
CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 001

The plant is operating at full power. The following plant conditions exist:

- LRC-101X indicates 60% and steady
- LRC-101Y (controlling channel) indicates 60% and steady
- PRC-103X indicates 1980 psia and lowering
- PRC-103Y (controlling channel) indicates 1978 psia and lowering
- Charging flow indicates 40 gpm
- Letdown flow is 36 gpm
- One charging pump is running
- Pressurizer Quench Tank level and pressure is steady.

Which one of the following events could cause these indications?

- A. A pressurizer spray valve has failed open.
- B. A pressurizer pressure transmitter is slowly failing low.
- C. A PORV has failed open.
- D. A leak in the charging header.

Explanation: Choice A lists the indications of a failed open spray valve. Choice B is incorrect because both pressure transmitters agree, Choice C is incorrect because there are no tailpipe alarms, Choice D is incorrect because charging and letdown flows are normal.

Question 1 K/A # 000008 AA2.19

Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space

Accident:PZR spray valve failure, using plant parameters

RO Importance 3.4 SRO Importance 3.6 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0715-12 01.03

PLOT and PREDICT the following parameters for the transients listed in objective 1.2:

The last bulleted item was deleted from the stem as a result of NRC review.

KA#: 000008 AA2.19
LP# / Objective: 0715-12 01.03
Cognitive Level: HIGH
Reference: STM 12

Bank Ref #: 07-17-33 002
Exam Level: RO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 002

A normal RCS cooldown is in progress with the RCS pressure at 1560 psia.

RCS pressure and pressurizer level begin to lower rapidly and containment pressure and sump level begin to increase. What action, if any, should be taken to initiate Engineered Safeguards?

- A. Place the PPLS Block switch in Emergency Reset.
- B. Manually Start 2 HPSI Pumps and open HPSI loop injection valves.
- C. Manually Start 3 HPSI Pumps and open HPSI loop injection valves.
- D. No action should be taken, HPSI flow will begin when containment pressure increases to the CPHS setpoint.

Explanation: With PPLS (RCS pressure below 1600 psia) and CPHS (containment pressure above 5 psig), The VA-3 and VA-7 fans should all start. Choice A is correct and choice B is incorrect. Choice C and D are incorrect because the autostart signal has been removed and they are not used if the other HPSI and CS pumps are operating.

Question 2 K/A # 000009 EK3.28

Knowledge of the reasons for the following responses as they apply to the small break

LOCA: Manual ESFAS initiation requirements

RO Importance 4.5 SRO Importance 4.5 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13

FCS Lesson Plan / Objective 0711-22 01.08

Explain overall system response to actuation of automatic engineered safeguards signals.

The original question was replaced by a new question following a NRC review comment that the original question could help answer question # 42.

KA#: 000009 EK3.28

Bank Ref #: NONE

LP# / Objective: 0711-22 01.08

Exam Level: RO

Cognitive Level: HIGH

Source: NEW

Reference: EOP-03

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 003

How does the operator balance flows between the hot leg and cold leg during "Simultaneous Hot and Cold Leg Injection"?

- A. One HPSI pump supplies flow to the cold legs and another HPSI pump supplies flow directly to the hot legs.
- B. One HPSI pump supplies flow to the cold legs and another HPSI pump supplies flow to the hot legs through the pressurizer auxiliary spray line.
- C. One HPSI pump supplies flow to the cold legs and one LPSI pump supplies flow directly to the hot legs.
- D. One HPSI pump supplies flow to the cold legs and the charging pumps supply flow to the hot legs through the pressurizer auxiliary spray line.

Explanation: Simultaneous Hot and Cold leg Injection is initiated 5.5 hours after a LOCA to prevent boric acid buildup, it involves balancing the HPSI flow between the hot and cold legs. One HPSI pump stays aligned to the cold legs and another HPSI pump is aligned to the hot legs via the pressurizer auxiliary spray line (choice B). Choice A is incorrect because flow is not supplied directly to the hot leg. Choice C is incorrect because a LPSI pump is not used (One is used for "Alternate Hot Leg Injection), Choice D is incorrect because charging pumps are not used (although they are used for normal auxiliary spray).

Question 3 K/A # 000011 EA1.16

Ability to operate and monitor the following as they apply to a Large Break LOCA:Balancing of HPI loop flows

RO Importance 3.5* SRO Importance 3.5* 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0711-22 01.11

Explain the various methods of accomplishing long term cooling under abnormal and emergency conditions in accordance with EOP-03, attachment 4 and 7 through 11.

KA#: 000011 EA1.16
LP# / Objective: 0711-22 01.11
Cognitive Level: LOW
Reference: EOP-AOP ATT 9

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 004

What is the purpose of the flywheels on the Reactor Coolant Pump Motors?

- A. To reduce RCP vibration during pump operation.
- B. To minimize the current required to start the pump motor.
- C. To reduce the probability of a RCP seized rotor event.
- D. To prevent fuel damage following a RCP trip.

Explanation: Without the flywheels on the reactor coolant pumps, the consequences of a loss of power to the pumps would be fuel damage due to DNB, therefore choice D is correct. The other choices are plausible, but incorrect, reasons for having the flywheels.

Question 4 K/A # 000017 AK1.02

Knowledge of the operational implications of the following concepts as they apply to Reactor Coolant Pump Malfunctions (Loss of RC Flow):Consequences of an RCPS failure

RO Importance 3.7 SRO Importance 4.1 10 CFR 55 Section 41.8 / 41.10 / 45.3

FCS Lesson Plan / Objective 0715-16 03.04

EXPLAIN the importance of the RCP flywheels to the loss of flow accident analysis results.

KA#: 000017 AK1.02
LP# / Objective: 0715-16 03.04
Cognitive Level: LOW
Reference: LP 07-15-16

Bank Ref #: 07-15-16 037
Exam Level: RO
Source: BANK REWORD
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 005

An event occurred in the plant 15 minutes ago. No operator actions have been taken. Given the following plant conditions, what is the most probable cause?

- RCS pressure is 2050 psia and decreasing
- PZR level is 56% and decreasing
- Letdown flow is 26 gpm
- Charging flow is 120 gpm
- Reactor power is 99.5% and constant
- T_{cold} is 542°F and constant
- T_{hot} is 594°F and constant
- RM-054A/B indicate 96 cpm / 220 cpm, both are constant
- Containment sump is 18" and constant
- VCT level is 47% and decreasing

- A. A steam generator safety valve failed open.
- B. An RCS leak inside containment.
- C. A S/G tube leak.
- D. A charging header leak in room 13.

Explanation: The mismatch between charging and letdown flow is indicative of either a charging header leak, a leak from the RCS or an excessive heat removal event. If the leak was into the steam generators, RM-054A/B would be increasing. If the leak was into containment, containment sump level would be rising. If a steam generator safety valve stuck open, RCS temperatures would be lowering. Thus choices, A, B and C are incorrect. Only choice D matches all of the plant conditions.

Question 5 K/A # 000022 AA1.01

Ability to operate and / or monitor the following as they apply to the Loss of Reactor Coolant Pump Makeup: CVCS letdown and charging

RO Importance 3.4 SRO Importance 3.3 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0717-33 01.02

DESCRIBE how the plant responds to a CVCS leak in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Distractor C wording changed as a result of NRC review.

KA#: 000022 AA1.01
LP# / Objective: 0717-33 01.02
Cognitive Level: HIGH
Reference: AOP-33

Bank Ref #: 07-17-22 001
Exam Level: RO
Source: NRC 97 EXAM
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 006

The plant is being cooled down on shutdown cooling using shutdown cooling heat exchanger, AC-4A. With the the RCS at 290°F and 235 psia, Raw water cooling to the CCW heat exchangers, AC-1A/B/C/D, is lost due to complete plugging of the raw water strainers.

Which one of the following actions is the preferred method for restoring shutdown cooling?

- A. Place shutdown cooling heat exchanger, AC-4B, in service using the CCW system.
- B. Establish fire water backup cooling to shutdown cooling heat exchanger, AC-4A.
- C. Start all three HPSI pumps to provide injection into the RCS.
- D. Use hoses and line up fire water to the secondary side of CCW heat exchanger, AC-1A/B/C or D.

Explanation: Choice D is the method used to provide cooling following a total loss of raw water per AOP-11. Choice A is incorrect because AC-4B has also lost cooling water. Choice B is incorrect because there is no procedural guidance for establishing fire water backup cooling. Choice C is incorrect because the RCS is intact. This would be an appropriate action if the pressurizer manway was removed.

Question 6 K/A # 000025 AK2.03

Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following: Service water or closed cooling water pumps

RO Importance 2.7 SRO Importance 2.7 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0717-19 01.00

Use the Loss of Shutdown Cooling Procedure to mitigate the consequences of a loss of cooling to the Reactor Coolant System.

Added noun names.

KA#: 000025 AK2.03

Bank Ref #: 07-17-19 015

LP# / Objective: 0717-19 01.00

Exam Level: RO

Cognitive Level: HIGH

Source: MODIFIED

Reference: AOP-11

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 007

CCW flow to Containment Cooler, VA-1A has isolated due to low flow following a CIAS actuation. What must be done to reestablish flow to the containment cooler?

- A. The Control switch for HCV-400A/C must be placed in the "ISOLATE" position momentarily and then returned to the "NORMAL" position.
- B. The Control switch for HCV-400A/C must be held in the "CIRCULATE" position until the low flow signal has reset.**
- C. The Control switch for HCV-400A/C must be placed in the "ISOLATE" position for 5 seconds and then returned to the "NORMAL" position.
- D. Flow can not be reestablished until the "CIAS" isolation is reset.

Explanation: Choice B is the correct way to reestablish flow following a low flow isolation. Choice A will not work. There is no override switch for this valve, although there are for many others, so C is incorrect. D is incorrect because flow can be reestablished without resetting CIAS.

Question 7 K/A # 000026 AA1.07

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

RO Importance 2.9 SRO Importance 3.0 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0711-06 01.02

EXPLAIN the operation of controls associated with the CCW System valves operated from the Control Room.

Distractor C changed as a result of NRC review.

KA#: 000026 AA1.07
LP# / Objective: 0711-06 01.02
Cognitive Level: LOW
Reference: STM 08 2.188

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 008

The reactor tripped 20 minutes ago. The following conditions are observed:

- "PRESSURIZER PRESSURE OFF NORMAL HI-LO" channel X and Y are in alarm.
- "PRESSURIZER LEVEL OFF NORMAL HI-LO" channel X and Y are in alarm.
- PRC-103Y (controlling channel) indicates 1980 psia and slowly lowering
- PRC-103X indicates 1978 psia and slowly lowering
- All backup heaters are in auto and deenergized
- LRC-101Y (controlling channel) indicates 29% and steady.
- LRC-101X indicates 28% and steady
- Letdown flow is 36 gpm
- One charging pump is running
- Tcold indicates 533°F, That indicates 534°F, both are stable

What action should be taken to restore RCS pressure to normal?

- A. Select PRC-103X as the controlling pressure channel.
- B. Take manual control of PRC-103Y to raise pressurizer pressure.
- C. Select LRC-101X as the controlling level channel.
- D. Place all pressurizer heater control switches in the "ON" position.

Explanation: With this pressurizer level, more charging pumps should be operating and letdown should be lower, thus the level controller is not functioning properly and choice C is correct. The heaters are deenergized due to low pressurizer level causing RCS pressure to lower slowly. Thus choices A, B and D are incorrect.

Question 8 K/A # 000027 2.4.50

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

RO Importance 3.3 SRO Importance 3.3 10 CFR 55 Section 45.3

FCS Lesson Plan / Objective 0711-20 04.00

When given specific plant conditions, EXPLAIN operating principles to predict response of Reactor Coolant System (RCS) Instrumentation.

KA#: 000027 2.4.50

Bank Ref #: 07-11-20 008

LP# / Objective: 0711-20 04.00

Exam Level: RO

Cognitive Level: HIGH

Source: MODIFIED

Reference: STM 37 2.248

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 009

A main generator trip occurred from 100% power. The plant experiences an ATWS event in which the reactor and turbine both failed to trip. Why does EOP-00 direct you to close the MSIVs in this situation?

- A. To lower reactor power.
- B. To maintain steam generator water inventory.
- C. To prevent turbine overspeed.
- D. To protect the condenser from overpressure.

Explanation: The MSIVs are closed to mitigate the reactivity addition due to the cooldown, making choice A correct. The other choices are plausible, but not correct.

Question 9 K/A # 000029 EK3.08

Knowledge of the reasons for the following responses as they apply to the ATWS: Closing the main steam isolation valve

RO Importance 3.6* SRO Importance 3.8 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13

FCS Lesson Plan / Objective 0718-10 01.11

GIVEN a set of plant conditions and a copy of EOP-00, DETERMINE the appropriate response to the plant conditions. Both the corrective actions required and any other EOP's referred to by the procedure must be included.

KA#: 000029 EK3.08
LP# / Objective: 0718-10 01.11
Cognitive Level: HIGH
Reference: TDB-EOP-00

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 010

The plant has been shutdown due to significant failed fuel and primary to secondary leaks in both steam generators. No other events have occurred. Which one of the following steaming paths should be used for the cooldown to monitor offsite radiation releases.

- A. Main Steam Line Relief Valves, MS-291 and MS-292.
- B. Main Steam to Atmosphere Vent Valve, HCV-1040.
- C. Condenser Bypass Control Valve, PCV-910, and Condenser Dump Valves, TCV-909's, with Condenser Evacuation in normal alignment.
- D. Condenser Bypass Control Valve, PCV-910, and Condenser Dump Valves, TCV-909's, with Condenser Evacuation aligned to the Auxiliary Building stack.**

Explanation: SO-G-105 directs that condenser evacuation be aligned to the Aux Building Stack, making choice D correct. Choices A, B and C can all be used for a cooldown, but will not be directed to the AB stack.

Question 10 K/A # 000038 2.1.23

Ability to perform specific system and integrated plant procedures during all modes of plant operation.

RO Importance 3.9 SRO Importance 4.0 10 CFR 55 Section 45.2 / 45.6

FCS Lesson Plan / Objective 0715-33 01.03

EXPLAIN the pathways for the transport of radioactivity to the environment during a steam generator tube rupture event.

Added noun names per NRC review comment.

KA#: 000038 2.1.23

Bank Ref #: 07-15-33 004

LP# / Objective: 0715-33 01.03

Exam Level: RO

Cognitive Level: HIGH

Source: NRC FCS 2001-1

Reference: SO-G-105

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 011

A large steam line break inside of containment has resulted in successful SGIS actuation. Assuming no operator action, when level in the faulted steam generator reaches the AFAS setpoint, how will the engineered safeguards features limit the reactivity addition due to RCS cooldown?

- A. AFAS actuation will not occur because the SGIS signal is present.
- B. AFAS actuation will occur, but no AFW flow will be delivered to either steam generator due to the SGIS.
- C. AFAS actuation will occur, but no AFW flow will be delivered to the faulted S/G due to its lower level.
- D. AFAS actuation will occur, but no AFW flow will be delivered to the faulted S/G due to its lower pressure.

Explanation: AFAS logic prevents automatic AFW flow to the steam generator with the lower pressure to limit the cooldown and reactivity addition, D is the correct answer. A and B are incorrect because AFAS is independent of SGIS. C is incorrect because low level initiates AFAS.

Question 11 K/A # 000040 AK3.02

Knowledge of the reasons for the following responses as they apply to the Steam Line

Rupture:ESFAS initiation

RO Importance 4.4 SRO Importance 4.4 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13

FCS Lesson Plan / Objective 0711-01 01.04

EXPLAIN the operation of the AFW System following an Engineered Safeguards AFAS.

KA#: 000040 AK3.02

Bank Ref #: NONE

LP# / Objective: 0711-01 01.04

Exam Level: RO

Cognitive Level: HIGH

Source: NEW

Reference: STM 04 1.19

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 012

A station blackout has occurred due to a loss of 161 kv and 345 kv to the switchyard. The Equipment Operator reports that step one of "Minimizing DC loads has been completed. What additional action must be taken in control room.

- A. Stop LO-4, the DC Oil Pump, once the turbine stops turning.
- B. Stop LO-12B, the DC Seal Oil Pump, when the generator stops turning.
- C. Transfer AI-41A to its emergency DC power source.
- D. Transfer AI-41B to its emergency DC Power source.

Explanation: DC loads are minimized to extend battery life following a loss of power to the battery chargers. LO-4 is stopped when the turbine stops turning making A the correct answer. Choice B is incorrect because LO-12B is not stopped until 2 hours. Choices C and D are incorrect because they are actions taken following a loss of one DC bus.

Question 12 K/A # 000055 2.1.23

Ability to perform specific system and integrated plant procedures during all modes of plant operation.

RO Importance 3.9 SRO Importance 4.0 10 CFR 55 Section 45.2 / 45.6

FCS Lesson Plan / Objective 0718-17 02.03

GIVEN a copy of Attachment 6, EXPLAIN the steps necessary to minimize DC loads.

KA#:	000055 2.1.23	Bank Ref #:	NONE
LP# / Objective:	0718-17 02.03	Exam Level:	RO
Cognitive Level:	LOW	Source:	NEW
Reference:	EOP-AOP ATT 6	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 013

Fort Calhoun Station has both an AC sequencer and a DC sequencer on each train of Engineered Safeguards. What would be the consequences if the DC sequencer failed to operate?

- A. Breaker control power would be lost to all safeguards loads on the affected train.
- B. Safeguards load would sequence on to the bus in reverse order.
- C. Approximately 50% of the train's safeguards loads would not start.
- D. The train's safeguards loads would start slightly later than they would normally start.**

Explanation: The AC sequencer is a backup to the DC sequencer. It provides a redundant signal to start loads with slightly longer delays than the DC sequencer, D is the correct choice. The other choices are incorrect.

Question 13 K/A # 000056 AA2.47

Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Proper operation of the ED/G load sequencer

RO Importance 3.8 SRO Importance 3.9 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0712-14 01.00

APPLY operating principles to predict Engineered Safeguards Control (ESC) System response when given specific plant conditions.

KA#: 000056 AA2.47
LP# / Objective: 0712-14 01.00
Cognitive Level: LOW
Reference: STM-19

Bank Ref #: 07-12-14 099
Exam Level: RO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 014

How is Steam Generator Pressure and Level Indication affected following a loss of power to Instrument Bus A ?

- A. All indicators will continue to function as designed.
- B. Some indicators will fail on both S/G-2A and S/G-2B.
- C. Some indicators will fail on S/G-2A. S/G-2B indicators will not be affected.
- D. All indicators will fail on both S/G-2A and S/G-2B.

Explanation: A loss of one instrument bus will affect about 1/4 of the indicators in the control room. Steam generators have instruments supplied by all four instrument buses, thus B is the correct answer. Choices A, C and D are all plausible if a candidate does not understand how instruments are powered.

Question 14 K/A # 000057 AA2.05

Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus:S/G pressure and level meters

RO Importance 3.5 SRO Importance 3.8 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0717-16 01.02

Describe how the plant responds to a loss of instrument bus power in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

KA#: 000057 AA2.05
LP# / Objective: 0717-16 01.02
Cognitive Level: LOW
Reference: AOP-16

Bank Ref #: 07-12-11 013
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 015

A loss of both DC buses has resulted in a loss of plant instrumentation, 11 hours after a station blackout. The DC busses were lost because the batteries fully discharged. 13.8 KV and 161KV have just been restored to the switchyard. What actions would result in restoring normal DC control power required to enable energizing bus 1A4?

- A. Use 13.8 KV to supply battery charger # 1. Use battery charger #1 to power DC bus #1
- B. Use 13.8 KV to supply battery charger # 2. Use battery charger #2 to power DC bus #2
- C. Use 13.8 KV to supply battery charger # 3. Use battery charger #3 to power DC bus #1
- D. Use 13.8 KV to supply battery charger # 3. Use battery charger #3 to power DC bus #2.

Explanation: Choice D is correct because 13.8 KV can only supply battery charger #3 and DC bus # 2 provides normal control power to bus 1A4. Choices A and B are incorrect because 13.8 KV can not be supplied to battery chargers 1 and 2. Choice C is incorrect because DC bus #1 does not supply normal control power to bus 1A4.

Question 15 K/A # 000058 AK1.01

Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: Battery charger equipment and instrumentation

RO Importance 2.8 SRO Importance 3.1* 10 CFR 55 Section 41.8 / 41.10 / 45.3

FCS Lesson Plan / Objective 0713-03 01.07

Explain the principles of emergency operation of the 480 VAC Electrical Distribution System in terms of major parameters, alarms and control devices.

Changed choice D per NRC review comment.

KA#: 000058 AK1.01

Bank Ref #: NONE

LP# / Objective: 0713-03 01.07

Exam Level: RO

Cognitive Level: HIGH

Source: NEW

Reference: STM 14

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 016

The plant was in hot shutdown when the following Annunciators came into alarm in the control room:

- "COOLING WATER PRESSURE LOW"
- "INSTRUMENT AIR PRESS LO"
- "PLANT AIR PRESS LO"

Air pressure indication on both PI-1750 and PI-1700 was lowering.

The operator noted that the running bearing water pump and the running air compressors have tripped. The operators were able to start a backup air compressor, but it ran for only a few minutes. They were unable to start either bearing water pump.

What action is required to restore instrument air pressure?

- A. Close the cross-tie valve between service air and instrument air.
- B. Bypass the Instrument air dryers.
- C. Align raw water backup cooling to an air compressor and then restart it.
- D. Align potable water backup cooling to an air compressor and then restart it.

Explanation: The air compressors have tripped due to a loss of normal cooling (bearing water). Backup cooling (potable water) should be aligned to the air compressors (correct choice D). Raw water is used for backup cooling for many other plant components (distractor C). Distractors A and B are AOP-17 actions that can be used for a loss of instrument air, but would not be effective in this case.

Question 16 K/A # 000065 2.4.31

Knowledge of annunciators alarms and indications, and use of the response instructions.

RO Importance 3.3 SRO Importance 3.4 10 CFR 55 Section 41.10 / 45.3

FCS Lesson Plan / Objective 0711-07 01.05

Explain the principles of Abnormal operation of the Compressed Air System in terms of flow paths, major parameters, (temperature, pressure, flow, etc.), alarms and control devices.

KA#: 000065 2.4.31
LP# / Objective: 0711-07 01.05
Cognitive Level: HIGH
Reference: STM 43

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 017

The reactor has just tripped due to a loss of condenser vacuum. Assuming no operator action, how will decay heat be removed?

- A. HCV-1040 will open automatically to maintain RCS T_{cold} at approximately 532°F.
- B. HCV-1040 will open automatically to maintain RCS T_{cold} at approximately 545°F.
- C. MS-291 and MS-292 will open automatically to maintain RCS T_{cold} at approximately 532°F.
- D. MS-291 and MS-292 will open automatically to maintain RCS T_{cold} at approximately 545°F.**

Explanation: MS-291 and MS-292 will open at approximately 1000 psia maintaining the RCS at 545F making D the correct answer. Choice C is incorrect, this is the temperature that the condenser bypass valves maintain. Choices A and B are incorrect because HCV-1040 does not open automatically.

Question 17 K/A # CE-E02 EK2.02

Knowledge of the interrelations between the (Reactor Trip Recovery) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

RO Importance 3.5 SRO Importance 4.0 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0711-17 06.00

EPLAIN what methods are available for cooling down the Main Steam System per OI-MS-3.

KA#: CE-E02 EK2.02
LP# / Objective: 0711-17 06.00
Cognitive Level: HIGH
Reference: STM 25

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: STEAM TABLES

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 018

The plant is operating at full power near the end of an operating cycle when a loss of feedwater ATWS event occurs. Which one of the following reactivity mechanisms causes a positive reactivity change during this event?

- A. Fuel temperature coefficient.
- B. Moderator temperature coefficient.
- C. Void coefficient.
- D. Boron concentration change.

Explanation: During a Loss of Feedwater ATWS, negative reactivity feedback from the moderator temperature increase causes power to decrease. The power decrease causes fuel temperature to decrease adding positive reactivity, therefore A is correct. Choices B,C and D are all incorrect because they produce a negative reactivity change.

Question 18 K/A # CE-E06 EK3.01

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

RO Importance 3.2 SRO Importance 3.9 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13
FCS Lesson Plan / Objective 0715-17 01.06

EXPLAIN the primary and the secondary plant response to a loss of feedwater ATWS.

KA#: CE-E06 EK3.01
LP# / Objective: 0715-17 01.06
Cognitive Level: HIGH
Reference: LP 0715-17

Bank Ref #: 07-15-17 002
Exam Level: RO
Source: NRC FCS 2001-1
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 019

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 Wide Range NI channels has detected that power has dropped 3% in 10 seconds.
- B. One of the Power Range NI channels has detected that power has dropped 5% in 10 seconds.
- C. One of the Wide Range NI channels has detected that power has dropped 8% in 5 second.
- D. One of the Power Range NI channels has detected that power has dropped 10% in 5 seconds.**

Explanation: The rod drop alarm comes in if the power range NI signal drops more than 8% in 8 seconds. Choice D is correct because 10% in 5 seconds exceeds that setpoint. Choice B is incorrect because 5% in 10 seconds is less than the setpoint. Choices A and C are incorrect because the wide range NIs are not used for this alarm.

Question 19 K/A # 000003 AA1.07

Ability to operate and / or monitor the following as they apply to the Dropped Control Rod:Incore and ex-core instrumentation

RO Importance 3.8 SRO Importance 3.8 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0712-19 01.07

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

KA#: 000003 AA1.07

Bank Ref #: 07-12-19 050

LP# / Objective: 0712-19 01.07

Exam Level: RO

Cognitive Level: HIGH

Source: BANK REWORD

Reference: STM 29

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 020

The DSS test switches have been manually actuated following a reactor trip in which several trippable CEAs stuck and failed to insert. How does the DSS attempt to mitigate this event?

- A. Deenergizes the RPS initiation logic relays.
- B. Opens the CRDM clutch power supply breakers.
- C. Opens the CRDM motor supply breakers.
- D. Deenergizes the 400 hz inverter.

Explanation: DSS opens the CRDM clutch power supply breakers, choice B. Choice A is not part of DSS. Choice C would prevent moving CEAs but would not produce a trip. Choice D has to do with rod position indication.

Question 20 K/A # 000005 AK2.02
 Knowledge of the interrelations between the Inoperable / Stuck Control Rod and the following: Breakers, relays, disconnects, and control room switches
 RO Importance 2.5 SRO Importance 2.6 10 CFR 55 Section 41.7 / 45.7
 FCS Lesson Plan / Objective 0712-25 05.05
 EXPLAIN how the Diverse Scram System produces a reactor trip.

KA#:	000005 AK2.02	Bank Ref #:	07-12-25 015
LP# / Objective:	0712-25 05.05	Exam Level:	RO
Cognitive Level:	LOW	Source:	MODIFIED
Reference:	STM 11	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 021

The Plant is in hot shutdown with RCS T_{cold} being maintained at 532° F when a small steam leak inside containment causes T_{cold} to begin lowering slowly. Plant conditions are as follows:

- The non-trippable CEAs are fully withdrawn
- $T_{cold} = 520^{\circ}\text{F}$ and is lowering
- Pressurizer pressure is 2025 psia and lowering slowly.
- Pressurizer level is 41% and lowering.
- Containment pressure is 0.8 psig and rising slowly.

Which one of the following actions should be taken immediately?

- A. Emergency Boration should be initiated.
- B. The non-trippable CEAs should be inserted.
- C. Containment spray should be initiated.
- D. Charging pump suction should be aligned to the SIRWT

Explanation: The cooldown is an entry condition for AOP-03 and requires emergency boration, choice A is correct. Choices B and D would also be effective but are not the actions required by procedure. Choice C is incorrect because containment pressure, though rising, is well below where containment spray is required.

Question 21 K/A # 000024 AK1.01

Knowledge of the operational implications of the following concepts as they apply to Emergency Boration: Relationship between boron addition and change in T-ave
RO Importance 3.4 SRO Importance 3.8 10 CFR 55 Section 41.8 / 41.10 / 45.3
FCS Lesson Plan / Objective 0717-03 01.04
Describe the entry conditions for this AOP.

KA#:	000024 AK1.01	Bank Ref #:	NONE
LP# / Objective:	0717-03 01.04	Exam Level:	RO
Cognitive Level:	LOW	Source:	NEW
Reference:	AOP-03	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 022

The plant is operating at full power when pressurizer level transmitter LT-101Y (controlling channel) fails such that it indicates a pegged high level. Pressurizer level transmitter, LT-101X indicates a lowering level. LCV-101-1 is selected as the letdown flow control valve. How will letdown flow, as indicated by FI-212, respond to this event.

- A. Letdown flow will continuously increase to 116 gpm.
- B. Letdown flow will increase to 155 gpm, then it will drop to zero.
- C. Letdown flow will continuously decrease to 26 gpm.
- D. Letdown flow will continuously decrease to 0 gpm.

Explanation: On this high of a level, the controlling channel will cause letdown flow to increase to the limited value, 116 gpm. Choice A is correct. Choice B would be correct if there were no limiter, letdown does isolate at 155 gpm. Choice C and D are incorrect because letdown flow increases. A candidate might be drawn to these answers if he did not understand the relationship between the letdown control valve and the controlling channel.

Question 22 K/A # 000028 AA2.06

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

Malfunctions: Letdown flow indicator

RO Importance 2.7 SRO Importance 2.8 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0711-02 04.01

EXPLAIN how RCS volume is controlled automatically and manually.

KA#: 000028 AA2.06

Bank Ref #: NONE

LP# / Objective: 0711-02 04.01

Exam Level: RO

Cognitive Level: HIGH

Source: NEW

Reference: STM 12

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 023

What is the Technical Specification limit for primary to secondary leakage?

- A. 150 gallons per day per S/G.
- B. 10 gallons per minute total (both S/Gs summed)
- C. 1 gallon per minute per S/G.
- D. 1 gallon per minute total (both S/Gs summed)

Explanation: Choice A is the Tech Spec limit and is correct. The other choices are incorrect.

Question 23 K/A # 000037 2.1.32

Ability to explain and apply all system limits and precautions.

RO Importance 3.4 SRO Importance 3.8 10 CFR 55 Section 41.10 / 43.2 / 45.12

FCS Lesson Plan / Objective 0711-20 02.06

LIST the maximum allowable RCS leakage rates.

Changed distractor B per NRC review comment.

KA#: 000037 2.1.32

Bank Ref #: NONE

LP# / Objective: 0711-20 02.06

Exam Level: RO

Cognitive Level: LOW

Source: NEW

Reference: T.S. 2.1.4

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 024

The Control Room has been evacuated and the plant is being controlled from the remote shutdown panels. Why is manual AFW control required after the transfer switches on AI-179 are taken to local even though S/G levels lower to the AFAS low level setpoint ?

- A. Because AFAS will fully open valves HCV-1107A, HCV-1107B, HCV-1108A, HCV-1108B and they will not be able to be throttled.
- B. Because AFAS will fully close valves HCV-1107A, HCV-1107B, HCV-1108A, HCV-1108B and they will not be able to be throttled.
- C. Because AFAS will auto start FW-10 and it will not be able to be stopped.
- D. Because AFAS signals to HCV-1107A, HCV-1107B, HCV-1108A, HCV-1108B and FW-10 will be blocked.

Explanation: The transfer switches will block AFAS, choice D is correct. In this condition, AFAS will not cause any of the actions listed in choices A,B and C.

Question 24 K/A # 000068 AK3.07

Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation: Maintenance of S/G level, using AFW flow control valves
RO Importance: Maintenance of S/G level, using AFW flow control valves
RO Importance 4.0 SRO Importance 4.3 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13
FCS Lesson Plan / Objective 0712-01 01.05
EXPLAIN the operation of the auxiliary relays (43X/RC2A and 43X/RC-2B) and transfer switches (43/RC-2A and 43/RC-2B) on AI-179.

KA#: 000068 AK3.07
LP# / Objective: 0712-01 01.05
Cognitive Level: HIGH
Reference: STM 04

Bank Ref #: 07-12-01
Exam Level: RO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 025

Which one of the following core damage mechanisms would be expected to occur first during a sustained core uncover accident?

- A. Rupture of the cladding
- B. Rupture of the CEA pins
- C. Melting of the cladding
- D. Melting of the CEA pins

Explanation: Cladding rupture occurs at approximately 1550F. Cladding does not melt until above 3000F. CEA pins do not contain decay heat producing fuel pellets and heat up much more slowly than the cladding. Therefore, A is the only correct answer.

Question 25 K/A # 000074 EK1.02

Knowledge of the operational implications of the following concepts as they apply to the Inadequate Core Cooling :Potential consequences of uncovering the core

RO Importance 4.6 SRO Importance 4.8 10 CFR 55 Section 41.8 / 41.10 / 45.3

FCS Lesson Plan / Objective 0715-28 01.12

EXPLAIN what occurs to the reactor core as it heats up from 1100°F to 5800°F, the methods of fuel failure and fission product release and what consequences to formation of eutectic metals have.

KA#: 000074 EK1.02
LP# / Objective: 0715-28 01.12
Cognitive Level: LOW
Reference: LP 07-15-28

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 026

Which of the following will open first and continue to remove decay heat and support natural circulation core cooling following a loss of condenser vacuum assuming no operator action is taken?

- A. Steam dump and bypass valves, TCV-909-1, 2, 3, 4 and PCV-910
- B. Atmospheric dump valve HCV-1040
- C. Main steam safety valves, MS-275 and MS-279
- D. Main steam safety valves, MS-291 and MS-292**

Explanation: MS-291 and MS-292 will open automatically at 900 psia. MS-275 and MS-279 have higher pressure setpoints. TCV-909's and PCV-910 will not open without condenser vacuum. HCV-1040 does not open automatically. D is the only correct answer.

Question 26 K/A # CE-A13 2.1.27

Knowledge of system purpose and or function.

RO Importance 2.8 SRO Importance 2.9 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-17 04.01

EXPLAIN when the atmospheric dump would be used instead of the steam dump and bypass valves.

KA#: CE-A13 2.1.27
LP# / Objective: 0711-17 04.01
Cognitive Level: HIGH
Reference: STM 25

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 027

A small RCS leak has been identified and the following plant parameters are observed:

- Pressurizer level and pressure are steady
- Containment pressure, dew point and sump level are steady.
- VCT level and pressure are lowering.
- Pressurizer quench tank level, pressure and temperature are rising.
- Secondary radiation monitors all read background.
- CCW surge tank level and pressure are steady.
- Aux Building Sump levels are steady.
- Safety injection tank levels and pressures are steady.

Which one of the following actions may result in isolating the leak?

- A. Closing SIT loop injection valves.
- B. Isolating Charging and letdown.
- C. Closing RCS sample valves.
- D. Isolating CCW to the Reactor Coolant Pumps.

Explanation: Letdown relief valve CH-223 goes to the VCT, therefore B is correct. A is incorrect because SIT levels are pressures are steady. C is incorrect because quench tank levels are rising. D is incorrect because CCW surge tank level is steady.

Question 27 K/A # CE-A16 AA1.03

Ability to operate and / or monitor the following as they apply to the (Excess RCS Leakage)Desired operating results during abnormal and emergency situations.

RO Importance 3.0 SRO Importance 3.6 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0717-33 01.02

DESCRIBE how the plant responds to a CVCS leak in terms of how specific equipment is affected and how it affects the overall plant operation and reliability.

KA#:	CE-A16 AA1.03	Bank Ref #:	NONE
LP# / Objective:	0717-33 01.02	Exam Level:	RO
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 12 PG 24	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 028

Upon starting a Reactor Coolant Pump, the oil lift pump will:

- A. require manual shutdown after 2 minutes of RCP operation.
- B. automatically shutdown at 75% of rated RCP speed.
- C. automatically shutdown at 90% of rated RCP speed.
- D. require manual shutdown when RCP reaches rated speed.

Explanation: The oil lift pump shuts down at 90% of rated speed, therefore choice C is correct and the other choices are incorrect.

Question 28 K/A # 003000 A3.05

Ability to monitor automatic operation of the RCPS, including:RCP lube oil and bearing lift pumps

RO Importance 2.7* SRO Importance 2.6 10 CFR 55 Section 41.7 / 45.5

FCS Lesson Plan / Objective 0711-20 01.07

DESCRIBE the general design of a reactor coolant pump.

KA#: 003000 A3.05
LP# / Objective: 0711-20 01.07
Cognitive Level: LOW
Reference: STM 37

Bank Ref #: 07-11-20 145
Exam Level: RO
Source: NRC 02 EXAM
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 029

The plant is operating at 100% power with steady-state conditions. On the previous shift, linear power range channel "A" failed as a result of a malfunctioning nuclear detector (High Power, TM/LP, and APD trip units are placed in "Bypass" on "A" channel). On your shift, linear power range channel "B" also fails.

What action must be taken per Technical Specifications?

- A. Within one hour also place the High Power, TM/LP and APD trip units on "B" channel in the "Bypass" Condition. Power may remain at 100%.
- B. Within one hour place the High Power, TM/LP and APD trip units on "B" channel in the "Tripped" Condition. Power may remain at 100%.
- C. Within one hour place the High Power, TM/LP and APD trip units on "B" channel in the "Tripped" Condition. Power must be reduced to $\leq 70\%$.
- D. Within one hour also place the High Power, TM/LP and APD trip units on "B" channel in the "Bypass" Condition. Power must be reduced to $\leq 70\%$.

Explanation: With channel A TUs bypassed, Channel B TUs must be tripped within one hour and power must be reduced to less than 70%, choice C is correct. Choice A and B are incorrect because they do require a power reduction. Choice D is incorrect because it bypass the TUs instead of tripping them.

Question 29 K/A # 012000 2.1.33

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

RO Importance 3.4 SRO Importance 4.0 10 CFR 55 Section 43.2 / 43.3 / 45.3

FCS Lesson Plan / Objective 0712-25 04.01

Using the Technical Specifications as a reference, EXPLAIN the time limitations associated with placing an RPS trip unit in a tripped or bypass condition.

KA#: 012000 2.1.33
LP# / Objective: 0712-25 04.01
Cognitive Level: HIGH
Reference: T.S. 2.15

Bank Ref #: 07-12-25 057
Exam Level: RO
Source: BANK
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 030

Why is the VCT outlet valve, LCV-218-2, closed during Emergency Boration?

- A. To prevent cavitation of the Boric Acid pumps.
- B. To prevent lifting the VCT relief valve.
- C. To prevent the charging pumps from operating in a runout condition.
- D. To prevent the VCT pressure from stopping gravity flow from the Boric Acid Tanks.

Explanation: With LCV-218-2 open, VCT pressure will prevent gravity flow from the boric acid storage tank to the charging pump suctions. Choice D is correct. The other choices are incorrect.

Question 30 K/A # 004000 K1.22

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

RO Importance 3.4 SRO Importance 3.7 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0717-03 01.00

Use the Emergency Boration AOP to mitigate the consequences of an uncontrollable or unexplained positive reactivity addition.

KA#: 004000 K1.22
LP# / Objective: 0717-03 01.00
Cognitive Level: HIGH
Reference: STM 12

Bank Ref #: 07-17-03 004
Exam Level: RO
Source: NRC EXAM 2001.2
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 031

Plant controls are aligned as follows:

- Channel X is selected as the controlling pressurizer level channel, with the controller in CASCADE
- CH-1A control switch is in the PULL-TO-LOCK position
- CH-1B is running and the control switch is in the AFTER START position
- CH-1C is stopped and the control switch is in the AFTER STOP position
- Charging pumps mode selector switch is in the CH-1A / CH-1B position

What Charging Pumps will be running if LT-101X fails high?

- A. No charging pumps will be running.
- B. Only CH-1B will be running.
- C. Only CH-1C will be running.
- D. CH-1B and CH-1C will be running.

Explanation: CH-1A is off with its switch in pull to lock. CH-1C is off and is not selected as a controlled pump. CH-1B is a controlled pump and will trip off on high level. Therefore A is correct and the other choices are incorrect.

Question 31 K/A # 004000 K6.24

Knowledge of the effect of a loss or malfunction on the following CVCS components: Controllers and positioners

RO Importance 2.5 SRO Importance 2.6 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0711-02 01.03

EXPLAIN the automatic and manual controls associated with the charging pumps and boric acid pumps.

KA#: 004000 K6.24
LP# / Objective: 0711-02 01.03
Cognitive Level: HIGH
Reference: STM 12

Bank Ref #: 07-11-02 014
Exam Level: RO
Source: NRC FCS 2001-1
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 032

The Reactor Coolant System is being cooled down and shutdown cooling was placed in operation 30 minutes ago. What will be the impact of a pressure transient which causes RCS pressure to rise to 260 psia?

- A. PORVs will lift and will automatically reclose.
- B. LPSI pumps will trip and will need to be restarted.
- C. LPSI injection valves will close and will need to be reopened.
- D. Shutdown Cooling Suction Valves will close and will need to be reopened.**

Explanation: The shutdown cooling suction valves will close at 250 psia, D is the correct answer. PORVs will open on high pressure, but much higher than 260 psia at the temperature where shutdown cooling is initiated. A is incorrect. B and C are incorrect because these components do not respond to high pressure.

Question 32 K/A # 005000 A2.02

Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Pressure transient protection during cold shutdown

RO Importance 3.5 SRO Importance 3.7 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.13
FCS Lesson Plan / Objective 0711-22 01.03

Explain the indications located in the Control Room associated with ECCS.

Changed distractor C per NRC review comment.

KA#:	005000 A2.02	Bank Ref #:	NONE
LP# / Objective:	0711-22 01.03	Exam Level:	RO
Cognitive Level:	LOW	Source:	NEW
Reference:	STM 15	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 033

Which one of the following is a flowpath that is established in EOP Attachment 8, "Cooled SI Flow with RAS"?

- A. A HPSI pump takes a suction from the containment sump and provides flow through the shutdown cooling heat exchangers to the cold legs.
- B. A LPSI pump takes a suction from the containment sump and provides flow through the shutdown cooling heat exchangers to the cold legs.
- C. A LPSI pump takes a suction from the containment sump and provides flow through the shutdown cooling heat exchangers to the suction of the HPSI pumps.
- D. A Containment Spray pump takes a suction from the containment sump and provides flow through the shutdown cooling heat exchangers to the suction of the HPSI pumps.

Explanation: Cooled SI flow with RAS uses the flowpath in step D. Choices B and C are both viable lineups, but not cooled SI flow. Choice A incorrect because flow from the HPSI pumps can not be directed through the shutdown cooling heat exchangers.

Question 33 K/A # 005000 K4.11

Knowledge of RHRS design feature(s) and/or interlock(s) which provide or the following:Lineup for low head recirculation mode (external and internal)

RO Importance 3.5* SRO Importance 3.9* 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-22 01.11

Explain the various methods of accomplishing long term cooling under abnormal and emergency conditions in accordance with EOP-03, attachment 4 and 7 through 11.

KA#: 005000 K4.11
LP# / Objective: 0711-22 01.11
Cognitive Level: LOW
Reference: EOP-AOP ATT 8

Bank Ref #: 07-18-13 032
Exam Level: RO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 034

The plant is operating at full power. LPSI Pump SI-1B has been tagged out of service for 2 days and Tech. Spec. 2.3.2 (7 day LCO) has been entered.

DG #1 has just been declared inoperable due to a lube oil Leak.

Assuming plant equipment status does not change, which one of the following actions should be taken per Technical Specifications.

- A. Enter Tech Spec. 2.0.1 and be in Hot Shutdown within 6 hours.
- B. Enter Tech. Spec. 2.7 and start DG-2 to verify operability. Operation may continue for 5 days.
- C. Enter Tech. Spec. 2.7 and inspect DG-2 for oil leaks. Operation may continue for 5 hours.
- D. Enter Tech. Spec. 2.7 and inspect DG-2 for oil leaks. Operation may continue for 7 days.

Explanation: The emergency power supply for LPSI pump SI-1B is DG-2. The referenced TS states that "Either DG may be inoperable for up to 7 days, provided there are no inoperable required engineered safeguards components associated with the operable DG. Since there is, we are in TS 2.0.1 and A is correct. An incorrect application of Tech Specs can lead to choices B, C or D.

Question 34 K/A # 064000 2.1.33

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

RO Importance 3.4 SRO Importance 4.0 10 CFR 55 Section 43.2 / 43.3 / 45.3

FCS Lesson Plan / Objective 0713-05 01.18

State the limiting condition for operation for the EDG and the modification of minimum requirements specific to the EGD's.

KA#: 064000 2.1.33
LP# / Objective: 0713-05 01.18
Cognitive Level: HIGH
Reference: T.S 2.7(2)J

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 035

There was a large LOCA inside containment 30 seconds ago. All 4160 V buses are being supplied by 161 KV. The following ESF actions have occurred.

PPLS, CPHS, CSAS, SGIS, SIAS and VIAS.

What additional ESF Actuation should have occurred automatically and must be initiated manually to ensure proper event mitigation?

- A. CIAS
- B. SGLS
- C. STLS
- D. OPLS

Explanation: CIAS (containment isolation) should have initiated automatically as a result of PPLS (pressurizer pressure low) or CPHS (containment pressure high). SGLS (Steam generator low pressure) should not occur for this event. STLS (SIRWT low level) will not occur for at least 20 minutes and OPLS (Offsite Power Low) will not occur unless buses are deenergized.

Question 35 K/A # 006000 A4.06

Ability to manually operate and/or monitor in the control room:ESF control panel
RO Importance 4.4 SRO Importance 4.4 10 CFR 55 Section 41.7 / 45.5 to 45.8
FCS Lesson Plan / Objective 0712-14 03.01
STATE plant conditions that require manual initiation of engineered safeguards.

KA#:	006000 A4.06	Bank Ref #:	NONE
LP# / Objective:	0712-14 03.01	Exam Level:	RO
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 19	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 036

The design function of the Pressurizer Quench Tank is to _____ without discharging steam to containment.

- A. condense the steam from the PORVs and Safety Valves following a full power load rejection without pressurizer spray.
- B. condense the steam from the PORVs and Safety Valves following a 50% load rejection without pressurizer spray.
- C. condense the steam from a single stuck open PORV.
- D. condense the steam from two stuck open PORVs.

Explanation: The design function of the PQT is to condense the steam from a full (112%) load rejection without letdown or sprays (choice A) Choice B is smaller than the design capacity. Choices C and D will cause the rupture disk to break releasing steam to containment.

Question 36 K/A # 007000 2.1.28

Knowledge of the purpose and function of major system components and controls.

RO Importance 3.2 SRO Importance 3.3 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-20 01.09

EXPLAIN the purpose of the quench tank.

KA#: 007000 2.1.28

Bank Ref #: NONE

LP# / Objective: 0711-20 01.09

Exam Level: RO

Cognitive Level: LOW

Source: NEW

Reference: STM 37

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 037

Component Cooling Water Pump discharge header pressure is normally about _____ psig.

- A. 40
- B. 90
- C. 125
- D. 150

Explanation: The normal operating pressure for the CCW pump discharge header is 90 psig (choice B). Choice A is the pressure of the CCW surge tank. Choice D is the system design pressure. Choice C is significantly above normal pressure.

Question 37 K/A # 008000 A3.06

Ability to monitor automatic operation of the CCWS, including: Typical CCW pump operating conditions, including vibration and sound levels and motor current

RO Importance 2.5 SRO Importance 2.5 10 CFR 55 Section 41.7 / 45.5

FCS Lesson Plan / Objective 0711-06 04.03

Given a copy of the Control Room Log, EXPLAIN normal CCW System parameters such as pressure, temperature and flow rate.

KA#: 008000 A3.06
LP# / Objective: 0711-06 04.03
Cognitive Level: LOW
Reference: OI-CC-1

Bank Ref #: NONE
Exam Level: RO
Source: BANK
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 038

What plant design features are used to prevent thermal shock to the pressurizer spray nozzles?

- A. Continuous spray valve bypass flow and a low spray line temperature alarm.
- B. Continuous spray valve bypass flow and a high spray line temperature alarm.
- C. A mechanical stop which prevents the spray valves from closing fully and a low spray line temperature alarm.
- D. A mechanical stop which prevents the spray valves from closing fully and a high spray line temperature alarm.

Explanation: Continuous spray bypass flow is provided along with a low spray line temperature alarm that comes in if spray temperature is too low, choice A.

Question 38 K/A # 010000 K4.01

Knowledge of PZR PCS design feature(s) and/or interlock(s) which provide for the following: Spray valve warm-up

RO Importance 2.7 SRO Importance 2.9 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-20 01.06

DESCRIBE the general design of the pressurizer.

KA#: 010000 K4.01
LP# / Objective: 0711-20 01.06
Cognitive Level: LOW
Reference: STM 37

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 039

The plant is operating at full power when a RPS Hi Power pretrip comes in and indication on the associated power range NI channels becomes erratic. A few minutes later, a high power pretrip is received on another channel and its indication is erratic.

Which one of the following actions should be taken to restore the NI channels to normal operation.

- A. Increase CCW flow to the detector well cooling system.
- B. Power the associated instrument buses from their bypass inverters.
- C. Bypass the associated trip units on both erratic channels.
- D. Place an additional containment cooling unit in service.

Explanation: Erratic detector indication can result from inadequate detector well cooling, in which case increasing cooling would fix the problem (choice A). Although D may help over a longer time frame, it will not have the immediate result that increasing CCW flow to the detector well cooling system would. Choice B is incorrect because more instrumentation would be involved. Choice C is incorrect because bypassing the same TUs on two different channels is not allowed.

Question 39 K/A # 012000 A2.05

Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Faulty or erratic operation of detectors and function generators
RO Importance 3.1* SRO Importance 3.2* 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.5

FCS Lesson Plan / Objective 0714-05 01.00

Explain the principles of operation of the Detector Well Cooling System.

KA#:	012000 A2.05	Bank Ref #:	NONE
LP# / Objective:	0714-05 01.00	Exam Level:	RO
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 10	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 040

Who must give permission before bypassing an Engineered Safeguards Function?

- A. The Shift Manager or CRS.
- B. The Manager-Operations or Supervisor- Shift Operations.
- C. The Plant Manager or Work Week Manager.
- D. The Plant Review Committee (PRC)

Explanation: According to OPD-4-11 the Shift Manager or the CRS may make the decision unilaterally, choice A. Permission from the positions listed in Choices B,C and D is not required.

Question 40 K/A # 013000 2.1.14

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

RO Importance 2.5 SRO Importance 3.3 10 CFR 55 Section 43.5 / 45.12

FCS Lesson Plan / Objective 0767-05 02.00

DESCRIBE the Performance Standards listed in the OPD Manual.

KA#: 013000 2.1.14

Bank Ref #: NONE

LP# / Objective: 0767-05 02.00

Exam Level: RO

Cognitive Level: LOW

Source: NEW

Reference: OPD-4-11

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 041

The following conditions exist:

- A normal plant cooldown is in progress.
- The PPLS Block switches have been placed in the BLOCK position.
- RCS pressure is 1635 psia
- Pressurizer pressure channels A/P-102 and B/P-102 fail high.

Which one of the following will occur as a result of this sequence of events?

- A. PPLS Block will reset and PPLS will occur.
- B. PPLS Block will reset but PPLS will not occur.
- C. PPLS Block will not reset but PPLS will occur.
- D. PPLS Block will not reset and PPLS will not occur.

Explanation: With channels A and B failed high, power will be lost to the PPLS block relays and PPLS block will reset. PPLS will not occur because pressure is above 1600 psia, B is correct. A would be correct if pressure was less than 1600 psia. D would be correct if a different combination of channels was used. C is incorrect because PPLS block will reset and PPLS will not occur.

Question 41 K/A # 013000 K4.01

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

RO Importance 3.9 SRO Importance 4.3 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0712-14 02.03

EXPLAIN how to block, override or defeat ESC functions and how those functions are reinstated.

KA#: 013000 K4.01
LP# / Objective: 0712-14 02.03
Cognitive Level: HIGH
Reference: STM 19

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 042

The plant is at 100% power when a steamline break occurs outside containment. A TM/LP reactor trip occurs followed by a PPLS.

Which of the following statements describes the response of the Containment Ventilation system?

- A. Both the Cooling Unit fans, VA-7C and VA-7D, and the Cooling and Filtering Unit fans, VA-3A and VA-3B, will automatically start.
- B. The Cooling Unit fans, VA-7C and VA-7D, will automatically start but the Cooling and Filtering Unit fans, VA-3A and VA-3B, will not.
- C. The Cooling and Filtering Unit fans, VA-3A and VA-3B, will automatically start but the Cooling Unit fans, VA-7C and VA-7D, will not.
- D. Neither the Cooling Unit fans, VA-7C and VA-7D, nor the Cooling and Filtering Unit fans, VA-3A and VA-3B, will start.

Explanation: On a PPLS (low pressurizer pressure) initiation without a CPHS (high containment pressure) initiation, the cooling and filtering unit fans start but the cooling unit fans do not, choice C. Choice A would be correct if both PPLS and CPHS occur (brak inside of containment). Choice B has the logic reversed, and choice D is incorrect because the Cooling and Filtering Unit Fans do start.

Question 42 K/A # 022000 A4.01

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

RO Importance 3.6 SRO Importance 3.6 10 CFR 55 Section 41.7 / 45.5 to 45.8

FCS Lesson Plan / Objective 0714-02 01.04

Explain automatic controls associated with the Containment Air Cooling and Filtering System.

Replaced Question 2 following NRC exam comment that question 2 may help provide answer to this question.

KA#: 022000 A4.01

Bank Ref #: 07-14-02 023

LP# / Objective: 0714-02 01.04

Exam Level: RO

Cognitive Level: LOW

Source: BANK

Reference: STM 10

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 043

A LOCA occurred coincident with a loss of offsite power. DG-1 failed to start. Assuming that no actions are taken to cross-tie buses, what is the status of power supply to the containment spray pumps 2 minutes after CPHS actuation?

- A. Power is being supplied to SI-3A. Power is available to SI-3C.
- B. Power is being supplied to SI-3B. Power is available to SI-3C.
- C. Power is being supplied to SI-3C. Power is available to SI-3A.
- D. Power is being supplied to SI-3C. Power is available to SI-3B.

Power will be available to SI-3B (bus 1B4B) and SI-3C (bus 1B3B-4B), but SI-3C does not receive an auto start signal. No power will be available to SI-3A unless busses are cross-tied. Thus choice B is correct, all other choices are incorrect.

Question 43 K/A # 026000 K2.01

Knowledge of bus power supplies to the following: Containment spray pumps

RO Importance 3.4* SRO Importance 3.6 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-22 01.10

State the power supply for each major pump in the ECCS.

KA#: 026000 K2.01
LP# / Objective: 0711-22 01.10
Cognitive Level: HIGH
Reference: STM 15

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 044

Following an uncomplicated reactor trip, pressure in the steam generators was being maintained at approximately 900 psia due to the operation of PCV-910.

If PCV-910 is manually closed, at what approximate S/G pressure will TCV-909-1, TCV-909-2, TCV-909-3 and TCV-909-4 begin to open?

- A. 890-910 psia.
- B. 915- 935 psia
- C. 955-975 psia
- D. 990- 1010 psia

PCV-910 normally controls pressure at 900 psia. With PCV-910 closed, the TCV-909 valves will receive an open signal at 540°F (963 psia) making choice C correct. Choice D would be correct if TCV-909 valves were also closed and S/G safety valves opened. After opening, the 909 valves will not fully close until 535°F (925 psia).

Question 44 K/A # 039000 A1.06

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits)

associated with operating the MRSS controls including: Main steam pressure

RO Importance 3.0 SRO Importance 3.1 10 CFR 55 Section 41.5 / 45.5

FCS Lesson Plan / Objective 0712-31 02.02

EXPLAIN the actions necessary to control main steam pressure using the steam dump and turbine bypass valves if the automatic pressure and temperature control outputs from the RRS are not available.

KA#: 039000 A1.06
LP# / Objective: 0712-31 02.02
Cognitive Level: HIGH
Reference: STM 36

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 045

The reactor is operating at 50% power near the end of an operating cycle. Group 4 CEAs are at 100". A transient occurs which causes reactor power to lower and RCS T-cold to rise.

Which one of the following could be the cause of this event?

- A. Inadvertent CEA withdrawal
- B. Inadvertent CEA insertion
- C. Inadvertent opening of the turbine control valves
- D. Inadvertent closing of the turbine control valves**

Explanation: At EOC the MTC is always negative. Therefore, a transient that causes reactor power to lower and RCS temperature to rise must involve a decrease in secondary heat removal, choice D. In choice A Power and temperature would both rise, In choice B both would decrease and in choice C, power would increase and temperature would decrease.

Question 45 K/A # 039000 K3.05

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

RO Importance 3.6 SRO Importance 3.7 10 CFR 55 Section 41.7 / 45.6

FCS Lesson Plan / Objective 0715-12 01.03

PLOT and PREDICT the following parameters for the transients listed in objective 1.2:

KA#: 039000 K3.05

Bank Ref #: 07-15-07 003

LP# / Objective: 0715-12 01.03

Exam Level: RO

Cognitive Level: HIGH

Source: NRC EXAM 2001.2

Reference: LP 0715-17

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 046

A Steam Generator Isolation Signal (SGIS) has isolated Feed Water to both Steam Generators. All Main Feedwater pumps are tripped. Auxiliary Feedwater Pump, FW-6, is running. Which of the following manual actions will result in water being provided to Steam Generator, RC-2B's, Feed Ring?

- A. Open HCV-1384, Override and Open HCV-1104 and FCV-1102
- B. Open HCV-1384, Override and Open HCV-1385 and HCV-1106**
- C. Open HCV-1385, Override and Open HCV-1104 and FCV-1102
- D. Open HCV-1385, Override and Open HCV-1104 and HCV-1106

Explanation: Choice B will provide a flowpath to RC-2B's feed ring and is correct. For choice A, HCV-1385 will prevent flow. For choices C and D, HCV-1384 will prevent flow.

Question 46 K/A # 059000 A2.01

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

RO Importance 3.4* SRO Importance 3.6* 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.13

FCS Lesson Plan / Objective 0711-01 01.02

EXPLAIN the operation of controls located in the Control Room associated with AFW components.

KA#: 059000 A2.01
LP# / Objective: 0711-01 01.02
Cognitive Level: HIGH
Reference: STM 04

Bank Ref #: 07-11-01 007
Exam Level: RO
Source: NRC EXAM 2001.2
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 047

The plant was operating at full power with both feedwater regulating valves approximately 70% open when the following alarms were received on CB-10,11 panel A9 due to a loss of instrument air pressure:

"AI-10A, FW REG SYS, POWER SUPPLY TROUBLE, FCV-1101 TROUBLE"

"AI-10B, FW REG SYS, POWER SUPPLY TROUBLE, FCV-1102 TROUBLE"

Following restoration of instrument air pressure, operating the HC-1101 and HC-1102 solenoid power reset switches will:

- A. Allow the failed closed regulating valves to be throttled open.
- B. Allow the failed open regulating valves to be throttled closed.
- C. Allow the failed as-is (70%) regulating valves to be repositioned.
- D. Allow the failed mid-position (50%) regulating valves to be repositioned.

Explanation: On low instrument air pressure, solenoid valves trap the air from the valve positioner causing the valves to fail as is, choice C. Choices A, B and D are incorrect because the valves do not fail closed, open or mid-position unless they were originally in those positions.

Question 47 K/A # 059000 A4.08

Ability to manually operate and monitor in the control room:Feed regulating valve controller

RO Importance 3.0* SRO Importance 2.9* 10 CFR 55 Section 41.7 / 45.5 to 45.8

FCS Lesson Plan / Objective 0711-11 02.00

DESCRIBE the indications and controls available and EXPLAIN the control system automatic protective features, interlocks and tracking circuits.

KA#: 059000 A4.08
LP# / Objective: 0711-11 02.00
Cognitive Level: LOW
Reference: STM 20

Bank Ref #: 07-11-11 058
Exam Level: RO
Source: BANK
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 048

The plant has tripped as a result of a loss of feedwater. All attempts to start auxiliary feedwater pumps have failed. The operators did not initiate once-through-cooling when required by procedure. Once-through-cooling was initiated when the steam generators were dry and RCS T-hot was 600°F.

How will the RCS pressure respond to the initiation of once-through-cooling at this time?

- A. RCS pressure will continue to increase until the Safety Valves open due to the limited capacity of the PORVs.
- B. RCS pressure will lower initially to a pressure above the HPSI pumps' discharge pressure and will then continue to lower at a reduced rate.
- C. RCS pressure will lower initially to a pressure below the HPSI pumps' discharge pressure and will then continue to lower at a reduced rate.
- D. RCS pressure will lower initially to a pressure below the Safety Injection Tanks' Injection pressure and will then continue to lower at a reduced rate.

The RCS pressure will drop to saturation pressure when once through cooling is initiated. For 600°F, that is 1543 psia. The HPSI shutoff head is 1389 psia. SIT pressure is 240 psia. Therefore, choice B is correct and all other choices are incorrect.

Question 48 K/A # 061000 K3.01

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

RO Importance 4.4 SRO Importance 4.6 10 CFR 55 Section 41.7 / 45.6

FCS Lesson Plan / Objective 0715-17 02.04

EXPLAIN the process of once through cooling.

KA#: 061000 K3.01
LP# / Objective: 0715-17 02.04
Cognitive Level: HIGH
Reference: LP 07-15-17

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: STEAM TABLES

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 049

Given the following conditions:

- The plant is at 100% power.
- 4160 V bus 1A1 feeder breaker, 1A11, tripped and is locked out due to a breaker malfunction.

Which of the following loads is lost as a result of deenergizing 1A1?

- A. Raw water pump AC-10B
- B. Condensate pump FW-2A
- C. Aux. feedwater pump FW-6.
- D. Miscellaneous power and lighting transformer TIC-3A.

Explanation: FW-2A is powered from bus 1A1. The other loads are not. Choice B is the only correct answer.

Question 49 K/A # 062000 K2.01

Knowledge of bus power supplies to the following:Major system loads

RO Importance 3.3 SRO Importance 3.4 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0713-02 01.00

When given specific plant conditions, apply operating principles to diagnose 4160 System response including:

KA#: 062000 K2.01
LP# / Objective: 0713-02 01.00
Cognitive Level: LOW
Reference: STM 20

Bank Ref #: 07-13-02 006
Exam Level: RO
Source: NRC FCS 1999
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 050

While in the process of lining up to energize both instrument busses "A" and "C" from inverter "A", the operator should:

- A. Monitor load on inverter "A" to minimize the potential for tripping the inverter due to overload.
- B. Monitor load on Instrument bus "C" because the cross-tie breakers are not sized to carry full instrument bus load.
- C. Monitor the AC voltage output of inverter "A" to minimize the potential for the inverter tripping on undervoltage.
- D. Monitor inverter temperature to minimize the potential for the inverter to overheat and start a fire.

Explanation: Load (current) must be monitored to ensure that the current does not exceed 62.5 amps, the inverter output capacity. Choice A is correct. B is incorrect because the cross tie breakers can handle full instrument bus load. Choice C is incorrect because an undervoltage condition will result in high current. Choice D is a credible, but incorrect, distractor.

Question 50 K/A # 063000 2.1.32

Ability to explain and apply all system limits and precautions.

RO Importance 3.4 SRO Importance 3.8 10 CFR 55 Section 41.10 / 43.2 / 45.12

FCS Lesson Plan / Objective 0713-04 01.00

Explain the operation of 125 VDC and 120 VAC Electrical Distribution Systems.

KA#: 063000 2.1.32
LP# / Objective: 0713-04 01.00
Cognitive Level: LOW
Reference: OI-EE-4

Bank Ref #: 07-13-04 006
Exam Level: RO
Source: NRC EXAM 2001-2
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 051

Diesel-Generator #2 was out of service when an extended loss of offsite power occurred due to a severe storm. Diesel-Generator #1 is operating as designed. FW-6 is being used to provide feedwater.

It is estimated that it will take more than 24 hours to deliver additional fuel oil to the site for continued operation of Diesel-Generator #1.

How will fuel oil be supplied to Diesel-Generator #1 until a fuel oil delivery arrives at the plant?

- A. A cross tie will be opened to allow fuel oil from Diesel-Generator #2's auxiliary tank to be supplied to D/G-1's base tank.
- B. A cross tie will be opened to allow fuel oil from Diesel-Generator #2's auxiliary tank to be supplied to D/G-1's auxiliary tank.
- C. A cross tie will be opened to allow fuel oil from Aux Boiler Storage Tank, FO-10, to supply fuel oil to D/G-1's auxiliary tank via the transfer pumps.
- D. A temporary fuel oil transfer system will be used to transfer fuel oil from Aux Boiler Storage Tank, FO-10, to fuel oil storage tank, FO-1.

Explanation: Choice D is the procedural method. The other choices are not proceduralized. All involve running hoses.

Question 51 K/A # 064000 K1.03

Knowledge of the physical connections and/or cause-effect relationships between the ED/G system and the following systems: Diesel fuel oil supply system

RO Importance 3.6 SRO Importance 4.0 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0713-05 01.16

Explain emergency operation of the EDG.

Changed stem wording per NRC review comment ("it estimated" to "it is estimated")

KA#: 064000 K1.03
LP# / Objective: 0713-05 01.16
Cognitive Level: LOW
Reference: STM 16 2.189

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 052

Process Radiation Monitor "Alert" setpoints are adjusted per the Offsite Dose Calculation Manual and are based on:

- A. 10 CFR 20 limits for continuous release.
- B. 10 CFR 20 limits for instantaneous release.
- C. 10 CFR 100 limits at the Exclusion Area Boundary.
- D. 10 CFR 100 limits at the Low Population Zone Boundary.

Explanation: The alert setpoints are based on choice A. The other choices are plausible but incorrect.

Question 52 K/A # 073000 K5.03

Knowledge of the operational implications as they apply to concepts as they apply to the PRM system: Relationship between radiation intensity and exposure limits

RO Importance 2.9* SRO Importance 3.4 10 CFR 55 Section 41.5 / 45.7

FCS Lesson Plan / Objective 0712-03 02.02

STATE the two alarm setpoints for most monitors and EXPLAIN what each setpoint designates.

KA#: 073000 K5.03
LP# / Objective: 0712-03 02.02
Cognitive Level: LOW
Reference: STM 33 2.27

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 053

All raw water flow has been lost to the CCW heat exchangers. Once the plant is tripped, which one of the following describes the best RCS temperature control mode allowed per AOP-18?

- A. Forced convection with 4 RCPs since RCP cooling will be unaffected.
- B. Forced convection with 3 RCPs since CCW can usually support the operation of 3 RCPs for a period of time.
- C. Forced convection with 1 RCP per loop since CCW can usually support the operation of 2 RCPs for a period of time.
- D. Once through cooling due to loss of ability to enter shutdown cooling.

Explanation: Choice C is the AOP-18 configuration. The other choices are not.

Question 53 K/A # 076000 K3.01

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

RO Importance 3.4* SRO Importance 3.6 10 CFR 55 Section 41.7 / 45.6

FCS Lesson Plan / Objective 0717-18 01.02

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

KA#: 076000 K3.01
LP# / Objective: 0717-18 01.02
Cognitive Level: HIGH
Reference: AOP-18

Bank Ref #: 07-17-18 003
Exam Level: RO
Source: NRC FCS 1999
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 054

Service Air Auto Isolation valve, PCV-1753, will automatically close due to:

- A. High Service Air Moisture.
- B. High Instrument Air Moisture.
- C. Low Service Air Pressure.
- D. Low Instrument Air Pressure.

Explanation: PCV-1753 closes on low instrument air pressure. Choice D is correct. The other choice are conditions of concern that do not impact automatic operation of PCV-1753.

Question 54 K/A # 078000 K1.02

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

RO Importance 2.7* SRO Importance 2.8 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0717-17 01.02

Describe how the plant responds to a loss of instrument air in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

KA#: 078000 K1.02
LP# / Objective: 0717-17 01.02
Cognitive Level: LOW
Reference: STM 43

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 055

The following plant conditions exist:

- The reactor has tripped.
- Containment pressure is 2.1 psig.
- Containment temperature is 105°F.
- RM-052, RM-057 and RM-054A are in alarm.
- VIAS has actuated.

Which one of the following actions must be taken to satisfy the EOP-20 Containment Integrity Safety Function.

- A. Containment pressure must be reduced.
- B. Containment Temperature must be reduced.
- C. Steam Generator 'A' must be isolated.
- D. VIAS must be reset.

Explanation: These are indications of a S/G tube rupture. Containment integrity will not be met until the S/G is isolated. C is correct, the other distractors are not.

Question 55 K/A # 103000 2.4.06

Knowledge symptom based EOP mitigation strategies.

RO Importance 3.1 SRO Importance 4.0 10 CFR 55 Section 41.10 / 43.5 / 45.13

FCS Lesson Plan / Objective 0718-18 01.00

USE the Functional Recovery Procedure (EOP-20) to bring the reactor, Reactor Coolant System and containment to a safe and stable condition.

KA#: 103000 2.4.06
LP# / Objective: 0718-18 01.00
Cognitive Level: HIGH
Reference: EOP-20

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 056

The group 4 CEAs will be partially inserted into the core for an approved core physics test. During the CEA insertion, reactor power will be held constant and RCS T-cold will be maintained at its programmed value. Assuming the reactivity change due to CEA insertion is the same, Conducting this test at end of cycle will require a _____ change in boron concentration and _____ dilution water than conducting this test at beginning of cycle.

- A. larger, more
- B. larger, less
- C. smaller, more
- D. smaller, less

Explanation: At EOC, the boron worth is greater so it takes a smaller change in boron concentration but it also takes much more dilution water per ppm change, Choice C is the only correct answer.

Question 56 K/A # 001000 K5.28

Knowledge of the following operational implications as they apply to the CRDS: Boron reactivity worth vs. boron concentration, i.e., amount of boron needed (ppm) to change core reactivity to desired amount

RO Importance 3.5 SRO Importance 3.8 10 CFR 55 Section 41.5 / 45.7

FCS Lesson Plan / Objective 0711-02 03.05

CALCULATE the amount of concentrated boric acid or water required to adjust Reactor Coolant System boron concentration.

Changed stem wording per NRC review comment.

KA#: 001000 K5.28
LP# / Objective: 0711-02 03.05
Cognitive Level: HIGH
Reference: STM 12

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 057

The following conditions exist during an RCS heatup:

- RCS pressure is 1950 psia and rising
- RCS temperature is 450°F and rising
- Pressurizer level is 50% and steady
- Two charging pumps are running.
- Three reactor coolant pumps are running.

What action must be taken before the fourth Reactor Coolant Pump can be started?

- A. RCS Pressure must be raised to 2000 psia.
- B. RCS temperature must be raised to 500° F.
- C. Pressurizer level must be lowered to 48%.
- D. One charging pump must be stopped.

Explanation: No more than three RCPs can be operated with RCS temperature below 500°F due to core lift concerns, choice B. RCP operation is not prevented by the other choices.

Question 57 K/A # 002000 A1.08

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits)

associated with operating the RCS controls including:RCS average temperature

RO Importance 3.7 SRO Importance 3.8 10 CFR 55 Section 41.5 / 45.7

FCS Lesson Plan / Objective 0711-20 02.03

LIST the limiting conditions for a RCP start.

KA#: 002000 A1.08
LP# / Objective: 0711-20 02.03
Cognitive Level: HIGH
Reference: OP-3A

Bank Ref #: 07-11-20 023
Exam Level: RO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 058

Programmed pressurizer level varies from 48% at zero power to 60% at full power. Which one of the following parameters is used as an input to determine the programmed pressurizer level.

- A. RCS Average Temperature.
- B. Turbine First Stage Pressure.
- C. NI Power
- D. Delta-T Power

Explanation: Programmed pressurizer level is determined from RCS average temperature, choice A. The parameters listed in the other choices all increase as programmed pressurizer level increases, but provide no input to the programmed level.

Question 58 K/A # 011000 K1.02

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

RO Importance 3.7 SRO Importance 3.8 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0711-20 04.02b

Using the applicable P&ID, IDENTIFY each of the following RCS Instrumentation Subsystems:

Pressurizer level, temperature and pressure

KA#: 011000 K1.02
LP# / Objective: 0711-20 04.02B
Cognitive Level: LOW
Reference: STM 36

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 059

A reactor startup is in progress when SCEAPIS and the core mimic lights indicate that a Group 4 CEA dropped into the core. Which of the following actions is required as a result of this event?

- A. The CEDM Control Mode Selector switch must be placed in "OFF"
- B. The other group 4 CEAs must be inserted into the core using the "Group" Mode.
- C. The dropped CEA must be recovered.
- D. The reactor must be tripped.**

Explanation: If a single CEA drops during a reactor startup, the reactor must be tripped, choice D. Choice A is the action for uncontrolled CEA movement. Choice B is the action for a misaligned CEA at power, Choice C also applies to at power situations.

Question 59 K/A # 014000 2.4.49

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

RO Importance 4.0 SRO Importance 4.0 10 CFR 55 Section 41.10 / 43.2 / 45.6

FCS Lesson Plan / Objective 0717-02 01.05

Given the caution statements and/or notes listed in this AOP, explain the reason for each.

KA#:	014000 2.4.49	Bank Ref #:	07-17-02 005
LP# / Objective:	0717-02 01.05	Exam Level:	RO
Cognitive Level:	LOW	Source:	MODIFIED
Reference:	AOP-02	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 060

Which one of the following Power Range Nuclear Instrumentation Channel outputs would continue to function normally if the channel's Power Summing Amplifier failed to provide a summed (U+L)/2 output signal?

- A. The Subchannel Deviation Measurement.
- B. Axial Shape Index
- C. The TM/LP Trip Calculator.
- D. The Level 1 bistable.

Explanation: The subchannel deviation measurement uses the subchannel outputs before they go to the summing amplifier, choice A. The other choices all use the summed output.

Question 60 K/A # 015000 K6.03

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

NIS:Component interconnections

RO Importance 2.6 SRO Importance 3.0 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0712-19 01.07

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

KA#: 015000 K6.03
LP# / Objective: 0712-19 01.07
Cognitive Level: LOW
Reference: STM 29

Bank Ref #: 07-12-19 031
Exam Level: RO
Source: BANK REWORD
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 061

Which one of the following conditions would indicate that natural circulation cooling may be losing its effectiveness?

- A. Cold leg temperature is 25°F lower than hot leg temperature.
- B. Cold leg temperature is 25°F lower than core exit thermocouple temperature.
- C. Hot leg temperature is 25°F lower than core exit thermocouple temperature.**
- D. Hot leg temperature is 25°F lower than pressurizer temperature.

Explanation: Choice A, B and D are all normal for single phase natural circulation. Choice C is abnormal because hot leg and CET temperatures should be within 10°F.

Question 61 K/A # 017000 A3.01

Ability to monitor automatic operation of the ITM system including: Indications of normal, natural, and interrupted circulation of RCS

RO Importance 3.6* SRO Importance 3.8* 10 CFR 55 Section 41.7 / 45.5

FCS Lesson Plan / Objective 0715-16 02.03

EXPLAIN the operator actions required to monitor and maintain subcooled natural circulation.

KA#: 017000 A3.01
LP# / Objective: 0715-16 02.03
Cognitive Level: HIGH
Reference: LP 07-15-16

Bank Ref #: 07-15-16 001
Exam Level: RO
Source: NRC FCS 1995
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 062

How is the spent fuel pool cooling system designed to maintain spent fuel pool water cleanliness?

- A. A portion of the spent fuel pool cooling system flow is diverted through a filter and demineralizer.
- B. All of the spent fuel pool cooling system flow goes through a filter. A portion is diverted to flow through a demineralizer.
- C. All of the spent fuel pool cooling system flow goes through a demineralizer. A portion is diverted to flow through a filter.
- D. All of the spent fuel pool cooling system flow goes through a filter and demineralizer.

Explanation: A portion of the flow is directed through a filter and demineralizer, choice A. All of the flow does not go through either component making the other choices incorrect.

Question 62 K/A # 033000 K4.02

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

RO Importance 2.5 SRO Importance 2.7 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-24 01.03d

STATE the function of each of the following major components of the Spent Fuel Pool Cooling System: Demineralizer (AC-7)

KA#: 033000 K4.02
LP# / Objective: 0711-24 01.03D
Cognitive Level: LOW
Reference: STM 44

Bank Ref #: 07-11-24 012
Exam Level: RO
Source: NRC 02 EXAM
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 063

The plant is operating at 80% power with Feedwater Regulating Valve, LCV-1101 in manual control. Turbine load is increased which causes steam flow from S/G RC-2A to increase and also causes level in S/G RC-2A to swell to 68%.

How should Feedwater Regulating Valve, LCV-1101 be manually controlled during this power change?

- A. LCV-1101 should be opened further due to the increasing steam flow.
- B. LCV-1101 should be closed further due to the increasing S/G level.
- C. LCV-1101 should not be moved due to the conflicting steam flow and level trends.
- D. LCV-1101 will be automatically closed due to the high S/G level and will need to be reopened using the auxiliary controller.

Explanation: The feed reg valve will need to be opened further to match the increased steam flow, choice A is correct and B and C are incorrect. Choice D would be correct if the level was 85% or higher,

Question 63 K/A # 035000 A2.04

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

RO Importance 3.6 SRO Importance 3.8 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.5

FCS Lesson Plan / Objective 0711-11 02.02

DESCRIBE the controls located in the Control Room associated with the feedwater components.

KA#: 035000 A2.04
LP# / Objective: 0711-11 02.02
Cognitive Level: HIGH
Reference: STM 20

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 064

Turbine bypass valve, PCV-910, receives an open signal from both high steam header pressure and high RCS temperature. How will placing the "AUTO/INHIBIT" switch, HC-909, in the "INHIBIT" position affect the operation of PCV-910?

- A. Operation of PCV-910 will not be affected.
- B. PCV-910 will open due to high steam header pressure but not due to high RCS temperature.
- C. PCV-910 will open due to high RCS temperature but not due to high steam header pressure.
- D. PCV-910 will not open in this condition.

Explanation: Placing HC-909 in Inhibit blocks the RCS temperature signal to the steam dump and bypass valves. PCV-910 is controlled by an auctioneered pressure and temperature signal, with the temperature signal blocked, PCV-910 will only respond to pressure, Choice B.

Question 64 K/A # 041000 A4.04

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

RO Importance 2.7* SRO Importance 2.7 10 CFR 55 Section 41.7 / 45.5 to 45.8

FCS Lesson Plan / Objective 0712-31 02.02

EXPLAIN the actions necessary to control main steam pressure using the steam dump and turbine bypass valves if the automatic pressure and temperature control outputs from the RRS are not available.

KA#: 041000 A4.04

Bank Ref #: NONE

LP# / Objective: 0712-31 02.02

Exam Level: RO

Cognitive Level: HIGH

Source: NEW

Reference: STM 25

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 065

How will a loss of the Circulating Water System's Screen Wash System affect the Raw Water Pumps?

- A. The Raw Water Pumps will lose their primary seal water source.
- B. The Raw Water Pumps will lose their backup seal water source.
- C. The Raw Water Pumps will lose their bearing cooling water source.
- D. The Raw Water Pumps will lose their sparging water source.**

Explanation: The screen wash system provides sparging for the Raw Water pumps. The water for the functions listed in the distractors comes from other sources, such as potable water or raw water.

Question 65 K/A # 075000 K3.01

Knowledge of the effect that a loss or malfunctions of the circulating water system will have on the following:SWS

RO Importance 2.3 SRO Importance 2.6 10 CFR 55 Section 41.7 / 45.6

FCS Lesson Plan / Objective 0711-19 05.00

EXPLAIN the parameters monitored and precautions taken when operating raw water pumps.

KA#: 075000 K3.01
LP# / Objective: 0711-19 05.00
Cognitive Level: LOW
Reference: STM 35 1.26

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 066

Which one of the following limitations is directly required as a condition in the Fort Calhoun Operating License?

- A. The Reactor Coolant System Pressure must not exceed 2750 psia.
- B. Containment Pressure must not exceed 60 psig.
- C. The Minimum DNBR must not be less than 1.18.
- D. The Steady State reactor core power level must not exceed 1500 megawatts thermal.

Explanation: The power level is a condition to the FCS license, choice D. Choices A and C are safety limits. Choice B is a design pressure.

Question 66 K/A # 000000 2.1.10

Knowledge of conditions and limitations in the facility license.

RO Importance 2.7 SRO Importance 3.9 10 CFR 55 Section 43.1 / 45.13

FCS Lesson Plan / Objective 0751-04 02.00

DISCUSS the general provisions, contents, standards, limitations and conditions of licenses and STATE the events that require one-hour and four-hour reports as required by Title 10, Part 50 of the Code of Federal Regulations.

KA#: 000000 2.1.10
LP# / Objective: 0751-04 02.00
Cognitive Level: LOW
Reference: LICENSE

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 067

The Official Control Room Log is being taken as a paper log due to a failure of the SOMS Narrative Log Module.

A RO rotated running CCW pumps but did not remember to log it for several hours. Which one of the following is the correct way for this entry to be made according to SO-O-1?

- A. Make a normal log entry and then draw a line to the page location where it should have been entered initially.
- B. Make a normal log entry marking it as a late entry in the time column.**
- C. Wait until the SOMS Narrative Log Module is working again and then enter the pump rotation in the proper sequence.
- D. Wait until the SOMS Narrative Log Module is working again and then enter the pump rotation as a late entry.

Explanation: Choice B is required per SO-O-1

Question 67 K/A # 000000 2.1.18

Ability to make accurate, clear and concise logs, records, status boards, and reports.

RO Importance 2.9 SRO Importance 3.0 10 CFR 55 Section 45.12 / 45.13

FCS Lesson Plan / Objective 0762-01 01.00

STATE the major sections of the Standing Orders.

KA#: 000000 2.1.18
LP# / Objective: 0762-01 01.00
Cognitive Level: LOW
Reference: SO-O-1 5.16.3G

Bank Ref #: ADM-OPS 007
Exam Level: RO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 068

Which of the following CANNOT be used to determine the current revision of a procedure?

- A. Check with Document Control.
- B. Use the Index on the Document Control Web Page.
- C. Check an official copy at locations listed in SO-G-7.
- D. Check Attachment 1 to SO-G-7.

Explanation: Choice D is the correct answer because SO-G-7 is not updated to reflect procedure revisions. The other choices are all specified as acceptable methods in SO-G-7.

Question 68 K/A # 000000 2.1.21

Ability to obtain and verify controlled procedure copy.

RO Importance 3.1 SRO Importance 3.2 10 CFR 55 Section 45.10 / 45.13

FCS Lesson Plan / Objective 0762-01 01.00

STATE the major sections of the Standing Orders.

KA#: 000000 2.1.21
LP# / Objective: 0762-01 01.00
Cognitive Level: LOW
Reference: SO-G-7 5.4.1

Bank Ref #: ADM-OPS 005
Exam Level: RO
Source: NRC EXAM 1995
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 069

During refueling, whenever irradiated fuel is being handled, RCS water level is monitored by the control room Operators to ensure that the water level is a minimum of _____ feet above the top of the Reactor Vessel Flange.

- A. 13 feet
- B. 18 feet
- C. 23 feet
- D. 28 feet

Explanation: 23 feet is the Tech Spec Requirement.

Question 69 K/A # 000000 2.2.27

Knowledge of the refueling process.

RO Importance 2.6 SRO Importance 3.5 10 CFR 55 Section 43.6 / 45.13

FCS Lesson Plan / Objective 0711-13 03.01

List five parameters monitored in the Control Room during a refueling and explain why each is monitored.

KA#: 000000 2.2.27
LP# / Objective: 0711-13 03.01
Cognitive Level: LOW
Reference: TS 2.8.2

Bank Ref #: 07-11-13 037
Exam Level: RO
Source: BANK REWORD
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 070

You are the Control Room Operator during refueling. All WR (SR) NI channels are operable.

During insertion of a fuel assembly into the core, the count rates on channels "B" and "D" increase by a factor of 3 while the count rates on channels "A" and "C" remain steady.

What action are you required to take per OP-12?

- A. Notify the Refueling SRO to extend the spreader as the fuel assemblies are too close.
- B. Notify the Refueling SRO to withdraw the fuel assembly being inserted.
- C. Dispatch an Operator to the Auxiliary Shutdown Panels to verify the WR NI Channel "D" indication on AI-212.
- D. Notify the Shutdown Safety Advisor.

Explanation: B is one of the actions required by OP-12. The other choices do not describe required actions.

Question 70 K/A # 000000 2.2.30

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.

RO Importance 3.5 SRO Importance 3.3 10 CFR 55 Section 45.12

FCS Lesson Plan / Objective 0711-13 03.00

List the responsibilities of the Control Room during a refueling.

KA#: 000000 2.2.30
LP# / Objective: 0711-13 03.00
Cognitive Level: HIGH
Reference: OP-12 PRE 13

Bank Ref #: 07-11-13 046
Exam Level: RO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 071

According to Radiation Protection procedure, RP-305, individuals who recognize a condition or work practice in which radiation exposures might be reduced should ensure it is evaluated by initiating which one of the following:

- A. A Radiation Event Report
- B. An ALARA Suggestion Form
- C. A Radiation Work Permit
- D. A NRC Form 4

Explanation: The Station ALARA program uses "ALARA suggestion forms," as stated in choice B, for the purpose stated in the stem, not the forms or reports mentioned in the other choices.

Question 71 K/A # 000000 2.3.02

Knowledge of facility ALARA program.

RO Importance 2.5 SRO Importance 2.9 10 CFR 55 Section 41.12 / 43.4 / 45.9 / 45.10

FCS Lesson Plan / Objective 1924-03 01.21

EXPLAIN the responsibilities of the individual worker for exposure reduction.

KA#: 000000 2.3.02
LP# / Objective: 1924-03 01.21
Cognitive Level: LOW
Reference: RP-301

Bank Ref #: ADM-RAD 002
Exam Level: RO
Source: NRC FCS 1999
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 072

A radiologically posted area at Fort Calhoun has the following conditions:

- A general area dose rate of 75 mrem/hr
- A Beta/Gamma swipe reading of 90 dpm/100 cm²
- An Alpha swipe reading of 35 dpm/100 cm²

How will the area be posted?

- A. Radiation Area
- B. High Radiation Area
- C. Radiation Area, Contaminated
- D. High Radiation Area, Contaminated

Explanation: This area will be posted as a radiation area because the dose rate is above 5 but less than 100 mrem/hr. It will be posted as a contaminated area because the alpha is above 20 dpm/100 cm². Choice C is correct.

Question 72 K/A # 000000 2.3.04

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

RO Importance 2.5 SRO Importance 3.1 10 CFR 55 Section 43.4 / 45.10

FCS Lesson Plan / Objective 1924-03 01.00

Given a copy of the Radiation Protection procedures, DEFINE the following types of controlled, contaminated, and radiation areas at Fort Calhoun Station and EXPLAIN the controls, posting requirements, access requirements, and limits for each.

KA#: 000000 2.3.04
LP# / Objective: 1924-03 01.00
Cognitive Level: HIGH
Reference: IHB 10-27-45

Bank Ref #: ADM-RAD 011
Exam Level: RO
Source: NRC EXAM 2001-2
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 073

Which of the following EOP-00 actions should be taken first if both automatic and manual Main Turbine trip fails?

- A. Open the generator output breakers
- B. Open the exciter field breaker
- C. Close the MSIVs
- D. Trip the EHC pumps**

Explanation: Tripping the EHC pumps is the first immediate action to be taken if the turbine fails to trip both automatically and manually per EOP-00, Choice D is correct. Choice C is an action to be taken if tripping the EHC fails and the steam header pressure falls. Choice A and B are EOP-00 actions, but are not contingency actions for a turbine trip failure.

Question 73 K/A # 000000 2.4.01

Knowledge of EOP entry conditions and immediate action steps.

RO Importance 4.3 SRO Importance 4.6 10 CFR 55 Section 41.10 / 43.5 / 45.13

FCS Lesson Plan / Objective 0718-10 01.10

LIST the sixteen (16) immediate actions of EOP-00 in the order they are required to be performed.

KA#: 000000 2.4.01
LP# / Objective: 0718-10 01.10
Cognitive Level: LOW
Reference: EOP-00

Bank Ref #: 07-18-10 016
Exam Level: RO
Source: NRC FCS 2001-1
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 074

Which one of the following is the RO expected to report to the CRS/SM immediately following a reactor trip?

- A. Any contingency actions that are taken.
- B. The status of Engineered Safeguards Features.
- C. The status of power to the 4160 KV vital buses.
- D. The status of the Reactivity Control Safety Function.**

Explanation: According to EOP-00 Procedure Expectations, "The Reactor Operators are expected to report the status of Reactivity Control Safety Function to the CRS/SM immediately following Reactor Trip."

Question 74 K/A # 000000 2.4.15

Knowledge of communications procedures associated with EOP implementation.

RO Importance 3.0 SRO Importance 3.5 10 CFR 55 Section 41.10 / 45.13

FCS Lesson Plan / Objective 0718-10 01.10

LIST the sixteen (16) immediate actions of EOP-00 in the order they are required to be performed.

Changed distractor C per NRC review comment.

KA#: 000000 2.4.15
LP# / Objective: 0718-10 01.10
Cognitive Level: LOW
Reference: EOP-00 C.1

Bank Ref #: NONE
Exam Level: RO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 075

An ARP has been entered which requires several actions to be taken in response to an alarm. The ARP does not have any provision for initialing, checking or signing off on the completed step. How should status of each step be documented?

- A. Documenting the status of ARP steps is not required unless places to initial or check are provided.
- B. Completed ARP steps should be documented by initialing each step as it is completed.
- C. Circles should be used to document steps in use and a slash to document completed steps.
- D. Completed ARP steps should be documented in the Control Room Log, not in the ARP.

Explanation: ARP-01 specifies thta the circle-slash method be used in ARP with no provision for initialing or checking. Choice C is the only correct answer.

Question 75 K/A # 000000 2.4.31
 Knowledge of annunciators alarms and indications, and use of the response instructions.
 RO Importance 3.3 SRO Importance 3.4 10 CFR 55 Section 41.10 / 45.3
 FCS Lesson Plan / Objective 0762-11 01.01
 DESCRIBE the operator actions for an annunciator in alarm.

KA#:	000000 2.4.31	Bank Ref #:	NONE
LP# / Objective:	0762-11 01.01	Exam Level:	RO
Cognitive Level:	LOW	Source:	NEW
Reference:	ARP-01	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 076

An ALERT was declared due to a loss of shutdown cooling with the time to boil less than 30 minutes. Containment is intact. The wind direction is from the east, so if there were to be a release with this event, it would not affect Iowa.

What offsite notifications are required to be made?

- A. No notifications are required
- B. The NRC must be notified, but States and Counties do not need to be notified.
- C. The NRC, Nebraska and Washington County must be notified. Iowa and Iowa Counties do not need to be notified.
- D. The NRC, Nebraska, Iowa and all surrounding counties must be notified.

Explanation: The NRC and all surrounding counties must be notified. Choice D is correct.

Question 76 K/A # 000025 2.4.30

Knowledge of which events related to system operations/status should be reported to outside agencies.

RO Importance 2.2 SRO Importance 3.6 10 CFR 55 Section 43.5 / 45.11

FCS Lesson Plan / Objective 0717-19 01.07

Given EPIP-OSC-1, explain how the event would be classified. (SRO ONLY)

KA#: 000025 2.4.30

Bank Ref #: NONE

LP# / Objective: 0717-19 01.07

Exam Level: SRO

Cognitive Level: LOW

Source: NEW

Reference: EPIP OSC-2

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 077

All main feedwater pumps tripped followed by a reactor trip on low steam generator level.

What manual action must you ensure is taken so that the capability of the auxiliary feedwater pumps is sufficient to remove decay heat for the next four hours?

- A. After entering EOP-00, "Standard Post Trip Actions", ensure all reactor coolant pumps are tripped.
- B. After entering EOP-00, "Standard Post Trip Actions", ensure that blowdown is isolated.**
- C. After entering EOP-06, "Loss of All Feedwater", ensure only one reactor coolant pump is operating in each loop.
- D. After Entering, EOP-06, "Loss of All Feedwater" ensure that makeup is being provided to the Emergency Feedwater Storage Tank.

Explanation: USAR analysis takes credit for manual operator isolation of blowdown within 15 minutes, this is accomplished in EOP-00, therefore choice B is correct. A is incorrect because tripping all RCPs is only done for a loss of all feedwater and not in EOP-00. Choice C is incorrect because all RCPs are tripped in EOP-06. Choice D is incorrect because the EFST has the capacity for 8 hours of decay heat removal.

Question 77 K/A # 000054 2.1.32

Ability to explain and apply all system limits and precautions.

RO Importance 3.4 SRO Importance 3.8 10 CFR 55 Section 41.10 / 43.2 / 45.12

FCS Lesson Plan / Objective 0718-10 01.10

LIST the sixteen (16) immediate actions of EOP-00 in the order they are required to be performed.

KA#: 000054 2.1.32
LP# / Objective: 0718-10 01.10
Cognitive Level: HIGH
Reference: EOP-00

Bank Ref #: NONE
Exam Level: SRO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 078

The Plant is in hot shutdown. The following plant conditions are noted:

- T-cold is 532°F.
- Pressurizer pressure is 1750 psia and lowering.
- Pressurizer level is 18% and lowering.
- VCT level and pressure are lowering.
- Three charging pumps are running.
- Charging flow is 120 gpm.
- Letdown flow is 26 gpm.
- RM-054B is in "ALARM" with rising counts.
- RM-057 is not in alarm but counts are rising.
- All other radiation monitors are reading background.

What actions should be taken?

- A. Enter EOP-00, "Standard Post Trip Actions", then transition to EOP-04, "Steam Generator Tube Rupture".
- B. Enter EOP-00, "Standard Post Trip Actions", then transition to AOP-24, "Steam Generator Tube Rupture (Reactor Shutdown)".
- C. Enter AOP-22, "RCS Leak", the transition to AOP-24, "Steam Generator Tube Rupture (Reactor Shutdown)".
- D. Enter AOP-24, "Steam Generator Tube Rupture (Reactor Shutdown)", directly

Explanation: EOP-00 diagnostic actions direct the CRS to EOP-04 after EOP-00 is complete, A is correct. AOP-24 is not entered from EOP-00 so B is incorrect. EOP-00 is entered when RCS temperatures are above 525°F, thus C and D are incorrect.

Question 78 K/A # 000038 EA2.07

Ability to determine or interpret the following as they apply to a SGTR: Plant conditions, from survey of control room indications

RO Importance 4.4 SRO Importance 4.8 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0718-14 01.00

DEMONSTRATE the knowledge required to use EOP-04, Steam Generator Tube Rupture (SGTR), to mitigate the consequences of a SGTR.

KA#: 000038 EA2.07

Bank Ref #: NONE

LP# / Objective: 0718-14 01.00

Exam Level: SRO

Cognitive Level: HIGH

Source: NEW

Reference: EOP-00

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 079

Which one of the following conditions would require exiting EOP-02 and transitioning to EOP-07, Station Blackout?

- A. Instrument buses 1 and 2 are both deenergized.
- B. DC buses 1 and 2 are both deenergized.
- C. AC buses 1A1 and 1A2 are both deenergized.
- D. AC buses 1A3 and 1A4 are both deenergized.

Explanation: AC buses 1A3 and 1A4 are the vital 4160V buses. If they are both deenergized, than EOP-07 should be entered. C is incorrect because these are non-vital buses. Choices A and B are incorrect because they are not addressed in EOP-07.

Question 79 K/A # 000056 2.4.04

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

RO Importance 4.0 SRO Importance 4.3 10 CFR 55 Section 41.10 / 43.2 / 45.6

FCS Lesson Plan / Objective 0718-12 01.04

STATE from memory the Contingency Action in EOP-02 which requires the operator to GO TO EOP-07, Station Blackout.

KA#: 000056 2.4.04
LP# / Objective: 0718-12 01.04
Cognitive Level: HIGH
Reference: EOP-02

Bank Ref #: 07-18-12 020
Exam Level: SRO
Source: BANK REWORDED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 080

The RCS was being cooled down with RCS cold leg temperature at 350°F and pressurizer pressure at 1400 psia when a loss of an instrument bus made pressurizer level indicator, LI-106, inoperable. A "Dummy" signal is being used to fail LI-101X at 48%.

How should actual pressurizer level be determined in this situation.

- A. Enter the ARP for "LI-106 LEVEL LO". Direct the Operator to use LI-101Y and the TDB correction curve to determine actual pressurizer level.
- B. Enter the ARP for "LI-106 LEVEL LO". Direct the Operator to use LI-197 and the TDB correction curve to determine actual pressurizer level.
- C. Enter AOP-16, "Loss of Instrument Bus Power". Direct the Operator to use LI-101Y and the TDB correction curve to determine actual pressurizer level.
- D. Enter AOP-16, "Loss of Instrument Bus Power". Direct the Operator to use LI-197 and the TDB correction curve to determine actual pressurizer level.

EXPLANATION: C is the correct answer because AOP-16 is entered on a loss of instrument bus power and TDB correction curves are used to determine actual pressurizer level as a function of temperature. A and B are incorrect because they do not include entry into AOP-16. D is incorrect because LI-197 is used to determine RCS loop level, not pressurizer level.

Question 80 K/A # 000057 AA2.16

Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: Normal and abnormal PZR level for various modes of plant operation
RO Importance 3.0 SRO Importance 3.1 10 CFR 55 Section 43.5 / 45.13
FCS Lesson Plan / Objective 0717-16 01.04
Describe the entry conditions for this AOP.

KA#: 000057 AA2.16
LP# / Objective: 0717-16 01.04
Cognitive Level: HIGH
Reference: TDB FIG III.1A

Bank Ref #: 07-11-20 018
Exam Level: SRO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 081

The plant has been stabilized following a reactor trip. Prior to the reactor trip, a plant shutdown was in progress. Chemistry has just reported the following:

- Dose Equivalent I-131 = 0.8 uCi/gm
- Total RCS activity = 17 uCi/g
- E-bar = 0.47
- Oxygen = 0.12 ppm
- Chloride = 0.12 ppm

Which on of the following actions must be taken?

- A. Enter Tech Spec 2.1.3 due to high Dose Equivalent I-131
- B. Enter Tech Spec 2.1.3 due to high total RCS activity
- C. Enter Tech Spec 2.1.5 due to high oxygen.
- D. Enter Tech Spec 2.1.5 due to high chloride.

Explanation: DEI, total RCS activity and chlorine are all within TS limits. Ogygen exceeds the TS limit of 0.10 ppm. C is the correct answer.

Question 81 K/A # CE-E02 2.1.33

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

RO Importance 3.4 SRO Importance 4.0 10 CFR 55 Section 43.2 / 43.3 / 45.3

FCS Lesson Plan / Objective 0711-20 02.00

DISCUSS the Technical Specifications limiting conditions for operation that apply to the RCS.

KA#:	CE-E02 2.1.33	Bank Ref #:	NONE
LP# / Objective:	0711-20 02.00	Exam Level:	SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	T.S. 2.1.3&5	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 082

What actions must be taken if a group 4 CEA is misaligned from the other CEAs in its group by 15 inches and can not be realigned?

- A. Enter AOP-02, "CEA and Control System Malfunctions", notify the Reactor Engineer and declare the CEA inoperable after an hour.
- B. Enter AOP-02, "CEA and Control System Malfunctions", notify the Plant Manager and declare the CEA inoperable after an hour.
- C. Perform a power reduction using AOP-05, "Emergency Shutdown" and notify the Reactor Engineer.
- D. Perform a power reduction using AOP-05, "Emergency Shutdown" and notify the Plant Manager.

Explanation: The CEA is misaligned by more than 12 but less than 18 inches. AOP-02 specifies that the Reactor Engineer be notified. A is correct. B is incorrect because the Plant Manager is not specified to be contacted. C and D are incorrect because the CEA is not misaligned by more than 18 inches.

Question 82 K/A # 000003 2.1.14

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

RO Importance 2.5 SRO Importance 3.3 10 CFR 55 Section 43.5 / 45.12

FCS Lesson Plan / Objective 0717-02 01.00

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.

KA#: 000003 2.1.14

Bank Ref #: NONE

LP# / Objective: 0717-02 01.00

Exam Level: SRO

Cognitive Level: HIGH

Source: NEW

Reference: AOP-02

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 083

AOP-26, "Turbine Malfunctions," has been entered due to low condenser vacuum. An AOP-05, "Emergency Shutdown," is in progress. During the load reduction, condenser vacuum is holding steady at 23 inches Hg.

When should the operators be directed to trip the reactor and enter EOP-00, "Standard Post Trip Actions?"

- A. Immediately.
- B. When reactor power is less than or equal to 50%.
- C. When generator load is less than or equal to 150 MW.
- D. After the turbine is shutdown.

Explanation: according to AOP-26, the reactor should be tripped if condenser vacuum is less than 23.85 inches Hg and generator load is less than or equal to 150 MW, making C the correct answer. A, B and D are wrong because they use other criteria.

Question 83 K/A # 000051 2.1.32

Ability to explain and apply all system limits and precautions.

RO Importance 3.4 SRO Importance 3.8 10 CFR 55 Section 41.10 / 43.2 / 45.12

FCS Lesson Plan / Objective 0717-26 01.00

Use the Turbine Malfunctions Procedure in the event of trouble with the turbine or turbine support systems.

KA#: 000051 2.1.32
LP# / Objective: 0717-26 01.00
Cognitive Level: HIGH
Reference: AOP-26

Bank Ref #: NONE
Exam Level: SRO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 084

A Loss of Coolant Accident has occurred, all systems worked as designed. The RCS pressure is 17 psia.

Following RAS, the STA reports that the Inventory Control Safety Function is not met because SI flow is below that required by the EOP-AOP Attachment 3, "Flow vs. Pressure" curve. What action is required?

- A. Go to EOP-20. Override and restart one LPSI pump.
- B. Go to EOP-20. Override and restart both LPSI pumps.
- C. Stay in EOP-03. Override and start one LPSI pump.
- D. No action is required. It is normal for flow to be below that shown in EOP-AOP Attachment 3 following RAS.

Explanation: The Attachment 3 minimum flow curve is based on 1 HPSI and 1 LPSI pump. After RAS, the LPSI pumps trip and this curve is no longer valid. D is the correct answer.

Question 84 K/A # 000074 2.4.06

Knowledge symptom based EOP mitigation strategies.

RO Importance 3.1 SRO Importance 4.0 10 CFR 55 Section 41.10 / 43.5 / 45.13

FCS Lesson Plan / Objective 0718-13 02.02

GIVEN a copy of Attachment 3, EXPLAIN its use to determine adequate safety injection flow requirements.

KA#:	000074 2.4.06	Bank Ref #:	NONE
LP# / Objective:	0718-13 02.02	Exam Level:	SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP-AOP ATT 3	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 085

An event occurred from hot shutdown which resulted in an uncontrolled RCS cooldown from 532°F to 470°F in 50 minutes. Temperature then stabilized at 470°F. Which one of the following actions must be taken?

- A. Technical Specification 2.1.1 must be entered because the cooldown rate exceeded 50°F per hour.
- B. Technical Specification 2.1.1 must be entered because the RCS cooled down below 500°F.
- C. EOP-AOP Attachment 27, "P-T Limit Restoration," must be entered because the cooldown rate exceeded 50°F per hour
- D. EOP-AOP Attachment 27, "P-T Limit Restoration," must be entered because RCS cooled down below 500°F.

Explanation: Choice D is correct because EOP-05 requires implementation of EOP-AOP-Attachment 27 following an uncontrolled cooldown below 500°F. Choice C is incorrect because a cooldown rate is not used for Attachment 27 entry. Choice A and B are incorrect because TS are entered when the PTLR limit of 100°F in a hour is exceeded and the total cooldown was less than 100°F.

Question 85 K/A # CE-A11 2.1.33

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

RO Importance 3.4 SRO Importance 4.0 10 CFR 55 Section 43.2 / 43.3 / 45.3

FCS Lesson Plan / Objective 0718-15 02.01

GIVEN a copy of Attachment 2, EXPLAIN its use to monitor RCS pressure and temperature limits.

KA#:	CE-A11 2.1.33	Bank Ref #:	NONE
LP# / Objective:	0718-15 02.01	Exam Level:	SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP-05	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 086

An RCS heatup is being performed. T-cold is at 505°F. RCS pressure is at 2000 psia and no operations that would result in RCS dilution are in progress. The level in both steam generators is at normal operating level.

Which one of the following conditions violates Technical Specification Requirements?

- A. All reactor coolant pumps have been deenergized for greater than 30 minutes.
- B. All reactor coolant pumps are operating.
- C. RC-3A is operating, RC-3D is operable. RC-3B and RC-3C are inoperable.
- D. RC-3A is operating, RC-3B is operable. RC-3C and RC-3D are inoperable.

Explanation: At this temperature, at least one RCP must be operable in each loop and one RCP must be operating, however all RCPs can be deenergized for up to an hour providing no dilution is in progress. Core outlet temperature is at least 10°F subcooled. Choices A, B and C are allowed by Tech Specs. Choice D is not allowed because RC-3A and RC-3B are in the same loop.

Question 86 K/A # 003000 2.1.33

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

RO Importance 3.4 SRO Importance 4.0 10 CFR 55 Section 43.2 / 43.3 / 45.3

FCS Lesson Plan / Objective 0711-20 02.00

DISCUSS the Technical Specifications limiting conditions for operation that apply to the RCS.

Changed Stem wording per NRC review comment.

KA#: 003000 2.1.33
LP# / Objective: 0711-20 02.00
Cognitive Level: HIGH
Reference: TS 2.1.1

Bank Ref #: NONE
Exam Level: SRO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 087

The reactor is operating at full power. A 6 gpm leak has been identified on the charging line in room 13, just upstream of penetration M-3. The leak has been isolated by closing CH-194, "Charging Pumps CH-1A/B/C Discharge Header Containment Outboard Isolation Valve," the loop injection valves and the auxiliary spray valves. AOP-33, "CVCS Leak," has been implemented.

How should the AOP-33 attachments be used while repair plans are being made?

- A. Use AOP-33, Attachment B, "Charging Via the HPSI Header" to supply continuous charging flow from a charging pump to the RCS. Reestablish letdown.
- B. Use AOP-33, Attachment B, "Charging Via the HPSI Header" to supply intermittent charging flow from a charging pump to the RCS. Do not reestablish letdown.**
- C. Trip the reactor, complete EOP-00 actions, then Implement AOP-33, Attachment D, "RCS Makeup Using HPSI Pumps" to supply continuous flow from a HPSI pump to the RCS. Reestablish letdown.
- D. Trip the reactor, complete EOP-00 actions, then Implement AOP-33, Attachment D, "RCS Makeup Using HPSI Pumps" to supply intermittent flow from a HPSI pump to the RCS. Do not reestablish letdown.

Explanation: With this break location, charging via the HPSI header is available. Letdown remains isolated (no charging flow through the regenerative heat exchanger) and a charging pump is operated as needed to maintain pressurizer level. Choice B.

Question 87 K/A # 004000 A2.03

Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Boundary isolation valve leak
RO Importance 3.6 SRO Importance 4.2 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.5
FCS Lesson Plan / Objective 0717-33 01.03
DESCRIBE the major recovery actions of this AOP.

KA#:	004000 A2.03	Bank Ref #:	NONE
LP# / Objective:	0717-33 01.03	Exam Level:	SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-33	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 088

The RO reports that the following plant conditions exist following a loss of coolant accident:

- RCS Pressure = 700 psia
- Containment Pressure = 8 psig
- RAS has occurred
- 2 HPSI and 2 Containment Spray pumps are operating
- LPSI pumps are not running
- HCV-385 and HCV-386 are open
- LCV-383-1 and LCV-383-2 are closed
- HCV-383-3 and HCV-383-4 are open

Which of the following statements is true:

- A. All systems are operating as designed.
- B. Action must be taken to provide more Containment Spray flow.
- C. Action must be taken to provide more Safety Injection flow.
- D. Action must be taken to isolate a radiation release path.

Explanation: With HCV-385 and HCV-386 open, potentially contaminated water will be pumped from the containment sump to the SIRWT which is vented to the auxiliary building atmosphere.
(Addresses 10 CFR 55.43.4)

Question 88 K/A # 026000 2.4.06

Knowledge symptom based EOP mitigation strategies.

RO Importance 3.1 SRO Importance 4.0 10 CFR 55 Section 41.10 / 43.5 / 45.13

FCS Lesson Plan / Objective 0711-22 01.08c

Explain overall system response to actuation of automatic engineered safeguards signals:

Recirculation Actuation Signal (RAS).

KA#: 026000 2.4.06
LP# / Objective: 0711-22 01.08C
Cognitive Level: HIGH
Reference: EOP-03

Bank Ref #: 026000 2.1.23
Exam Level: SRO
Source: NRC 02 EXAM
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 089

The reactor tripped due to a loss of offsite power followed closely by a fault on DC Bus #1. FW -54 and FW-10 failed to start.

Levels in both Steam Generators are 24% Narrow Range.

What action should be taken following EOP-00 to reestablish AFW flow to the Steam Generators using FW-6?

- A. Enter EOP-06, "Loss of All Feedwater" and direct the EONT to start FW-6 from AI-179.
- B. Enter EOP-06, "Loss of All Feedwater" and direct the EONT to manually close the breaker for FW-6.
- C. Enter EOP-20. HR-4 and initiate Once-Through-Cooling.
- D. Enter EOP-20, MVA-DC and operate the 1A1-1A3 and the D1 Emergency Source Pushbuttons.**

Explanation: EOP-20 is entered because the MVA-DC safety function is not satisfied. FW-6 will not start because it's control power comes from DC bus-1. Choice D will restore control power to FW-6's breaker.

Question 89 K/A # 061000 A2.03

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

RO Importance 3.1 SRO Importance 3.4 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.13

FCS Lesson Plan / Objective 0718-18 01.05

Given the Resource Assessment Trees, basically DESCRIBE the Method, Path and Acceptance Criteria for each success path.

KA#: 061000 A2.03
LP# / Objective: 0718-18 01.05
Cognitive Level: HIGH
Reference: EOP-20

Bank Ref #: 07-18-18 006
Exam Level: SRO
Source: MODIFIED
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 090

What is the basis for the Technical Specification limit on containment pressure during normal operation?

- A. The pressure limit is based on limiting normal operational releases from containment within 10 CFR 21 limits.
- B. The pressure limit ensures the accuracy of instrumentation located inside containment during normal operation.
- C. The pressure limit ensures that containment entry and exit through the PAL Door can be done safely.
- D. The pressure limit was assumed as an initial condition in the chapter 14 LOCA analysis.

Explanation: Choice D is the reason stated in the Tech Spec basis. The other choices are plausible but incorrect because they are not a reason stated in the Tech Spec basis.

Question 90 K/A # 103000 2.2.25

Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

RO Importance 2.5 SRO Importance 3.7 10 CFR 55 Section 43.2

FCS Lesson Plan / Objective 0715-31 01.02

EXPLAIN how the assumptions used in the chapter 14 safety analysis are related to the Technical Specification limiting conditions for operation.

KA#: 103000 2.2.25
LP# / Objective: 0715-31 01.02
Cognitive Level: LOW
Reference: TS 2.6 BASIS

Bank Ref #: NONE
Exam Level: SRO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 091

The Plant is operating at full power. The following plant conditions are noted:

- Pressurizer pressure is 2070 psia and lowering.
- Pressurizer level is 58% and steady.
- VCT level and pressure are lowering.
- One charging pump is running.
- Charging flow is 40 gpm.
- Letdown flow is 28 gpm.
- RM-050 and RM-051 are in "ALERT" with rising counts.
- All other radiation monitors are reading background.

What actions should be taken assuming attempts to isolate the leak are not successful?

- A. Trip the Reactor, enter EOP-00, then transition to EOP-03.
- B. Trip the Reactor, enter EOP-00, then transition to AOP-22.
- C. Enter AOP-22 and then perform a plant shutdown using AOP-05.
- D. Enter AOP-33 and then perform a plant shutdown using AOP-05.

Explanation: This is a leak inside containment that is less than 40 gpm, C is the correct choice. A would be correct if the leak was more than 40 gpm. B is incorrect because AOP-22 is not entered from EOP-00. D is incorrect because the leak is from the RCS into containment.

Question 91 K/A # 002000 2.4.06

Knowledge symptom based EOP mitigation strategies.

RO Importance 3.1 SRO Importance 4.0 10 CFR 55 Section 41.10 / 43.5 / 45.13

FCS Lesson Plan / Objective 0717-22 01.00

Use the Reactor Coolant Leak Procedure to mitigate the consequences of a leak in the Reactor Coolant System.

KA#: 002000 2.4.06
LP# / Objective: 0717-22 01.00
Cognitive Level: HIGH
Reference: AOP-22

Bank Ref #: NONE
Exam Level: SRO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 092

How are the FH-1 overload and underload setpoints adjusted to accommodate the variety of fuel assemblies loads to be inserted and removed from the core?

- A. A fuel selector switch is used to adjust the underload and overload setpoints for each specific type of fuel.
- B. A fuel selector switch is used to adjust the underload setpoints for each specific type of fuel. A generic overload setpoint is entered that is appropriate for all fuel assembly loads.
- C. A fuel selector switch is used to adjust the overload setpoints for each specific type of fuel. A generic underload setpoint is entered that is appropriate for all fuel assembly loads.
- D. Generic overload and underload setpoints are used that are appropriate for all fuel assembly types.

Explanation: Specific overload and underload setpoints are selected using a 9 position fuel selector switch for each type of fuel assembly.

Question 92 K/A # 034000 K5.02

Knowledge of the operational implication of the following concepts as they apply to the Fuel Handling System: Limiting of load

RO Importance 2.0 SRO Importance 2.6 10 CFR 55 Section 41.5 / 45.7

FCS Lesson Plan / Objective 0711-13 01.02

Explain the function of the major components of the refueling machine and how interlocks prevent unsafe operation.

Changed distractors B and C per NRC review comments (removed extra "is")

KA#:	034000 K5.02	Bank Ref #:	NONE
LP# / Objective:	0711-13 01.02	Exam Level:	SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	STM 40	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 093

A plant shutdown was in progress. Feedwater Pumps, FW-4A and FW-4C were out of service. The Main Generator had just been taken off line when FW-4B tripped. The CRS directed the operators to trip the reactor and enter EOP-00. During Standard Post Trip Actions it was determined that:

- FW-6, FW-10 and FW-54 all failed to start.
- Levels in both Steam Generators were 30% Narrow Range.
- All 4160 Volt buses were energized.

Which one of the following heat removal strategies should be attempted first after completion of EOP-00?

- A. Enter EOP-06, "Loss of All Feedwater," and reduce S/G pressure to allow feeding with the Heater Drain Pumps.
- B. Enter EOP-06, "Loss of All Feedwater," and reduce S/G pressure to allow feeding with the Condensate Pumps.
- C. Enter EOP-20 and establish low pressure feed to the steam generators using the Fire Protection System.
- D. Enter EOP-20 and establish Once-through-Cooling.

Explanation: In EOP-06, once attempts to initiate main or auxiliary feedwater have failed, the next step is to lower S/G pressure to allow feeding with the condensate pumps., choice B. Choice A is incorrect because the heater drain pumps are not used. Choice C is incorrect, it would only be attempted as a last resort. Choice D is incorrect because the S/G water level is not low enough.

Question 93 K/A # 056000 2.4.04

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

RO Importance 4.0 SRO Importance 4.3 10 CFR 55 Section 41.10 / 43.2 / 45.6

FCS Lesson Plan / Objective 0718-16 01.01

EXPLAIN the major strategy used to mitigate the consequences of a LOAF.

KA#:	056000 2.4.04	Bank Ref #:	NONE
LP# / Objective:	0718-16 01.01	Exam Level:	SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP-06	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 094

After having a week off, a EONT worked yesterday from 0700 - 2300. This morning, he reported to work again at 0700.

How long is he allowed to work today without a special deviation being documented on form FC-70?

- A. He may begin work at 0700. He may then work until 1500.
- B. He may begin work at 0700. He may then work until 1900.
- C. He is not allowed to begin work until 1100 today. He may then work until 1900.
- D. He is not allowed to begin work until 1100 today. He may then work until 2300.

Explanation: The individual is only allowed to work 24 hours in a 48 hour period. He has already worked 16 hours so he can only work 8 more hours until 1500. Choice A.

Question 94 K/A # 000000 2.1.05
 Ability to locate and use procedures and directives related to shift staffing and activities.
 RO Importance 2.3 SRO Importance 3.4 10 CFR 55 Section 41.10 / 43.5 / 45.12
 FCS Lesson Plan / Objective 0762-01 01.00
 STATE the major sections of the Standing Orders.

KA#:	000000 2.1.05	Bank Ref #:	NONE
LP# / Objective:	0762-01 01.00	Exam Level:	SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	SO-G-52	Handout:	SO-G-52

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 095

The control room has just been informed that a "Tornado Watch" has been issued that includes the location of the plant. What action should be taken?

- A. Enter AOP-01, "Acts of Nature." Inform Plant Personnel that the plant is under a "Tornado Watch".
- B. Enter AOP-01, "Acts of Nature." Sound the Emergency Alarm and direct plant personnel to take shelter.
- C. Inform Plant Personnel that the plant is under a "Tornado Watch." Prepare to enter AOP-01, "Acts of Nature," if a tornado strikes the plant site.
- D. Sound the Emergency Alarm and direct plant personnel to take shelter. Prepare to enter AOP-01, "Acts of Nature," if a tornado strikes the plant site.

Explanation. Choice A is correct because a tornado watch is an entry condition for AOP-01 and informing plant personnel is the required action. Choice B is incorrect because it gives the actions for a tornado warning. Choices C and D are incorrect because a tornado watch is an entry condition for AOP-01.

Question 95 K/A # 000000 2.1.14

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

RO Importance 2.5 SRO Importance 3.3 10 CFR 55 Section 43.5 / 45.12

FCS Lesson Plan / Objective 0717-01 01.00

Use the Acts of Nature AOP to mitigate the consequences of a flood, earthquake, tornado, and/or low river level.

KA#:	000000 2.1.14	Bank Ref #:	NONE
LP# / Objective:	0717-01 01.00	Exam Level:	SRO
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-01	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 096

Which one of the following situations would require NRC permission before conducting a proposed test?

- A. Any test that involves a change in reactivity.
- B. Any test that makes Tech Spec required equipment inoperable during the test
- C. Any test which may increase the probability of an event analyzed in the USAR.
- D. Any test conducted by non-licensed personnel.

Explanation: Choice C is the answer from 10 CFR 50.59.

Question 96 K/A # 000000 2.2.08

Knowledge of the process for determining if the proposed change, test, or experiment involves an unreviewed safety question.

RO Importance 1.8 SRO Importance 3.3 10 CFR 55 Section 43.3 / 45.13

FCS Lesson Plan / Objective 2327-07 00.00

Generic Objective - allows linking Task or KA to Lesson Plan

Replaced distractor "A" per NRC review comment.

KA#: 000000 2.2.08

Bank Ref #: ADM-CONTROL 012

LP# / Objective: 2327-07 00.00

Exam Level: SRO

Cognitive Level: LOW

Source: NRC FCS 2001-1

Reference: 10 CFR 50.59

Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 097

According to Standing Order G-30, "Procedure Changes and Generation," who is responsible for ensuring that the 50.59 and/or 72.48 screening is completed for a proposed procedure change.?

- A. The Shift Manager or CRS.
- B. The Qualified Reviewer.
- C. The Plant Review Committee Technical Secretary.
- D. The Document Control Supervisor.

Explanation: SO G-30 specifies that this is the Qualified Reviewers responsibility.

Question 97 K/A # 000000 2.2.10

Knowledge of the process for determining if the margin of safety, as defined in the basis of any technical specification is reduced by a proposed change, test or experiment.

RO Importance 1.9 SRO Importance 3.3 10 CFR 55 Section 43.3 / 45.13

FCS Lesson Plan / Objective SEAD-34 00.00

Generic Objective - allows linking Task or KA to Lesson Plan

KA#:	000000 2.2.10	Bank Ref #:	NONE
LP# / Objective:	SEAD-34 00.00	Exam Level:	SRO
Cognitive Level:	LOW	Source:	NEW
Reference:	SO G-30	Handout:	NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 098

Prior to cooling the RCS down below 400°F, "Acid Reducing" conditions are established in the RCS to enhance the removal of radioactive crud from the RCS and reduce outage radiation doses.

Which one of the following actions may be required to establish Acid Reducing conditions?

- A. Increasing RCS ammonia concentration.
- B. Increasing RCS boron concentration.
- C. Increasing RCS lithium concentration.
- D. Increasing RCS oxygen concentration.

Explanation: To reduce radiation levels, an acid reducing condition is established to induce a crud burst. This is done by increasing boron concentration or reducing lithium concentration. The required boron/lithium ratio depends on ammonia concentration.

Question 98 K/A # 000000 2.3.10

Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.

RO Importance 2.9 SRO Importance 3.3 10 CFR 55 Section 43.4 / 45.10

FCS Lesson Plan / Objective SECH-01 05.02

EXPLAIN the guidelines for controlling chemical concentrations and radionuclide activity in the Primary.

KA#: 000000 2.3.10
LP# / Objective: SECH-01 05.02
Cognitive Level: HIGH
Reference: TDB-IV-10-A/B

Bank Ref #: NONE
Exam Level: SRO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 099

When can the SM/CRS suspend the requirement to consult the Annunciator Response Procedures as soon as annunciators come into alarm?

- A. During activities that require increased operator attention, such as a reactor startup.
- B. During a rapid plant transient, when the operators must focus on plant operations.
- C. Anytime the annunciators are becoming a distraction, such as during surveillance testing.
- D. Never, the annunciator response procedures must always be consulted as soon as annunciators come into alarm.

Explanation: ARP-01 specifically states that the CRS or SM can suspend the immediate use of ARPs during a rapid plant transient.

Question 99 K/A # 000000 2.4.10

Knowledge of annunciator response procedures.

RO Importance 3.0 SRO Importance 3.1 10 CFR 55 Section 41.10 / 43.5 / 45.13

FCS Lesson Plan / Objective 0762-11 01.01

DESCRIBE the operator actions for an annunciator in alarm.

KA#: 000000 2.4.10
LP# / Objective: 0762-11 01.01
Cognitive Level: LOW
Reference: ARP-01

Bank Ref #: NONE
Exam Level: SRO
Source: NEW
Handout: NONE

CONFIDENTIAL - NRC EXAM MATERIAL

CONFIDENTIAL - NRC EXAM MATERIAL

QUESTION NUMBER: 100

A truck delivering hydrogen for use in cooling the main generator caught fire and exploded on site but outside of the protected area. The explosion was loud and the truck fire continues to burn but is limited to the immediate area of the truck. Firefighters have determined that the best approach is to let the fire burn until the hydrogen has all been consumed. FCS work activities continue as normal.

Under what code should this event be reported to the Blair Industrial CO-OP?

- A. Code Blue
- B. Code Green
- C. Code Yellow
- D. Code Red

Explanation: This is a code blue event under the Blair Industrial Park classification scheme.

Question 100 K/A # 000000 2.4.30

Knowledge of which events related to system operations/status should be reported to outside agencies.

RO Importance 2.2 SRO Importance 3.6 10 CFR 55 Section 43.5 / 45.11

FCS Lesson Plan / Objective 1070-003 1.0

The person who completes this topic will be familiar with the general concepts of emergency classification and be able to use EPIP-OSC-1.

KA#: 000000 2.4.30
LP# / Objective: 1070-003 1.0
Cognitive Level: HIGH
Reference: EPIP OSC-2

Bank Ref #: NONE
Exam Level: SRO
Source: NEW
Handout: EPIP-OSC-2 A 6.9

CONFIDENTIAL - NRC EXAM MATERIAL
