

QUESTIONS REPORT

for Written exam

EXAM 001

According to the Design Features section of FCS Technical Specifications, the spent fuel storage racks are designed such that K_{eff} will be:

- A. less than 0.90 assuming the pool is filled with water having a boron concentration of 1800 ppm.
- B. less than 0.90 assuming the pool is flooded with unborated water.
- C. less than 0.95 assuming the pool is filled with water having a boron concentration of 1800 ppm.
- D. less than 0.95 assuming the pool is flooded with unborated water.

Knowledge of conditions and limitations in the facility license.

STATE the purpose of Title 10, Part 2 of the Code of Federal Regulations and DISCUSS the various actions that can be taken by the Nuclear Regulatory Commission in regards to violations of this part.

Original question replaced based on NRC comments.

Sys/Event K/A: 000000 2.1.10

10CFR55:

43.B1

LP/Objective: 0751-04 01.00

Applicability:

SRO ONLY

Cognitive Level: LOW

Source:

NEW

Reference: 10 CFR 20.1003

Handout:

NONE

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EXAM 006

The refrigeration unit portion of Control Room Ventilation Air Handling Unit, VA-46A, has just been declared inoperable? VA-46B is operable and the control room temperature is 74°F. What action is required by technical specifications?

- A. The plant must be shutdown if the VA-46A refrigeration unit is not made operable within 7 days.
- B✓ The plant must be shutdown if the VA-46A refrigeration unit is not made operable within 30 days.
- C. The plant can continue to operate indefinitely as long as the "B" train remains operable.
- D. The plant can continue to operate indefinitely as long as control room temperature remains below 105°F.

Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

State the Technical Specifications, and the bases associated with the Control Room Ventilation System. Draft exam question rewritten based on NRC comment - "collection of true and false questions"

Rewritten based on NRC comment "collection of true and false items"

Sys/Event K/A:	000000 2.1.33	10CFR55:	41.B5/43.B2
LP/Objective:	0714-06 01.09	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	TS 2.12.2	Handout:	NONE

QUESTIONS REPORT

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EXAM 012

All CEAs are fully inserted and preparations are being made to perform a reactor startup by CEA withdrawal. According to the Estimated Critical Condition calculation, the boron concentration should be raised by 250 ppm prior to the startup. According to OP-2A, which one of the following sequences of steps is acceptable?

- A. Withdraw the non-trippable CEAs, borate to the ECC boron concentration, withdraw the shutdown CEAs, withdraw the regulating CEAs.
- B. ✓ Borate to the ECC boron concentration, withdraw the shutdown CEAs, withdraw the non-trippable CEAs, withdraw the regulating CEAs.
- C. Withdraw the shutdown CEAs, withdraw the non-trippable CEAs, withdraw the regulating CEAs, borate to the ECC boron concentration.
- D. Withdraw the regulating CEAs, borate to the ECC boron concentration, withdraw the non-trippable CEAs, withdraw the shutdown CEAs.

Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.

Explain the operation of the Control Rod Drive System (CRDS).

This is a modification of bank question 07-12-26 017

K/A changed from 2.2.33 to 2.2.01 in response to NRC comment

Sys/Event K/A: 000000 2.2.01

10CFR55: 41.B6

LP/Objective: 0712-26 01.00

Applicability: RO ONLY

Cognitive Level: HIGH

Source: MODIFIED

Reference: OP-2A

Handout: NONE

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EXAM 014

Under which one of the following conditions is it acceptable to perform an automatic release of a waste gas decay tank with RM-062 inoperable?

- A. The atmospheric stability class is verified to be class A or B
- B. RM-057 is operable and condenser offgas and the gas decay tank are both lined up to the hydrogen purge filters.
- C. The Waste gas decay tank being released has been isolated and all of it's contents allowed to decay for 30 days.
- D✓ RM-052 is operable and aligned to the Aux Building Stack.

Knowledge of the process for performing a planned gaseous radioactive release.

COMPLETE applicable portions of a dummy FC-213, waste gas release permit, and EXPLAIN the sections that are reviewed by the Shift Supervisor. (SRO only)

Stem and choice "D" modified in response to NRC comment

Sys/Event K/A: 000000 2.3.08

10CFR55:

43.B2/43.B4

LP/Objective: 0711-31 03.01

Applicability:

SRO ONLY

Cognitive Level: HIGH

Source:

MODIFIED

Reference: OI-WDG-2 ATT 1

Handout:

NONE

QUESTIONS REPORT

for Written exam

EXAM 018

How are personnel in the TSC protected during a plant event that results in the release of radioactive iodine to the atmosphere?

- A. Air is supplied to the TSC from the Control Room HVAC system which is .operated in the "FILT-AIR" mode of operation.
- B. Air is supplied to the TSC from the Control Room HVAC system which is .operated in the "RECIRC" mode of operation.
- C. The TSC HVAC system is operated in the "NORMAL" mode.
- D✓ The TSC HVAC system is operated in the "FILTERED" mode.

Knowledge of emergency response facilities.

Generic Objective - allows for linking Task or KA to Lesson Plan

Question rewritten based on NRC comment that original question was too fundamental

Sys/Event K/A: 000000 2.4.42
LP/Objective: 1070-001 00.00
Cognitive Level: LOW
Reference: EPIP-TSC-1

10CFR55: 43.B5
Applicability: SRO ONLY
Source: NEW
Handout: NONE

QUESTIONS REPORT

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EXAM 021

The reactor is operating at 30% power. Group 4 rods are being withdrawn to adjust ASI. Upon releasing the IN-OUT-HOLD switch, the control rods continue to withdraw. What is the FIRST action that should be taken by the operator?

- A. Move the IN-OUT-HOLD switch to the IN position.
- B. Place the Rod Control Mode Selector switch to the OFF position.
- C. Manually trip the reactor
- D. Open the CRDM clutch power supply breakers

Knowledge of abnormal condition procedures.

Use the CEA and Control System Malfunctions Procedure to mitigate the consequences of a malfunction of a CEA, the CEA control system or CEA position indication.

K/A changed from 000001 2.4.06 to 000001 2.4.11 based on NRC comment that the K/A should refer to AOP not to EOP.

Sys/Event K/A: 000001 2.4.11

10CFR55: 41.B6/41.B10

LP/Objective: 0717-02 01.00

Applicability: RO/SRO

Cognitive Level: HIGH

Source: NEW

Reference: AOP-02

Handout: NONE

QUESTIONS REPORT

for Written exam

EXAM 022

Which one of the following control room indications would occur first during a boron dilution event from full power?

- A. A low pressurizer level alarm
- B. A low steam generator level alarm
- C. A low RCS flow pre-trip
- D✓ A TM/LP pre-trip

Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal: Uncontrolled rod withdrawal, from available indications

EXPLAIN the operator indications for each of these reactivity events.

Boron dilution events are not addressed in the K/A catalog, however the plant response is the same as for a very slow rod withdrawal event and boron dilution events are more frequent.

K/A changed from AK2.03 to AA2.05 based on NRC comment. This also changes 10 CFR 55 reference to 43.5.

Sys/Event K/A: 000001 AK2.03
LP/Objective: 0715-32 03.04
Cognitive Level: HIGH
Reference: LP 7-15-32

10CFR55: 43.5
Applicability: SRO ONLY
Source: BANK 7-15-32 20
Handout: NONE

QUESTIONS REPORT

for Written exam

EXAM 023

According to AOP-02, who should be contacted upon discovery of an inoperable control rod?

- A. ✓ The Reactor Engineer.
- B. The I&C Supervisor
- C. The Plant Manager
- D. The NRC Site Resident

Knowledge of system status criteria which require the notification of plant personnel.

Describe the major recovery actions of this AOP.

Changed from event 000003 (dropped rod) to 000005 (inoperable/stuck control rod)

Sys/Event K/A: 000005 2.1.14
LP/Objective: 0717-02 01.03
Cognitive Level: LOW
Reference: AOP-02

10CFR55: 43..5
Applicability: SRO ONLY
Source: NEW
Handout: NONE

QUESTIONS REPORT

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EXAM 037

According to AOP-11, Loss of CCW, which of the following conditions would necessitate a reactor shutdown?

- A. CCW flow has been lost for 3 minutes.
- B. RCP motor upper guide bearing temperature is 193°F.
- C✓ RCP upper thrust bearing temperature is 205°F.
- D. Lower seal temperature is 175°F.

Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Describe how the plant responds to a Loss of Component Cooling Water in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Choices changed to specific values based on NRC comments.

Sys/Event K/A:	000015 2.4.49	10CFR55:	41.B3/41.B10
LP/Objective:	0717-11 01.02	Applicability:	RO ONLY
Cognitive Level:	LOW	Source:	FCS BANK
Reference:	AOP-11	Handout:	NONE

QUESTIONS REPORT

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EXAM 043

The Reactor is operating at 100% power. CH-1B is running. All other charging pumps are operable and in a normal standby alignment. Pressurizer Level Control Channel, LC-101X, is selected for control.

At what rate will pressurizer level be lowering if LT-101X fails high and no operator action is taken?

- A. Between 0% and 1% level per minute
- B. Between 1% and 2% level per minute
- C. Between 2% and 3% level per minute
- D. Between 3% and 4% level per minute.

Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions:

Charging and letdown flow capacities

Describe how the plant responds to a Reactor Coolant Leak in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Stem reworded based on NRC comments.

Sys/Event K/A: 000028 AA2.09

LP/Objective: 0717-22 01.02

Cognitive Level: HIGH

Reference: STM 12 & 37

10CFR55: 41.B5/41.B8

Applicability: RO/SRO

Source: NEW

Handout: NONE

QUESTIONS REPORT

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EXAM 046

If a fuel handling incident occurs in the Auxiliary Building, which one of the following is the first action the operator is directed to perform at AI-44 by AOP-08.:

- A. Stop VA-40C, Auxiliary Building Exhaust Fan
- B. Ensure all Auxiliary Building Exhaust Fans, VA-40A, VA-40B and VA-40C are running.
- C. Ensure both Auxiliary Building Supply Fans, VA-35A and VA-35B are running.
- D✓ Ensure VA-66, Spent Fuel Area Charcoal filter, is in the filtered mode.

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Describe the two Technical Specification LCOs that are challenged by a fuel handling incident.

Stem reworded in response to NRC comments. "in-service" changed to "running" in choices B and C for clarification.

Sys/Event K/A: 000036 2.4.50

10CFR55: 41.B13/43.B4/43.B7

LP/Objective: 0717-08 01.06

Applicability: RO/SRO

Cognitive Level: LOW

Source: FCS BANK

Reference: AOP-08

Handout: NONE

QUESTIONS REPORT

for Written exam

EXAM 055

Which ONE of the following is an entry condition to AOP-09, High Radioactivity?

- A. a High Steam Generator Blowdown Radiation Monitor Alarm, RM-054A
- B✓ a High Aux Bldg Vent Stack Radiation Monitor Alarm, RM-062
- C. a High CCW Radiation Monitor Alarm, RM-053.
- D. a High Condenser Off-Gas Radiation Monitor Alarm, RM-057.

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

Describe the entry conditions for this AOP.

Stem and choices modified in response to NRC comment that choices B and C were too similar.

Question reworded to eliminate negative stem.

Sys/Event K/A: 000061 2.4.04

10CFR55: 41.B10/43.B5

LP/Objective: 0717-09 01.04

Applicability: RO/SRO

Cognitive Level: LOW

Source: MODIFIED

Reference: AOP-09

Handout: NONE

QUESTIONS REPORT

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EXAM 065

In AOP-21, RCS High Activity, the operators direct the chemist to verify:

- A. RCS Boric Acid concentration is within limits.
- B.✓ The decontamination factor of the inservice CVCS ion exchanger is within limits.
- C. The xenon-133 activity in the VCT gas space is within limits.
- D. The RCS dissolved oxygen is within limits.

Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity:

Corrective actions required for high fission product activity in RCS

Describe how the plant responds to a RCS High Activity in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Distractor "C" modified in response to NRC comment that all distractors address non-radiological parameters.

Sys/Event K/A: 000076 AA2.02

10CFR55:

41.B13/43.B4

LP/Objective: 0717-21 01.02

Applicability:

RO/SRO

Cognitive Level: LOW

Source:

FCS BANK

Reference: AOP-21

Handout:

NONE

QUESTIONS REPORT

for Written exam

EXAM 070

According to Tech Spec 2.8.1, two shutdown cooling loops are required to be operable with one in operation whenever:

- A✓ RCS level is less than 23' above the top of core
- B. The pressurizer manway is removed.
- C. Level in both steam generators is less than 20% WR.
- D. RCS Boron concentration is less than the "Refueling Boron Concentration" specified in the COLR.

Ability to explain and apply all system limits and precautions.

DESCRIBE the design characteristics of each of the RCS Instrumentation Subsystems including type and relative location of sensors.

Question modified in response to NRC comments.

Sys/Event K/A:	002000 2.1.32	10CFR55:	41.B2/41.B3/41.B10
LP/Objective:	0711-20 04.03	Applicability:	RO/SRO
Cognitive Level:	LOW	Source:	MODIFIED
Reference:	TS 2.8.1	Handout:	NONE

QUESTIONS REPORT

for Written exam

EXAM 089

While operating at 100% power, the "Rod Drop Nuclear Instrumentation Channel" annunciator alarms on CB-4. Which one of the following events will cause that alarm?

- A. One of the Source Range NI channels has detected a startup rate of -2.7 DPM
- B. .One of the Wide Range NI channels has detected a startup rate of -2.7 DPM
- C✓ One of the Power Range NI channels has detected that power has dropped 10% in 8 seconds.
- D. One of the Power Range NI channels has detected that power has dropped 4% in 4 seconds.

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Explain the function performed by each of the following Power Range NI System components

Question modified in response to NRC comment.

Sys/Event K/A:	015000 2.4.50	10CFR55:	41.B2/41.B6
LP/Objective:	0712-19 01.07	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	STM 29	Handout:	NONE

QUESTIONS REPORT

for Written exam

EXAM 115

Which one of the following Auxiliary Building Ventilation System actions will result from a VIAS signal?

- A. All Auxiliary Building charcoal filter units will be automatically aligned for service.
- B.✓ The charcoal filters for the SI Pump and Spent Regenerant Tank rooms will be automatically bypassed.
- C. The Controlled Access side Auxiliary Building Ventilation supply fans will be automatically tripped.
- D. The Controlled Access side Auxiliary Building Ventilation exhaust fans will be automatically started.

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

Plant ventilation systems

STATE the functional relationships between the Auxiliary Building Ventilation System and the following systems:

Question rewritten based on NRC comments.

Sys/Event K/A: 072000 K4.03

10CFR55:

41.B7/41.B11

LP/Objective: 0714-01 01.02

Applicability:

RO ONLY

Cognitive Level: LOW

Source:

MODIFIED

Reference: AOP-23 ATT D

Handout:

NONE

QUESTIONS REPORT

for Written exam

EXAM 116

The plant is operating at 100% power. AC-10A and AC-10D are the operating raw water pumps. AC-10B and AC-10C are in standby.

Which of the following statements is correct concerning the Raw Water System following a Safeguards actuation? Assume that busses 1A3 and 1A4 remain energized.

- A. AC-10A and AC-10D will continue to run. AC-10B and AC-10C will not start.
- B. AC-10A and AC-10D will be load shed and then restarted by the sequencers. AC-10B and AC-10C will not start.
- C✓ AC-10A and AC-10D will continue to run. AC-10B and AC-10C will be started by the sequencers.
- D. AC-10A and AC-10D will be load shed. All four Raw Water will then be started by the sequencers.

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

Emergency/essential SWS pumps

New question rewritten based on NRC comment.

Sys/Event K/A:	075000 A4.01	10CFR55:	41.B4/41.B7
LP/Objective:	0717-10 01.07	Applicability:	RO/SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	RAW WATER STM	Handout:	NONE