP-01 (STSC Actions), Appendix A - Emergency Action Levels?

A. LSRO

B. Shift Manager

C. Operations Director

D. Radiation Protection

Answer: B

Associated Objective:
68338 GET

Reference Id:	Q61729
Difficulty:	2.00
Time to complete:	1
Cognitive Category:	Memory
Question Source:	New Question
Comment:	Responsibility of Emergency Plan criteria from memory.
Reference:	EPIP-01, STSC Actions

KA:

Knowledge of the lines of authority during an emergency.

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This Exam Level LSRO

	Group 4	Question 1
K/A #	42036AK101	
Importance Rating:	3.5	4.1

In Mode 6, while moving a new fuel assembly to the New Fuel Elevator, the fuel assembly is inadvertently dropped from the overhead crane causing the release of fuel pellets into the refueling floor. Per procedure, which ONE of the following steps would have the highest priority?

A. Retrieve and store the released fuel pellets.

B. Move the fuel assembly back into its shipping cask.

C. Evacuate all non-essential personnel from the Fuel Building.

D. The fuel handling operator must notify the Unit Department Leader.

Answer: C

Associated Objective:

64089 Given the appropriate procedure discuss and explain the actions to be taken for damage to new fuel.

L106345 Describe, in sequence, the major steps necessary to mitigate a damaged new fuel assemble

Reference Id:	Q15530
Difficulty:	2.00
Time to complete:	2
Cognitive Category:	Comprehension
Question Source:	PV Bank Not Modified
Comment:	Without use of procedure, candidate must recognize highest level of priority. Evacuation of personnel is the highest priority action.
Reference:	40AO-9ZZ22, Fuel Damage

KA:

Knowledge of the operational implications of the following concepts as they apply to Fuel Handling Incidents:

Radiation exposure hazards

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This Exam Level LSRO
Group 4 Question 2

K/A # 2429
Importance Rating: 2.6 4.0

Which is the lowest (least severe) emergency action level in the emergency plan that would require both assembly and accountability?

A. Alert

B. General Emergency

C. Site Area Emergency

D. Notification of Unusual Event

Answer: C

Associated Objective:

64118	Identify the four classifications of an emergency in order of severity.
L92756	Identify the definitions and general requirements of each of the Emergency Action Levels.
L92756	Identify the definitions and general requirements of each of the Emergency Action Levels.
96192	Classify events requiring emergency plan implementation
L114514	State to whom the LSRO is directly responsible during Refueling and Emergency Operations

Reference Id: Q6568
Difficulty: 2.00
Time to complete: 1
Cognitive Category: Memory
Question Source: PV Bank Not Modified
Comment: Mandatory Assembly criteria from memory. Distractors A & D do not require assembly & accountability. Distractor B does but it is a higher emergency action level than that required, i.e. not least severe.

Reference: EPIP-01, STSC Actions, Appendix I-Assembly

KA:

Knowledge of the emergency plan.

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This Exam Level LSRO

	Group 4	Question 4
K/A #	37072A101	
Importance Rating:	3.4	3.6

While moving a fuel bundle from the transfer canal to the SFP (Spent Fuel Pool) storage area the ARM (Area Radiation Monitor) on the SFHM (Spent Fuel Handling Machine) momentarily alarms as the bundle passes between the transfer canal and spent fuel pool. As soon as the SFHM operator stops the machine the alarm clears and does not re-alarm.

Which ONE of the following is the correct operator response to this event?

A. No response required. This is an expected alarm due to "shine" from the Spent Fuel Pool wall.

B. Immediately evacuate all personnel from the area as radiation levels are now hazardous.

C. Ensure the fuel bundle is in a safe stable condition and contact RP as soon as possible.

D. Inform the Control Room to activate the Fuel Building Essential Ventilation System.

Answer: C

Associated Objective:
L114076 Explain the operation of the Area Radiation Monitors under normal operating conditions.

Reference Id:	Q61724
Difficulty:	3.00
Time to complete:	2
Cognitive Category:	Analysis
Question Source:	New Question
Comment:	Determine from information given that no irradiated fuel bundle damage has occurred, therefore the fuel damage procedure would not be entered. Guidance would be obtained from the generic core reload procedure.
Reference:	72IC-9RX03, Core Reload

KA:

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ARM system controls including:

Radiation levels

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This Exam Level	LSRO	
	Group 4	Question 5
K/A #	231	
Importance Rating:	2.6	3.0

Concerning 10 CFR 20 Radiation Exposure limits, select the value which correctly completes the following sentence.

The Total Effective Dose Equivalent (TEDE) limit for a 30 year old individual shall not exceed...

A. 5 Rem/year

B. 12 Rem/year

C. 60 Rem lifetime

D. 144 Rem lifetime

Answer: A

Associated Objective:
68337 G.E.T

Reference Id:	Q61725
Difficulty:	2.00
Time to complete:	1
Cognitive Category:	Memory
Question Source:	INPO Bank
Comment:	GET Knowledge from memory
Reference:	75DP-9RP01, Radiation Exposure and Access Control

KA:

Knowledge of 10 CFR:20 and related facility radiation control requirements.

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This Exam Level LSRO

	Group 4	Question 3
K/A #	232	
Importance Rating:	2.5	2.9

Which ONE of the following approaches to performing a job is preferable and consistent with the ALARA program for total collective dose?

A. One individual performing the job in a 60 Mrem/hr field for 60 minutes.

B. Two individuals performing the job in a 60 Mrem/hr field for 35 minutes.

C. One individual installing temporary shielding in a 60 Mrem/hr field for 30 minutes and then performing the job in a 6 Mrem/hr field for 60 minutes.

D. Two individuals installing temporary shielding in a 60 Mrem/hr field for 15 minutes and then these individuals performing the job in a 6 Mrem/hr field for 40 minutes.

Answer: C

Associated Objective:
68337 G.E.T

Reference Id:	Q61723
Difficulty:	3.00
Time to complete:	5
Cognitive Category:	Analysis
Question Source:	INPO Bank
Comment:	Each of the other distractors would lead to a higher Total collective dose value
Reference:	G.E.T.

KA:

Knowledge of facility ALARA program

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This Exam Level LSRO

	Group 4	Question 6
K/A #	234	
Importance Rating:	2.5	3.1

Match the following area to the item that has all of the correct postings.

AREA

0.1 DAC
150,000 dpm/100cm^2
999 mrem/hr

POSTING

A. High Contamination Area
High Radiation Area
Airborne Radiation Area

B. Hot Particle Contamination Area
High Radiation Area
Airborne Radiation Area

C. Very High Contamination Area
Locked High Radiation Area

D. High Contamination Area
High Radiation Area

Answer: D

Associated Objective:
68337 G.E.T

Reference Id:	Q61726
Difficulty:	3.00
Time to complete:	5
Cognitive Category:	Analysis
Question Source:	New Question
Comment:	Requires knowledge of PVNGS posting requirements. There is NOT an airborne problem. No locked high radiation area or very high contamination area exists.
Reference:	75RP-0RP01, Radiological Posting and Labeling

KA:

Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.

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Cognitive Level Summary

Number of questions linked:	50	Percentage
Memory	15	28
Comprehension	18	38
Analysis	17	34

Question Source Summary

Number of questions linked to source:	0	Percentage
New		
New	19	38
Modified		
INPO Bank Modified	1	
PV Bank Modified	0	
Total Modified	0	2
Bank		
INPO Bank Not Modified	6	
PV Bank Not Modified	24	
PV NRC Exam Question Not Modified	0	
Total BANK	0	60