
NRC EXAM MATERIAL

QUESTION NUMBER: 001

A reactor trip has just occurred and the Standard Post Trip actions are being performed. Which of the following parameters requires that you take contingency actions per EOP-00, "STANDARD POST TRIP ACTIONS?"

- A. All trippable control element assemblies are fully inserted except for B-15. All non-trippable control element assemblies are fully withdrawn.
- B✓ Instrument air pressure is 85 psig and stable.
- C. Both steam generator wide range levels are 85% and stable.
- D. Pressurizer pressure is 2060 psia and increasing.

Question # 1 K/A# CE-E02 EA1.02 Reactor Trip Recovery Tier 1 Group 1 Ability to operate and / or monitor the following as they apply to the (Reactor Trip Recovery) Operating behavior characteristics of the facility. RO Importance 3.3 SRO Importance 3.9

CFR Number 55.41(b)(10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

OBJ# 0718-10 01.05 GIVEN a set of plant conditions and a copy of the EOP resource Assessment Trees, DETERMINE the correct success path for any of the following safety functions:

KA#:	CE-E02 EA1.02	Bank Ref #:	07-18-10 57
LP# / Objective:	0718-10 01.05	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	NRC 02 EXAM REWORD
Reference:	EOP-00	Handout:	NONE

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QUESTION NUMBER: 002

A loss of load event resulted in a high pressure reactor trip along with opening of both of the PORVs (Power-Operated Relief Valves.) One of the PORVs failed to close when pressurizer pressure lowered below it's setpoint.

The PORV block valve associated with the open PORV should NOT be closed if:

- A✓ Pressurizer level is at 100%.
- B. Pressurizer pressure is 2010 psia.
- C. Reactor vessel level is 83%.
- D. RCS subcooling is 0°F.

Question # 2 REV 0 K/A# 000008 AK3.03 Pressurizer Vapor Space Accident Tier 1 Group 1 Knowledge of the reasons for the following responses as they apply to the Pressurizer Vapor Space Accident:Actions contained in EOP for PZR vapor space accident/LOCA RO Importance 4.1 SRO Importance 4.6

CFR Number 55.41(b)(5)

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

OBJ# 0718-13 01.01

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

KA#:	000008 AK3.03	Bank Ref #:	NONE
LP# / Objective:	0718-13 01.01	Exam Level:	RO-5
Cognitive Level:	LOW	Source:	NEW
Reference:	EOP-03	Handout:	NONE

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QUESTION NUMBER: 003

The plant is operating at full power when an RCS leak developed in one of the loops. The following conditions exist in the plant:

- Pressurizer level is 25% and lowering.
- Pressurizer pressure is 1900 psia and lowering.
- RCS T-cold is 540°F.
- All three charging pumps are running.
- Letdown is at the minimum flow rate.
- The CRS has directed the operators to manually trip the reactor.

Following the trip, indicated pressurizer level will lower until _____.

A. the pressurizer is empty.

B. letdown isolates.

C. HPSI flow begins.

D. voids form in the reactor vessel.

Question # 3 REV 0 K/A# 000009 EA2.05 Small Break LOCA Tier 1 Group 1
Ability to determine or interpret the following as they apply to a small break LOCA: The time available for action before PZR is empty, given the rate of decrease of PZR level
RO Importance 3.4 SRO Importance 3.9

CFR Number 55.41(b)(5)

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

OBJ# 0715-23 01.01

EXPLAIN the response of primary system parameters.

KA#:	000009 EA2.05	Bank Ref #:	07-15-23 028
LP# / Objective:	0715-23 01.01	Exam Level:	RO-5
Cognitive Level:	HIGH	Source:	NRC 04 EXAM
Reference:	LP 07-15-12	Handout:	NONE

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QUESTION NUMBER: 004

The following plant conditions exist during a RCS heatup:

- T-cold is 410°F.
- T-hot is 411°F.
- Core Exit Thermocouples are reading between 410°F and 415°F.
- Pressurizer pressure indicates 955 psia.
- No operations are in effect that could cause a RCS dilution.

Which one of the following Reactor Coolant Pump operating conditions is NOT allowed by the requirements of T.S. 2.1.1?

- A. RC-3A and RC-3C, are operable but not operating. RC-3B and RC-3D, are not operable. RC-3A has been shutdown for 35 minutes.
- B. RC-3A is operating, RC-3C is operable but not operating. RC-3B and RC-3D are not operable. RC-3C has been shutdown for 75 minutes.
- C. RC-3B and RC-3D are operable but not operating. RC-3A and RC-3C are not operable. RC-3D has been shutdown for 35 minutes.
- D. RC-3C is operating, RC-3D is operable but not operating. RC-3A and RC-3B are not operable. RC-3D has been shutdown for 75 minutes.

Question # 4 REV 0 K/A# 000015 2.2.22 Reactor Coolant Pump Malfunctions Tier 1
Group 1 Knowledge of limiting conditions for operations and safety limits.
RO Importance 4 SRO Importance 4.7

CFR Number 55.41(b)(5)

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

OBJ# 0711-20 02.00

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

KA#: 000015 2.2.22
LP# / Objective: 0711-20 02.00
Cognitive Level: HIGH
Reference: TS 2.1.1

Bank Ref #: NONE
Exam Level: RO-5
Source: NEW
Handout: T.S. 2.1

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QUESTION NUMBER: 005

If off-site power is lost during shutdown cooling system operation, what action (if any) should you perform after the emergency diesel-generators start?

- A. Manually restart the LPSI pumps.
- B. Un-isolate the LPSI system from the RCS and restart the LPSI pumps.
- C. No action is necessary, the emergency diesel Generators will pick up the LPSI pumps as dead bus loads.
- D. No action is necessary, the sequencers will restart LPSI pumps within one minute of the loss of power.

Question # 5 REV 0 K/A# 000025 AK2.02 Loss of Residual Heat Removal System Tier 1 Group 1 Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following:LPI or Decay Heat Removal/RHR pumps
RO Importance 3.2 SRO Importance 3.2

CFR Number 55.41(b)(7)
Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes,and automatic and manual features.

OBJ# 0711-22 01.18
Given a current copy of OI-SC-1, explain the major steps, prerequisites and precautions for placing the Shutdown Cooling System in service.

KA#:	000025 AK2.02	Bank Ref #:	07-11-22 16
LP# / Objective:	0711-22 01.18	Exam Level:	RO-7
Cognitive Level:	HIGH	Source:	NRC 04 EXAM
Reference:	STM 16	Handout:	NONE

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QUESTION NUMBER: 006

The plant is operating at 65% power and all systems are aligned for normal operation. The "CC WATER SURGE TANK AC-2 HI OR LO LEVEL" alarm is received and the Auxiliary Building Operator reports that he hears a loud rumbling noise from the operating CCW pump, AC-3A. You observe fluctuating current and discharge pressure for AC-3A. The CCW surge tank level is 8 inches and lowering.

What action should be performed in addition to standard post trip actions once the reactor is tripped?

- A. Alternately run one RCP at a time until cooling water is restored.
- B. Trip one RCP in each loop immediately. Trip the remaining RCPs when high temperature alarms are received.
- C. Establish raw water backup cooling to the RCPs within 5 minutes.
- D. Shutdown all RCP's within 5 minutes.

Question # 6 REV 0 K/A# 000026 2.1.23 Loss of Component Cooling Water Tier 1 Group 1 Ability to perform specific system and integrated plant procedures during all modes of plant operation. RO Importance 4.3 SRO Importance 4.4

CFR Number 55.41(b)(10)

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

OBJ# 0715-16 01.02

EXPLAIN the response of primary and secondary parameters to a partial loss of flow event.

KA#: 000026 2.1.23
LP# / Objective: 0715-16 01.02
Cognitive Level: HIGH
Reference: AOP-11

Bank Ref #: 07-17-11 001
Exam Level: RO-10
Source: NRC 04 EXAM
Handout: NONE

NRC EXAM MATERIAL

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QUESTION NUMBER: 007

Pressurizer level channel "Y" was selected as the controlling channel when LT-101Y failed causing letdown flow to increase and resulted in lowering pressurizer level and pressure. The pressurizer heaters turned off due to low pressurizer level.

The Operator then took manual control of charging and letdown, manually restored level to the programmed level and then selected channel "X" as the controlling channel.

Pressurizer pressure and level are both stable with level at 60% and pressure at 1980 psia although the controlling pressurizer pressure channel setpoint is 2100 psia.

Why has pressurizer pressure stabilized at 1980 psia?

- A. There is no power to the pressurizer heaters because Level Control Bistables, LC-101-1 and LC-101-2, located behind CB-1/2/3 must be reset.
- B. There is no power to the pressurizer heaters because Channel "X" must be selected on PZR Heater Cutout Channel Select Switch, HC-101-1.
- C. The pressurizer heaters need several minutes to heatup, pressure will begin to increase when the heaters reach full temperature.
- D. The water in the pressurizer is subcooled, pressure will begin to increase when the water reaches saturation temperature.

Question # 7 REV 0 K/A# 000027 AK3.04 Pressurizer Pressure Control System Malfunction Tier 1 Group 1 Knowledge of the reasons for the following responses as they apply to the Pressurizer Pressure Control Malfunctions: Why, if PZR level is lost and then restored, that pressure recovers much more slowly
RO Importance 2.8 SRO Importance 3.3

CFR Number 55.41(b)(14)
Principles of heat transfer, thermodynamics and fluid mechanics.

OBJ# 0711-20 01.06a
STATE the purpose of the pressurizer.

KA#:	000027 AK3.04	Bank Ref #:	NONE
LP# / Objective:	0711-20 01.06A	Exam Level:	RO-14
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM-36	Handout:	NONE

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QUESTION NUMBER: 008

The plant experiences an ATWS event in which the reactor and turbine both failed to trip. What action does EOP-00 direct you to perform to limit reactor power?

- A. Trip all Reactor Coolant Pumps.
- B. Transfer charging pump suction to the SIRWT.
- C. Insert the non-trippable CEAs.
- D. Close the MSIVs.

Question # 8 REV 0 K/A# 000029 EK3.08 Anticipated Transient Without Scram (ATWS) Tier 1 Group 1 Knowledge of the reasons for the following responses as the apply to the ATWS:Closing the main steam isolation valve
RO Importance 3.6 SRO Importance 3.8

CFR Number 55.41(b)(10)
Administrative, normal, abnormal, and emergency operating procedures for the facility.

OBJ# 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	Bank Ref #:	07-18-10 063
LP# / Objective:	0718-10 01.11	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	TDB-EOP-00	Handout:	NONE

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QUESTION NUMBER: 009

With a leaking tube on Steam Generator, RC-2A, when would you expect to receive an alarm on steam generator blowdown radiation monitor, RM-054A, prior to an alarm on condenser offgas radiation monitor, RM-057?

- A. When the steam generator leakrate is less than 10 gpm.
- B When reactor power is less than 10%.
- C. When the RCS boron concentration is greater than 900 ppm.
- D. When RCS dose equivalent iodine-135 activity is greater than 10 uCi/gm.

Question # 9 REV 0 K/A# 000038 EA2.07 Steam Generator Tube Rupture Tier 1 Group 1 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

CFR Number 55.41(b)(11)

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

OBJ# 0715-33 01.02

EXPLAIN the response of secondary system parameters.

KA#:	000038 EA2.07	Bank Ref #:	NONE
LP# / Objective:	0715-33 01.02	Exam Level:	RO-11
Cognitive Level:	HIGH	Source:	NEW
Reference:	LP 07-15-33	Handout:	NONE

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QUESTION NUMBER: 010

A multiple failure event has occurred in the plant. A tube has ruptured in Steam Generator, RC-2A, and the steam line from Steam Generator, RC-2B, has ruptured in room 81.

In mitigating this event, which steam generator(s), if any, should be isolated?

- A. Neither Steam Generator should be isolated.
- B. RC-2A should be isolated.
- C. RC-2B should be isolated.
- D. Both steam generators should be isolated.

Question # 10 REV 0 K/A# CE-E05 EA1.03 Excess Steam Demand Tier 1 Group 1 Ability to operate and / or monitor the following as they apply to the (Excess Steam Demand)Desired operating results during abnormal and emergency situations. RO Importance 3.4 SRO Importance 4

CFR Number 55.41(b)(10)

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

OBJ# 0715-20 02.07

EXPLAIN how an Excessive Heat Removal Event in conjunction with another event would be handled by the operators.

KA#:	CE-E05 EA1.03	Bank Ref #:	NONE
LP# / Objective:	0715-20 02.07	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP-20	Handout:	NONE

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QUESTION NUMBER: 011

A break on the feedwater line to Steam Generator, RC-2B, inside containment has resulted in a loss of main feedwater and an excessive heat removal event. The following plant conditions exist:

- SGIS has occurred.
- Heat removal has been established using Steam Generator, RC-2A.
- AFW Pump, FW-6, is feeding Steam Generator RC-2A and is the only available AFW pump.
- Steam Generator, RC-2B, has dried out.
- No Reactor Coolant Pumps are running.

Which one of the following actions should be taken and for what reason?

- A. AFW flow should be established to RC-2B to help promote natural circulation flow in both RCS loops.
- B. AFW flow should be established to RC-2B to increase decay heat removal.
- C. AFW flow should NOT be established to RC-2B because it would result in a positive reactivity addition.
- D. AFW flow should NOT be established to RC-2B because FW-6 does not have the capacity to feed both S/Gs simultaneously.

Question # 11 REV 0 K/A# 000054 AK1.02 Loss of Main Feedwater Tier 1 Group 1
Knowledge of the operational implications of the following concepts as they apply to
Loss of Main Feedwater (MFW): Effects of feedwater introduction on dry S/G
RO Importance 3.6 SRO Importance 4.2

CFR Number 55.41(b)(10)

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

OBJ# 0715-20 02.05

EXPLAIN the operator actions required to mitigate an Excessive Heat Removal Event.

KA#: 000054 AK1.02
LP# / Objective: 0715-20 02.05
Cognitive Level: HIGH
Reference: TDB-EOP-05

Bank Ref #: NONE
Exam Level: RO-10
Source: NEW
Handout: NONE

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QUESTION NUMBER: 012

A loss of 161 KV to the plant resulted in fast transfer of vital buses 1A3 and 1A4 to 345 KV. This was followed by a loss of load that resulted in a reactor trip. Both D/Gs failed to start due to a common mode failure resulting in a station blackout.

The following conditions exist:

- Breakers 1A11, 1A13, 1A22 and 1A24 are open.
- The generator field breaker is closed.
- The Kirk key interlock for disconnect, DS-T1, is satisfied.
- The isolated phase bus duct cooling units are off.
- All Main Steam Stop Valves are closed.
- Both DC Busses are energized.

Which one of the following actions must be taken to allow disconnect, DS-T1, to be opened from CB-20 prior to restoring 345 KV power to buses 1A3 and 1A4?

- A. Breakers 1A13 and 1A24 must be closed.
- B. The generator field breaker must be opened.
- C. The Kirk key Interlock must be disengaged.
- D. An isolated phase bus duct cooling unit must be started.

Question # 12 REV 0 K/A# 000055 EA2.03 Station Blackout Tier 1 Group 1
Ability to determine or interpret the following as they apply to a Station Blackout:Actions necessary to restore power RO Importance 3.9 SRO Importance 4.7

CFR Number 55.41(b)(7)

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

OBJ# 0713-06 01.03

EXPLAIN the interlocks associated with DS-T1.

KA#:	000055 EA2.03	Bank Ref #:	0713-06 01.03
LP# / Objective:	0713-01 01.05	Exam Level:	RO-7
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	STM-14	Handout:	NONE

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QUESTION NUMBER: 013

The plant tripped from 100% power following a loss of all offsite power. The following conditions exist:

- RCS pressure is 2000 psia.
- Pressurizer level is 40%.
- Steam Generator Pressures are 900 psia.
- Steam Generator Wide Range Levels are 40%.
- Hot leg temperatures are 575°F.
- Cold leg temperatures are 532°F.

Which of the following actions would be most effective in enhancing natural circulation?

- A. Raise RCS pressure.
- B. Raise Pressurizer Level.
- C. Raise Steam Generator Pressures.
- D. Raise Steam Generator Levels.

Question # 13 REV 0 K/A# 000056 AK1.01 Loss of Off-Site Power Tier 1 Group 1
Knowledge of the operational implications of the following concepts as they apply to
Loss of Offsite Power:Principle of cooling by natural convection
RO Importance 3.7 SRO Importance 4.2

CFR Number 55.41(b)(5)

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

OBJ# 0715-16 01.07

EXPLAIN the plant response to the development of natural circulation.

KA#: 000056 AK1.01

Bank Ref #: 07-15-16 008

LP# / Objective: 0715-16 01.07

Exam Level: RO-5

Cognitive Level: HIGH

Source: NRC 01-1 EXAM

Reference: LP 07-15-16

Handout: NONE

NRC EXAM MATERIAL

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QUESTION NUMBER: 014

AOP-16, Section II, "Loss of Instrument Bus AI-40A", Step 14 states "Consider closing BOTH of the PORV (Power-Operated Relief Valves) Block Valves"

What is the purpose of this step?

- A. An additional vital instrument bus failure will result in opening ONE of the PORVs.
- B. An additional vital instrument bus failure will result in opening BOTH of the PORVs.
- C. An additional vital instrument bus failure will result in the inability to close ONE of the PORV Block Valves.
- D. An additional vital instrument bus failure will result in the inability to close BOTH of the PORV Block Valves.

Question # 14 REV 0 K/A# 000057 AK3.01 Loss of Vital AC Electrical Instrument Bus Tier 1 Group 1 Knowledge of the reasons for the following responses as they apply to the Loss of Vital AC Instrument Bus:Actions contained in EOP for loss of vital ac electrical instrument bus RO Importance 4.1 SRO Importance 4.4

CFR Number 55.41(b)(10)

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

OBJ# 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 AK3.01	Bank Ref #:	NONE
LP# / Objective:	0717-16 01.02	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	NEW
Reference:	TDB-AOP-16	Handout:	NONE

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QUESTION NUMBER: 015

The following plant indications were noted following a reactor trip.

- Bus Power Failure DC Distribution Panel 1 Light is off.
- Bus Power Failure DC Distribution Panel 2 Light is on.
- The 43/FW Switch is in the OFF position.
- All NORMAL/OVERRIDE switches on AI-66A are in NORMAL.
- FW-6 can NOT be started from CB-10,11.

Which one of the following actions is required to be able to start FW-6?

- A. Place the 43/FW Switch in the AUTO position.
- B. Start FW-6 from AI-66A after placing the NORMAL/OVERRIDE switches on AI-66A to OVERRIDE.
- C. Use the Emergency MTS buttons on buses 1A1-1A3 to switch to the emergency DC source.
- D. Start FW-6 from the Alternate Shutdown Panel, AI-179.

Question # 15 REV 0 K/A# 000058 AA1.01 Loss of DC Power Tier 1 Group 1
Ability to operate and / or monitor the following as they apply to the Loss of DC
Power: Cross-tie of the affected dc bus with the alternate supply
RO Importance 3.4 SRO Importance 3.5

CFR Number 55.41(b)(10)
Administrative, normal, abnormal, and emergency operating procedures for the facility.

OBJ# 0717-16 01.03
Describe the major recovery actions of this AOP.

KA#:	000058 AA1.01	Bank Ref #:	NONE
LP# / Objective:	0717-16 01.03	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	NEW
Reference:	TDB-AOP-16	Handout:	NONE

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QUESTION NUMBER: 016

One of the two 20 inch underground Raw Water headers from the intake structure to the auxiliary building completely ruptured. How does isolating the ruptured header affect the ability to provide cooling to the RW/CCW heat exchangers?

- A. Raw Water can be supplied to any of the RW/CCW heat exchangers but only two of the Raw Water Pumps can be used.
- B. Raw Water can only be supplied to two of the RW/CCW heat exchangers and only two of the Raw Water Pumps can be used.
- C. Raw Water can be supplied to any of the RW/CCW heat exchangers but only three of the Raw Water Pumps can be used.
- D. Raw Water can only be supplied to three of the RW/CCW heat exchangers and only three of the Raw Water Pumps can be used.

Question # 16 REV 0 K/A# 000062 AA2.03 Loss of Nuclear Service Water Tier 1 Group 1 Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: The valve lineups necessary to restart the SWS while bypassing the portion of the system causing the abnormal condition RO Importance 2.6 SRO Importance 2.9

CFR Number 55.41(b)(7)

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

OBJ# 0717-18 01.00

Use the Loss of Raw Water Procedure to mitigate the consequences of a loss of cooling to Component Cooling Water System or a leak in the Raw Water System.

KA#:	000062 AA2.03	Bank Ref #:	NONE
LP# / Objective:	0717-18 01.00	Exam Level:	RO-7
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM-35	Handout:	NONE

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QUESTION NUMBER: 017

The reactor has been manually tripped following a sudden loss of instrument air pressure. According to AOP-17, Loss of Instrument Air, which of the following actions should be taken to prevent overfilling the steam generators?

- A. Close FCV-1101 and FCV-1102 using DCS.
- B. Maximize S/G blowdown flow.
- C. Initiate a Steam Generator Isolation Signal (SGIS).
- D. Manually trip all Main Feedwater Pumps.

Question # 17 REV 0 K/A# 000065 AA2.08 Loss of Instrument Air Tier 1 Group 1
Ability to determine and interpret the following as they apply to the Loss of Instrument Air: Failure modes of air-operated equipment RO Importance 2.9 SRO Importance 3.3

CFR Number 55.41(b)(10)

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

OBJ# 0711-11 02.05

EXPLAIN the operation of the Feedwater Control System following a turbine trip.

KA#: 000065 AA2.08
LP# / Objective: 0711-11 02.05
Cognitive Level: LOW
Reference: AOP-17

Bank Ref #: 07-11-11 007
Exam Level: RO-10
Source: NRC 01-1 EXAM REWORD
Handout: NONE

NRC EXAM MATERIAL

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QUESTION NUMBER: 018

The plant is operating at 10% reactor power when a loss of stator water cooling occurs. Attempts to restore stator water cooling have been unsuccessful and the stator cooling water outlet temperature has risen to 82°C.

What action is required by AOP-27, "GENERATOR MALFUNCTIONS"?

- A. Manually trip the reactor.
- B. Manually trip the turbine.
- C. Manually trip the main generator output breakers.
- D. Manually open the main generator field breaker.

Question # 18 REV 0 K/A# 000077 AA2.10 Generator Voltage and Electric Grid Disturbance Tier 1 Group 1 Ability to determine and interpret the following as they apply to Generator Voltage and Electric Grid Disturbances: Generator overheating and the required actions RO Importance 3.6 SRO Importance 3.8

CFR Number 55.41(b)(10)

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

OBJ# 0717-27 01.00

Use the Generator Malfunctions procedure in the event of trouble with the generator or generator support systems.

KA#:	000077 AA2.10	Bank Ref #:	NONE
LP# / Objective:	0717-27 01.00	Exam Level:	RO-10
Cognitive Level:	LOW	Source:	NEW
Reference:	AOP-27	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 019

During a reactor startup, the brake on one of regulating group 2 CEAs fails to release preventing motion of the CEA. The CEAs are being withdrawn in the manual sequential mode. The stuck CEA is not selected as the target CEA in the group. When will a SCEAPIS (DCS) rod block signal be generated?

- A✓ When any CEA in group 2 is withdrawn 8 inches above the stuck CEA.
- B. When any CEA in group 2 is withdrawn 4 inches above the stuck CEA.
- C. When any CEA in group 1 reaches the upper rod stop.
- D. When any CEA in group 3 begins to withdraw.

Question # 19 REV 0 K/A# 000005 AK2.03 Inoperable/Stuck Control Rod Tier 1 Group 2 Knowledge of the interrelations between the Inoperable / Stuck Control Rod and the following:Metroscope RO Importance 3.1 SRO Importance 3.3

CFR Number 55.41(b)(7)

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

OBJ# 0712-26 01.07

Describe the methods of control rod position indication. Include the readouts and displays associated with each method. (CID No. 931191/02)

KA#: 000005 AK2.03
LP# / Objective: 0712-26 01.07
Cognitive Level: LOW
Reference: STM 11

Bank Ref #: 07-12-26 006
Exam Level: RO-7
Source: NRC 97 EXAM
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 020

A power increase is in progress. The reactor is at 80% power. Group 4 CEAs are at 52 inches. All other CEAs are fully withdrawn. Using the attached PDIL curve determine what action must be taken as a result of these conditions?

- A. Immediately commence emergency boration.
- B. Withdraw group 4 CEAs to above the short term insertion limit.
- C. Withdraw group 4 CEAs until proper group overlap is achieved.
- D. Place the plant in hot shutdown within 6 hours.

Question # 20 REV 0 K/A# 000024 2.1.25 Emergency Boration Tier 1 Group 2
Ability to interpret reference materials such as graphs, curves, etc.
RO Importance 3.9 SRO Importance 4.2

CFR Number 55.41(b)(5)

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

OBJ# 0705-09 01.13

DISCUSS the power dependent insertion limit.

KA#: 000024 2.1.25
LP# / Objective: 0705-09 01.13
Cognitive Level: HIGH
Reference: PDIL CURVE

Bank Ref #: 07-05-09 001
Exam Level: RO-5
Source: NRC 01-2 EXAM
Handout: PDIL CURVE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 021

A reactor startup is being conducted using Procedure OP-2A, "CEA Withdrawal to Criticality Mode 2". Which one of the following Wide Range NI source range indications requires that the Reactor Engineer be notified prior to conducting a reactor startup to ensure subcritical multiplication can be adequately monitored.

- A. Three operable channels, one indicating 8 cps and the other two indicating 1.5 cps.
- B. Three operable channels, two indicating 0.5 cps and the other indicating 2 cps.
- C. Four operable channels, two indicating 2 cps and the other two indicating 8.5 cps.
- D. Four operable channels, three indicating 2 cps and the other one indicating 1.5 cps.

Question # 21 REV 0 K/A# 000032 AK3.01 Loss of Source Range Nuclear Instrumentation Tier 1 Group 2 Knowledge of the reasons for the following responses as they apply to the Loss of Source Range Nuclear Instrumentation:Startup termination on source-range loss RO Importance 3.2 SRO Importance 3.6

CFR Number 55.41(b)(6)
Design, components,and functions of reactivity control mechanisms and instrumentation.

OBJ# 0712-18 02.05
Predict the response of WR NIS during a startup and reactor trip.

KA#:	000032 AK3.01	Bank Ref #:	NONE
LP# / Objective:	0712-18 02.05	Exam Level:	RO-6
Cognitive Level:	HIGH	Source:	NEW
Reference:	OP-2A	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 022

The following power indications are observed 10 minutes after a reactor trip

- All four WR NI Channels are indicating $3 \times 10^{-3}\%$ Power and lowering.
- All four WR NI Channels are indicating a startup rate of -0.1 DPM and steady.
- All four Power Range NI Channels are indicating 0% power and steady.
- All four Delta-T Power Channels are indicating 2% power and lowering.

What common cause failure could cause these indications?

- A. The Wide Range NI power indication channels were miscalibrated.
- B. The Wide Range NI startup rate channels were miscalibrated.
- C. The Power Range NI channels were miscalibrated.
- D. The Delta-T Power Channels were miscalibrated.

Question # 22 REV 0 K/A# 000033 AA2.01 Loss of Intermediate Range Nuclear Instrumentation Tier 1 Group 2 Ability to determine and interpret the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation:Equivalency between source-range, intermediate-range, and power-range channel readings
RO Importance 3 SRO Importance 3.5

CFR Number 55.41(b)(6)

Design, components, and functions of reactivity control mechanisms and instrumentation.

OBJ# 0715-12 01.02e

An uncomplicated reactor trip

KA#: 000033 AA2.01
LP# / Objective: 0715-12 01.02E
Cognitive Level: HIGH
Reference: LP 07-15-12

Bank Ref #: NONE
Exam Level: RO-6
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

QUESTION NUMBER: 023

Radioactive liquid that leaks inside containment will collect in the containment sump. The containment sump pumps will normally pump this radioactive water to:

- A. The Reactor Coolant Drain Tank.
- B. The Waste Holdup Tanks.
- C. The Waste Monitor Tanks.
- D. The Spent Regenerant Tanks.

Question # 23 REV 0 K/A# 000059 AK1.01 Accidental Liquid Radwaste Release Tier 1 Group 2 Knowledge of the operational implications of the following concepts as they apply to Accidental Liquid Radwaste Release: Types of radiation, their units of intensity and the location of the sources of radiation in a nuclear power plant
RO Importance 2.7 SRO Importance 3.1

CFR Number 55.41(b)(13)

Procedures and equipment available for handling and disposal of radioactive materials and effluents.

OBJ# 0711-32 01.01

Explain the normal operation of the WDLS, including normal flowpath and parameters.

KA#:	000059 AK1.01	Bank Ref #:	NONE
LP# / Objective:	0711-32 01.01	Exam Level:	RO-13
Cognitive Level:	LOW	Source:	NEW
Reference:	STM-48	Handout:	NONE

NRC EXAM MATERIAL

QUESTION NUMBER: 024

The purpose of the waste gas decay tanks is to:

- A. Collect combustible gases from plant components until they can be inerted and released.
- B✓ Store radioactive noble gases until their activity is low enough for release.
- C. Collect combustible gases from plant components until they can be inerted and reused in the plant.
- D. Store radioactive noble gases until their activity is low enough for reuse in the plant.

Question # 24 REV 0 K/A# 000060 AK1.01 Accidental Gaseous Radwaste Release Tier 1 Group 2 Knowledge of the operational implications of the following concepts as they apply to Accidental Gaseous Radwaste Release: Types of radiation, their units of intensity and the location of sources of radiation in a nuclear reactor power plant RO Importance 2.5 SRO Importance 3.1

CFR Number 55.41(b)(13)

Procedures and equipment available for handling and disposal of radioactive materials and effluents.

OBJ# 0711-31 01.00

APPLY the principles of operation of the Waste Disposal (Gas) System to diagnose system response for specific plant conditions.

KA#: 000060 AK1.01
LP# / Objective: 0711-31 01.00
Cognitive Level: LOW
Reference: STM 48

Bank Ref #: 07-11-31 002
Exam Level: RO-13
Source: NRC 01-2 EXAM
Handout: NONE

NRC EXAM MATERIAL

QUESTION NUMBER: 025

The reactor tripped due to a loss of condenser vacuum. Immediately following the trip, a small LOCA occurred inside containment resulting in PPLS and CPHS actuations. All HPSI pumps failed to start as required.

The RCS pressure is steady at 1000 psia and Reactor Vessel Level is at 43%

Which of the following valves can be used by the Balance of Plant Operator to immediately begin a RCS cooldown?

- A. Steam Dump Valves, TCV-909-1,2,3,4.
- B. Steam Bypass Valve, PCV-910.
- C. Atmospheric Dump Valve, HCV-1040.
- D. Air Assisted Main Steam Safety Valves, MS-291, MS-292.

Question # 25 REV 0 K/A# 000074 EA1.25 Inadequate Core Cooling Tier 1 Group 2 Ability to operate and monitor the following as they apply to a Inadequate Core Cooling: Atmospheric dump valve controllers and indicators RO Importance 3.8 SRO Importance 3.8

CFR Number 55.41(b)(7)

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

OBJ# 0711-17 04.01

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

KA#:	000074 EA1.25	Bank Ref #:	NONE
LP# / Objective:	0711-17 04.01	Exam Level:	RO-7
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 25	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 026

Which one of the following RCS radiochemistry parameters, when greater than the limit, requires entry into AOP-21, "RCS HIGH ACTIVITY?"

- A. Fuel Reliability Indicator (FRI).
- B. Dose Equivalent Iodine-131 (DEI).
- C. Xenon-133 concentration.
- D. RCS Leakcheck Gas concentration.

Question # 26 REV 0 K/A# 000076 2.4.04 High Reactor Coolant Activity Tier 1 Group 2
 Ability to recognize abnormal indications for system operating parameters that are
 entry-level conditions for emergency and abnormal operating procedures.
 RO Importance 4.5 SRO Importance 4.7

CFR Number 55.41(b)(5)
 Facility operating characteristics during steady state and transient conditions, including
 coolant chemistry, causes and effects of temperature, pressure and reactivity changes,
 effects of load changes, and operating limitations and reasons.

OBJ# 0717-21 01.04
 Describe the entry conditions for this AOP.

KA#:	000076 2.4.04	Bank Ref #:	NONE
LP# / Objective:	0717-21 01.04	Exam Level:	RO-5
Cognitive Level:	LOW	Source:	NEW
Reference:	AOP-21	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 027

The "REACTOR VESSEL FLANGE LEAK" alarm was received due to leakage past the Reactor Vessel Flange inner O-Ring. Actions were taken to reset the alarm condition.

What parameter is used to cause an alarm if leakage occurs past the outer O-Ring?

- A✓ Pressure.
- B. Temperature.
- C. Flow.
- D. Standpipe level.

Question # 27 REV 0 K/A# CE-A16 AA1.03 Excess RCS Leakage Tier 1 Group 2 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 SRO Importance 3.6

CFR Number 55.41(b)(3)
Mechanical components and design features of the reactor primary system.

OBJ# 0711-20 02.06
LIST the maximum allowable RCS leakage rates.

KA#:	CE-A16 AA1.03	Bank Ref #:	NONE
LP# / Objective:	0711-20 02.06	Exam Level:	RO-3
Cognitive Level:	LOW	Source:	NEW
Reference:	STM-37	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 028

You have been directed to shutdown Reactor Coolant Pump, RC-3A,. You notice that, the control switch for Oil Lift Pump, RC-3A-1, is in the "AFTER START" position and that the Oil Lift pump is not operating.

Which one of the following actions, if any, is required to ensure proper lubrication of the RCP bearings?

- A. Do not trip RCP, RC-3A unless its' oil lift pump is running.
- B. If after tripping RCP RC-3A, its' oil lift pump does not start automatically, then momentarily place the oil lift pump control switch in the "STOP" position then back to the "START" position to reset it.
- C. If after tripping RCP RC-3A, its' oil lift pump does not start automatically, then hold the oil lift pump control switch in the "START" position until the "ZERO SPEED" light comes on.
- D. No action is required. The oil lift pump is only needed when starting a Reactor Coolant Pump.

Question # 28 REV 0 K/A# 003000 2.1.20 Reactor Coolant Pump System Tier 2 Group 1 Ability to interpret and execute procedure steps. RO Importance 4.6 SRO Importance 4.6

CFR Number 55.41(b)(10)

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

OBJ# 0711-20 03.02

LIST the major steps required to operate a reactor coolant pump per OI-RC-9.

KA#: 003000 2.1.20
LP# / Objective: 0711-20 03.02
Cognitive Level: HIGH
Reference: OI-RC-9

Bank Ref #: NONE
Exam Level: RO-10
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 029

Leakage through Power Operated Relief Valve, PCV-102-1, has been discovered and the leaking PORV has been isolated. If its PORV block valve, HCV-151, also leaks through, and assuming no operator action, how will the VCT level control system first respond?

Note: assume the plant is in a normal lineup for VCT makeup.

- A. FCV-269, FCV-269X and FCV-269Y will open automatically to supply water to the VCT at the neutral blend boron concentration.
- B. FCV-269, FCV-269X and FCV-269Y will open automatically to supply water to the charging pump suction at the neutral blend boron concentration.
- C. LCV-218-3 will open and LCV-218-2 will close automatically to supply water to the VCT at the SIRWT boron concentration.
- D. LCV-218-3 will open and LCV-218-2 will close automatically to supply water to the charging pump suction at the SIRWT boron concentration.

Question # 29 REV 0 K/A# 004000 K1.29 Chemical and Volume Control System Tier 2 Group 1 Knowledge of the physical connections and/or cause-effect relationships between the CVCS and the following systems: Effect and detection of leaking PORV or relief on PZR level and pressure, including VCT makeup activity in automatic mode RO Importance 3.4 SRO Importance 4

CFR Number 55.41(b)(7)

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

OBJ# 0711-02 02.03

EXPLAIN the flowpath for emergency boration of the Reactor Coolant System.

KA#: 004000 K1.29
LP# / Objective: 0711-02 02.03
Cognitive Level: HIGH
Reference: STM-12

Bank Ref #: NONE
Exam Level: RO-7
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 030

A plant shutdown and cooldown are being performed. One hour after placing shutdown cooling in service, the following plant indications are observed:

- Pressurizer pressure and level are lowering.
- Containment sump level is steady.
- CCW surge tank level and pressure are increasing.
- Steam Generator levels are steady.
- Steam generator pressures are lowering slowly.
- RM-053 is in alarm.
- All other process radiation monitors are reading normal.

Which one of the following could cause these indications?

- A. A Raw Water/CCW Heat Exchanger Tube Leak
- B. A regenerative heat exchanger tube leak.
- C. A shutdown cooling heat exchanger tube leak.
- D. A steam generator tube leak.

Question # 30 REV 0 K/A# 005000 K6.03 Residual Heat Removal System Tier 2
Group 1 Knowledge of the effect of a loss or malfunction on the following will have on
the RHRS:RHR heat exchanger RO Importance 2.5 SRO Importance 2.6

CFR Number 55.41(b)(11)

Purpose and operation of radiation monitoring systems, including alarms and survey
equipment.

OBJ# 0711-06 06.01

EXPLAIN conditions that indicate leakage in or out of the CCW System.

KA#:	005000 K6.03	Bank Ref #:	NONE
LP# / Objective:	0711-06 06.01	Exam Level:	RO-11
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-22	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 031

EOP/AOP Attachment 7, "SDC WITH RAS" has been entered following a Loss of Coolant Accident. A RCS cooldown is being conducted using shutdown cooling. The RCS cold leg temperatures are currently 170°F.

What is the maximum allowable cooldown rate under these conditions?

- A. 25°F/hr.
- B. 50°F/hr.
- C. 100°F/hr.
- D. 200°F/hr.

Question # 31 REV 0 K/A# 006000 K5.04 Emergency Core Cooling System Tier 2 Group 1 Knowledge of the operational implications of the following concepts as they apply to ECCS: Brittle fracture, including causes and preventative actions RO Importance 2.9 SRO Importance 3.1

CFR Number 55.41(b)(10)

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

OBJ# 0711-20 02.02

EXPLAIN the basis for the RCS heatup and cooldown curves and STATE the limits.

KA#: 006000 K5.04
LP# / Objective: 0711-20 02.02
Cognitive Level: LOW
Reference: EOP/AOP ATT 7

Bank Ref #: NONE
Exam Level: RO-10
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 032

HPSI pump, SI-2A, has been tagged out of service due to a breaker problem. How does this affect the operability of the HPSI train associated with SI-2A per Technical Specifications?

- A. The HPSI train is considered operable if SI-2B is operable.
- B. The HPSI train is considered operable if SI-2C is operable.
- C. One train of HPSI is inoperable, SI-2A must be made operable within 24 hours.
- D. One train of HPSI is inoperable, SI-2A must be made operable within 7 days.

Question # 32 REV 0 K/A# 006000 2.2.37 Emergency Core Cooling System Tier 2 Group 1 Ability to determine operability and/or availability of safety related equipment. RO Importance 3.6 SRO Importance 4.6

CFR Number 55.41(b)(5)

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

OBJ# 0711-22 01.12

Given a copy of Technical Specifications, apply the applicable Limiting Conditions for Operation (LCO).

KA#:	006000 2.2.37	Bank Ref #:	NONE
LP# / Objective:	0711-22 01.12	Exam Level:	RO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	TS 2.3	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 033

How is a steam bubble formed in the pressurizer per OP-2A?

- A. With the pressurizer level at approximately 50%, pressurizer heaters are used to heat the water to saturation. Non-condensable gases are allowed to dissolve in the water.
- B. With the pressurizer level at approximately 90%, pressurizer heaters are used to heat the water to saturation. Non-condensable gases are allowed to dissolve in the water.
- C. With the pressurizer level at approximately 50%, pressurizer heaters are used to heat the water to saturation. Non-condensable gases are vented to the PQT or VCT.
- D. With the pressurizer level at approximately 90%, pressurizer heaters are used to heat the water to saturation. Non-condensable gases are vented to the PQT or VCT.

Question # 33 REV 0 K/A# 007000 K5.02 Pressurizer Relief Tank / Quench Tank System Tier 2 Group 1 Knowledge of the operational implications of the following concepts as they apply to PRTS: Method of forming a steam bubble in the PZR
RO Importance 3.1 SRO Importance 3.4

CFR Number 55.41(b)(10)

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

OBJ# 0711-20 03.05

LIST the major steps for starting up the Reactor Coolant System per OP-2A.

KA#: 007000 K5.02
LP# / Objective: 0711-20 03.05
Cognitive Level: LOW
Reference: OP-2A

Bank Ref #: 07-11-20 153
Exam Level: RO-10
Source: MODIFIED
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 034

Given the following plant conditions:

- The plant is operating at 100% power.
- Pressurizer Safety Valve, RC-142, has seat leakage.
- Quench tank temperature and level are rising.
- Quench tank pressure is 8 psig and increasing slowly.

Which one of the following automatic actions will occur assuming no operator actions are taken?

- A✓ The Quench tank relief valve, RC-125, will open resulting in increasing containment pressure.
- B. The Quench tank relief valve, RC-125, will open and relieve to the waste gas system.
- C. The Quench tank vent valve, HCV-155, will open and vent to the containment vent header and the RCDT outlet containment isolation valve will close.
- D. The Quench tank vent valve, HCV-155, will open and the quench tank disk will rupture resulting in increasing containment pressure.

Question # 34 REV 0 K/A# 007000 2.1.07 Pressurizer Relief Tank / Quench Tank System Tier 2 Group 1 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. RO Importance 4.4 SRO Importance 4.7

CFR Number 55.41(b)(5)

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

OBJ# 0711-20 03.04

LIST the major steps for proper operation of the quench tank per OI-RC-6.

KA#:	007000 2.1.07	Bank Ref #:	07-11-20 029
LP# / Objective:	0711-20 03.04	Exam Level:	RO-5
Cognitive Level:	HIGH	Source:	NRC 04 EXAM
Reference:	STM 37	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 035

The CCW system is being started up. All three CCW pumps are off. What action will you direct the EONA to take before starting the first CCW pump, AC-3A?

- A. Ensure CCW Surge tank pressure is greater than 60 psig.
- B Vent AC-3A using its casing vent valve.
- C. Fully open the discharge valve for AC-3A.
- D. Fully close the discharge valves for AC-3B and AC-3C.

Question # 35 REV 0 K/A# 008000 A4.04 Component Cooling Water System Tier 2 Group 1 Ability to manually operate and/or monitor in the control room:Startup of a CCW pump when the system is shut down. RO Importance 2.6 SRO Importance 2.6

CFR Number 55.41(b)(10)

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

OBJ# 0711-06 02.01

EXPLAIN the process of venting and sweeping components.

KA#:	008000 A4.04	Bank Ref #:	NONE
LP# / Objective:	0711-06 02.01	Exam Level:	RO-10
Cognitive Level:	LOW	Source:	NEW
Reference:	OI-CC-1	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 036

During a plant transient that resulted in valid SIAS and CIAS actuations, the following plant conditions are noted:

- A "COMPONENT COOLING WATER SYSTEM LOW PRESSURE" alarm came in 40 seconds ago.
- CCW Header Pressure, PI-499, indicates 118 psig.
- HCV-438A/B/C/D are closed in automatic.
- CCW Surge Tank Pressure indicates 41 psig.
- All CCW Pumps are running.

Which one of the following conditions could cause these indications?

- A. PI-499, CCW header pressure, has failed low.
- B. CCW Pressure Switches, PCS-412 and PCS-413, have failed low.
- C. PIC-2802, CCW Surge Tank Pressure indication, has failed low.
- D. HCV-438A/B/C/D have inadvertently closed resulting in low CCW pressure to the RCPs.

Question # 36 REV 0 K/A# 008000 2.4.46 Component Cooling Water System Tier 2
Group 1 Ability to verify that the alarms are consistent with the plant conditions.
RO Importance 4.2 SRO Importance 4.2

CFR Number 55.41(b)(7)

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

OBJ# 0711-06 01.05

EXPLAIN the response of the CCW System to signals from the Engineered Safeguards Control System.

KA#:	008000 2.4.46	Bank Ref #:	NONE
LP# / Objective:	0711-06 01.05	Exam Level:	RO-7
Cognitive Level:	HIGH	Source:	NEW
Reference:	ARP-CB-1,2,3/A2	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 037

A Reactor Coolant System cooldown is in progress for a refueling outage using the shutdown cooling system. Current RCS Temperature is 120°F and pressure is 235 psia. Reactor Coolant Pumps, RC-3A and RC-3B, are operating. Pressure is being controlled manually using main pressurizer spray and heaters.

What actions should be taken before shutting down reactor coolant pumps, RC-3A and RC-3B?

- A. RCS Pressure should be lowered to less than 215 psia.
- B. RCS Temperature should be lowered to less than 110°F.
- C. The RCS should be borated to the refueling boron concentration.
- D. RCS pressure control using auxiliary spray should be established.

Question # 37 REV 0 K/A# 010000 A4.01 Pressurizer Pressure Control System Tier 2 Group 1 Ability to manually operate and/or monitor in the control room:PZR spray valve RO Importance 3.7 SRO Importance 3.5

CFR Number 55.41(b)(10)

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

OBJ# 0711-20 03.06a

DISCUSS the prerequisites and precautions for shutdown of the RCS.

KA#:	010000 A4.01	Bank Ref #:	NONE
LP# / Objective:	0711-20 03.06A	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	NEW
Reference:	OI-RC-9	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 038

How would a loss of 125V DC Bus 1 affect the Diverse Scram System (DSS)?

- A. Power would be lost to the "A" DSS 86-Relay resulting in reactor trip.
- B. Power would be lost to the "A" DSS 86-Relay resulting in a "1 of 3" DSS trip logic.
- C. Power would be lost to the "A" DSS 86-Relay. The "A" DSS 86-Relay would not be capable of generating a reactor trip.
- D. Power would be lost to the "A" DSS 86-Relay. The DSS would not be capable of generating a reactor trip.

Question # 38 REV 0 K/A# 012000 K1.02 Reactor Protection System Tier 2 Group 1 Knowledge of the physical connections and/or cause effect relationships between the RPS and the following systems:125V dc system RO Importance 3.4 SRO Importance 3.7

CFR Number 55.41(b)(6)
Design, components,and functions of reactivity control mechanisms and instrumentation.

OBJ# 0712-25 05.06
DESCRIBE the effects of a loss of power on the Diverse Scram System.

KA#:	012000 K1.02	Bank Ref #:	NONE
LP# / Objective:	0712-25 05.06	Exam Level:	RO-6
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM-38	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 039

The power supply to RPS Clutch Power Supply Breaker, CB-AB, will be transferred from Instrument bus "B" to Instrument bus "A".

Inverter "A" is supplying power to Instrument Bus "A" and swing inverter, EE-8U, is supplying power to Instrument Bus "B".

Which one of the following actions will be taken before placing the Clutch Power Supply Transfer Switch, RPS/TS-AB, in the Instrument Bus A (#1) position?

- A. Cross-tie Instrument bus "A" to Instrument bus "C".
- B. Bypass inverter "A".
- C. Transfer Instrument bus "B" supply to Inverter "B".
- D. Bypass Swing Inverter 8-U.

Question # 39 REV 0 K/A# 012000 K2.01 Reactor Protection System Tier 2 Group 1 Knowledge of bus power supplies to the following:RPS channels, components, and interconnections RO Importance 3.3 SRO Importance 3.7

CFR Number 55.41(b)(10)
Administrative, normal, abnormal, and emergency operating procedures for the facility.

OBJ# 0712-25 01.14
EXPLAIN how the reactor trip breakers are operated.

KA#:	012000 K2.01	Bank Ref #:	NONE
LP# / Objective:	0712-25 01.14	Exam Level:	RO-10
Cognitive Level:	LOW	Source:	NEW
Reference:	OI-EE-4	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 040

The plant is operating at 50% power when a LOCA occurs. The reactor trips automatically, PPLS and CPHS initiate, and the sequencers begin starting safeguards motors. During the starting sequence bus 1A3 voltage and transformer T1A3 voltage decrease to below the OPLS setpoint for 10 seconds.

How will the OPLS relays respond and what action, if any, will need to be taken to ensure safeguards equipment actuates?

- A. OPLS will not actuate. Operators will need to trip both 86A/OPLS and 86B/OPLS.
- B. 86A/OPLS will actuate. Operators will need to trip 86B/OPLS.
- C. 86B/OPLS will actuate. Operators will need to trip 86A/OPLS.
- D. 86A/OPLS and 86B/OPLS will both actuate. No operator action is required.

Question # 40 REV 0 K/A# 013000 A2.01 Engineered Safety Features Actuation System Tier 2 Group 1 Ability to (a) predict the impacts of the following malfunctions or operations on the ESFAS; and (b) based Ability on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations;LOCA RO Importance 4.6 SRO Importance 4.8

CFR Number 55.41(b)(7)

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

OBJ# 0712-14 01.00

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

KA#:	013000 A2.01	Bank Ref #:	07-12-14 059
LP# / Objective:	0712-14 01.00	Exam Level:	RO-7
Cognitive Level:	HIGH	Source:	BANK
Reference:	STM-19	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 041

How is air supplied to the suction of the CEDM Cooling Fans, VA-2A and VA-2B?

- A. The CEDM cooling fans take cool air directly from the containment coolers.
- B. The CEDM cooling fans take air from the seismic skirt area that has been cooled by the containment coolers .
- C. The CEDM cooling fans take air directly from the containment atmosphere.
- D. The CEDM cooling fans take cool air from the nuclear detector cooling system.

Question # 41 REV 0 K/A# 022000 K4.04 Containment Cooling System Tier 2 Group 1 Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: Cooling of control rod drive motors RO Importance 2.8 SRO Importance 3.1

CFR Number 55.41(b)(4)
Secondary coolant and auxiliary systems that affect the facility.

OBJ# 0714-05 02.04
State all the power supplies for each of the major components of the CEDM Cooling System.

KA#:	022000 K4.04	Bank Ref #:	07-14-05 015
LP# / Objective:	0714-05 02.04	Exam Level:	RO-4
Cognitive Level:	LOW	Source:	MODIFIED
Reference:	STM-10	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 042

ECCS actuation has occurred due to a PPLS. EOP-03, "LOSS OF COOLANT ACCIDENT" has been entered and step 33 has been reached. Step 33 says:

"Verify that the Containment Sump level rises as the SIRWT level lowers".

You observe that SIRWT level is 95 inches and lowering, however containment sump level is low and not rising.

What action should be taken per EOP-03?

- A. Minimize ECCS flow to the minimum required to remove decay heat.
- B. Initiate containment spray to ensure adequate containment sump level.
- C. Begin blended makeup to the SIRWT to increase SIRWT inventory.
- D. Trip the LPSI pumps to reduce SIRWT depletion rate.

Question # 42 REV 0 K/A# 026000 K4.07 Containment Spray System Tier 2 Group 1
Knowledge of CSS design feature(s) and/or interlock(s) which provide for the
following: Adequate level in containment sump for suction (interlock)
RO Importance 3.8 SRO Importance 4.1

CFR Number 55.41(b)(10)

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

OBJ# 0718-13 01.04

GIVEN a copy of the Technical Basis Documents (TBDs), EXPLAIN the bases behind the major operator actions contained in EOP-03, LOCA.

KA#: 026000 K4.07
LP# / Objective: 0718-13 01.04
Cognitive Level: HIGH
Reference: EOP-03

Bank Ref #: NONE
Exam Level: RO-10
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 043

In order to maintain steam generator pressure below 1100 psia following a 100% power loss of load, technical specifications require that _____ be operable.

- A. All 10 Main Steam Safety Valves.
- B. 9 of 10 Main Steam Safety Valves.
- C. 4 of 5 Main Steam Safety Valves on each Steam Generator.
- D. 3 of 5 Main Steam Safety Valves on each Steam Generator.

Question # 43 REV 0 K/A# 039000 A1.06 Main and Reheat Steam System Tier 2 Group 1 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 SRO Importance 3.1

CFR Number 55.41(b)(5)

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

OBJ# 0711-17 01.05

Given the Technical Specification Manual, INTERPRET the limiting conditions for operation that apply to the Main Steam System.

KA#:	039000 A1.06	Bank Ref #:	NONE
LP# / Objective:	0711-17 01.05	Exam Level:	RO-5
Cognitive Level:	LOW	Source:	NEW
Reference:	TS 2.1.6	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 044

Auxiliary Feedwater flow was manually initiated via the Auxiliary Feedwater nozzles following a reactor trip. AFW flow was then manually stopped by the Balance of Plant Operator.

Which one of the following pairs of Wide Range Steam Generator Levels does NOT satisfy the RCS Heat Removal Safety Function per EOP-01, "REACTOR TRIP RECOVERY?"

	<u>Steam Generator RC-2A Wide Range Level</u>	<u>Steam Generator RC-2B Wide Range Level</u>
A✓	70%	65%
B.	75%	60%
C.	95%	80%
D.	85%	55%

Question # 44 REV 0 K/A# 059000 A3.02 Main Feedwater System Tier 2 Group 1
Ability to monitor automatic operation of the MFW, including: Programmed levels of the
S/G RO Importance 2.9 SRO Importance 3.1

CFR Number 55.41(b)(10)

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

OBJ# 0718-10 01.05e

GIVEN a set of plant conditions and a copy of the EOP resource Assessment Trees,
DETERMINE the correct success path for any of the following safety functions: RCS
and Core Heat Removal

KA#:	059000 A3.02	Bank Ref #:	NONE
LP# / Objective:	0718-10 01.05E	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP-01	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 045

To prevent a loss of RCS heat removal following a total loss of feedwater, either AFW flow must be initiated or once-through-cooling must be established prior to:

- A. Wide Range level in either S/G falling below 32%.
- B. Wide Range level in both S/G's falling below 32%.
- C. An uncontrolled rise in RCS T-cold of 5°F.
- D. An uncontrolled rise in RCS pressure of 50 psi.

Question # 45 REV 0 K/A# 061000 K3.01 Auxiliary / Emergency Feedwater System Tier 2 Group 1 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

CFR Number 55.41(b)(10)

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

OBJ# 0718-16 01.04

STATE from memory the two Contingency Actions in EOP-06 which require the operator to GO TO EOP-20, Functional Recovery.

KA#: 061000 K3.01
LP# / Objective: 0718-16 01.04
Cognitive Level: LOW
Reference: EOP-06

Bank Ref #: NONE
Exam Level: RO-10
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 046

The Plant is operating at full power when an electrical grid disturbance results in degraded grid voltage. As a result, the voltage on all 4160 V buses is less than 3750 volts and the voltage on all 480 volt buses is less than 430 volts.

What action is directed by AOP-31, "161 KV GRID MALFUNCTIONS" after tripping the reactor and entering EOP-00

- A. Trip all pumps fed by 4160 V buses and manually initiate a 480 volt load shed.
- B. Trip all pumps fed by 4160 V buses, parallel the Diesel Generators to buses 1A3 and 1A4 and open breakers 1A13, 1A33, 1A24 and 1A44.
- C. Deenergize buses 1A3 and 1A4 by opening breakers 1A13, 1A33, 1A24 and 1A44, allow the Diesel Generators to automatically power buses 1A3 and 1A4, manually initiate the sequencers to start required loads.
- D. Deenergize buses 1A3 and 1A4 by opening breakers 1A13, 1A33, 1A24 and 1A44. Allow the Diesel Generators to automatically power buses 1A3 and 1A4, manually start required loads.

Question # 46 REV 0 K/A# 062000 A2.16 A.C. Electrical Distribution Tier 2 Group 1 Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Degraded system voltages RO Importance 2.5 SRO Importance 2.9

CFR Number 55.41(b)(10)

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

OBJ# 0717-31 01.03

Describe the major recovery actions of this AOP.

KA#: 062000 A2.16
LP# / Objective: 0717-31 01.03
Cognitive Level: HIGH
Reference: AOP-31

Bank Ref #: NONE
Exam Level: RO-10
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 047

Which one of the following is an indicator of a ground on 125V DC Bus #1?

- A. Both white lights at AI-41A will be brightly lit.
- B. One white light at AI-41A will be brightly lit while the other is off.
- C. Both white lights at AI-41A will be off.
- D. One white light at AI-41A will be off while the other is dimly lit.

Question # 47 REV 0 K/A# 063000 A2.01 D.C. Electrical Distribution Tier 2 Group 1 Ability to (a) predict the impacts of the following malfunctions or operations on the dc electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:Grounds RO Importance 2.5 SRO Importance 3.2

CFR Number 55.41(b)(10)
Administrative, normal, abnormal, and emergency operating procedures for the facility.

OBJ# 0713-04 01.04
Explain the Control Room indications for the systems and list the normal values for these indications.

KA#:	063000 A2.01	Bank Ref #:	07-13-04 015
LP# / Objective:	0713-04 01.04	Exam Level:	RO-10
Cognitive Level:	LOW	Source:	BANK
Reference:	STM 14	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 048

The timer on battery charger #1, EE-8C, is being used to place an equalizing charge on battery #1.

What voltage would be expected to be indicated on DC bus #1 during this operation?

- A. 138-142 volts dropping to 120-125 volts when the timer times out.
- B. 133-137 volts dropping to 120-125 volts when the timer times out.
- C. 138-142 volts dropping to 128-132 volts when the timer times out.
- D. 133-137 volts dropping to 128-132 volts when the timer times out.

Question # 48 REV 0 K/A# 063000 A3.01 D.C. Electrical Distribution Tier 2 Group 1
Ability to monitor automatic operation of the dc electrical system, including: Meters,
annunciators, dials, recorders, and indicating lights RO Importance 2.7 SRO
Importance 3.1

CFR Number 55.41(b)(7)

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

OBJ# 0713-04 01.02

Explain the operation of each major component during all modes of operation.

KA#: 063000 A3.01
LP# / Objective: 0713-04 01.02
Cognitive Level: LOW
Reference: STM 14

Bank Ref #: NONE
Exam Level: RO-7
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 049

A large LOCA occurred in containment coincident with a loss of offsite power. Both Diesel Generators started, but DG-1's speed only increased to 700 rpm due to a problem with its governor.

How would the ECCS pumps normally powered by DG-1 be affected?

- A The output breaker from DG-1 would not close and there would be no power to the pumps.
- B. The output breaker from DG-1 would close, but the sequencers would not close the individual pump breakers.
- C. The output breaker from DG-1 would close, the sequencers would close the individual pump breakers, but the DG-1 output breaker would soon open due to an overcurrent condition causing the pumps to lose power.
- D. Power would be supplied to ECCS pumps but they would be run at a reduced speed.

Question # 49 REV 0 K/A# 064000 K3.02 Emergency Diesel Generators Tier 2 Group 1 Knowledge of the effect that a loss or malfunction of the ED/G system will have on the following:ESFAS controlled or actuated systems RO Importance 4.2 SRO Importance 4.4

CFR Number 55.41(b)(5)

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

OBJ# 0713-05 01.09

Explain a normal start of the EDG. Include operation of the Air Start System, the actions that take place, and the conditions that exist at 40, 100, 500, 750 and 900RPM. Include where a normal start can be initiated.

KA#:	064000 K3.02	Bank Ref #:	NONE
LP# / Objective:	0713-05 01.09	Exam Level:	RO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 16	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 050

Waste Monitor Tank, WD-22A, is being released to the river through Overboard Discharge Flow Control Valve, HCV-691, using Monitor Tank Pump, WD-23A, and an approved Release Permit.

- The control switch for HCV-691 is in the "AUTO" position.
- The mode selector switch for WD-23A is in the "LOCAL" position.

Which one of the following conditions will result in automatic closure of HCV-691 and an automatic trip of Monitor Tank Pump, WD-23A?

- A. A high radiation level sensed by Effluent Radiation Monitor, RM-055.
- B. A high radiation level sensed by Laboratory and Radwaste Building Stack Monitor, RM-043.
- C. Low Level in Waste Monitor Tank WD-22A.
- D. High Flow through HCV-691.

Question # 50 REV 0 K/A# 073000 K4.01 Process Radiation Monitoring System Tier 2 Group 1 Knowledge of PRM system design feature(s) and/or interlock(s) which provide for the following: Release termination when radiation exceeds setpoint
RO Importance 4 SRO Importance 4.3

CFR Number 55.41(b)(11)

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

OBJ# 0711-32 01.02

Identify the alarms, controls and indications available in the Main Control Room that are associated with the WDLS

KA#:	073000 K4.01	Bank Ref #:	07-11-32 025
LP# / Objective:	0711-32 01.02	Exam Level:	RO-11
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	STM 48	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 051

RM-064 has been placed in service with the selector switch placed in the "auto" position. There is high activity in the RCS and a steam generator tube leak exists in RC-2B. How would the indication from RM-064 respond?

- A. RM-064 indication would read background radiation only.
- B. RM-064 indication would peg high and stay that way.
- C. RM-064 indication would alternate between high and low readings.
- D. RM-064 indication would continuously rise.

Question # 51 REV 0 K/A# 073000 A1.01 Process Radiation Monitoring System Tier 2 Group 1 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRM system controls including: Radiation levels RO Importance 3.2 SRO Importance 3.5

CFR Number 55.41(b)(11)

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

OBJ# 0712-03 01.04

LIST the systems and components that interface with the Radiation Monitoring System.

KA#:	073000 A1.01	Bank Ref #:	07-12-03 054
LP# / Objective:	0712-03 01.04	Exam Level:	RO-11
Cognitive Level:	HIGH	Source:	NRC 02 EXAM
Reference:	STM 33	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 052

Which one of the following Engineered Safeguards actuation signals will directly open the Raw Water Valves to and from the RW/CCW Heat Exchangers (HCV-2880A/B, HCV-2881A/B, HCV-2882A/B, HCV-2883A/B)?

- A. Containment Isolation Actuation Signal, CIAS.
- B. Safety Injection Actuation Signal, SIAS.
- C. Containment Spray Actuation Signal, CSAS.
- D. Recirculation Actuation Signal, RAS.

Question # 52 REV 0 K/A# 076000 K1.16 Service Water System Tier 2 Group 1
Knowledge of the physical connections and/or cause- effect relationships between the SWS and the following systems:ESF RO Importance 3.6 SRO Importance 3.8

CFR Number 55.41(b)(7)

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

OBJ# 0711-19 01.05

EXPLAIN the automatic start features associated with the raw water pumps.

KA#: 076000 K1.16
LP# / Objective: 0711-19 01.05
Cognitive Level: LOW
Reference: STM 35

Bank Ref #: 07-11-19 036
Exam Level: RO-7
Source: MODIFIED
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 053

The plant was operating at 100% power. Raw Water Pumps, AC-10A and AC-10B were running. A Loss of Coolant accident occurred coincident with a loss of offsite power. Diesel Generator, DG-2, failed to start. Which Raw Water Pumps will be running after sequencer operation?

- A. AC-10A and AC-10B.
- B. AC-10A and AC-10C.
- C. AC-10B and AC-10D.
- D. AC-10C and AC-10D.

Question # 53 REV 0 K/A# 076000 K2.01 Service Water System Tier 2 Group 1
Knowledge of bus power supplies to the following: Service water
RO Importance 2.7 SRO Importance 2.7

CFR Number 55.41(b)(7)
Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

OBJ# 0711-19 01.00
When given specific plant conditions APPLY operating principles to diagnose Raw Water System response.

KA#:	076000 K2.01	Bank Ref #:	NONE
LP# / Objective:	0711-19 01.00	Exam Level:	RO-7
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM-35	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 054

With the plant operating at full power, The "PLANT AIR PRESS LO" annunciator alarmed followed by the "INSTRUMENT AIR PRESS LO" alarm.

On CB-10,11, PI-1750, Instrument Air Pressure, is cycling between 80 and 85 psig.

Which one of the following failures could cause these indications?

- A. A leak in an Instrument air line inside containment.
- B. A stuck open relief valve on an air receiver.
- C. A clogged or flooded air dryer.
- D. A leak in the turbine building service air header.

Question # 54 REV 0 K/A# 078000 A4.01 Instrument Air System Tier 2 Group 1
Ability to manually operate and/or monitor in the control room:Pressure gauges
RO Importance 3.1 SRO Importance 3.1

CFR Number 55.41(b)(7)

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

OBJ# 0711-07 01.05

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

KA#: 078000 A4.01
LP# / Objective: 0711-07 01.05
Cognitive Level: HIGH
Reference: STM 43

Bank Ref #: NONE
Exam Level: RO-7
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 055

A mechanical interlock is provided on the PAL doors to ensure that:

- A. The Inner PAL door can not be opened with a high differential pressure across it.
- B. The Inner PAL door can not be opened unless the outer PAL door is closed.
- C. The Outer PAL door can not be opened from the outside with a Containment Isolation Actuation Signal (CIAS) present.
- D. The Outer PAL door can not be opened from the outside with a Containment Radiation High Signal (CRHS) present.

Question # 55 REV 0 K/A# 103000 K4.04 Containment System Tier 2 Group 1 Knowledge of containment system design feature(s) and/or interlock(s) which provide for the following: Personnel access hatch and emergency access hatch RO Importance 2.5 SRO Importance 3.2

CFR Number 55.41(b)(9) Shielding, isolation, and containment design features, including access limitations.

OBJ# 0711-08 02.01

DESCRIBE how containment integrity is monitored.

KA#:	103000 K4.04	Bank Ref #:	NONE
LP# / Objective:	0711-08 02.01	Exam Level:	RO-9
Cognitive Level:	LOW	Source:	NEW
Reference:	OI-CO-2	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 056

A steam line break in room 81 resulted in PPLS actuation and SGIS. The affected steam generator has blown dry and pressurizer level has returned to 60% and is continuing to rise. RCS pressure is at 1650 psia and rising.

What action should be taken to allow the letdown isolation valves, HCV-204 and TCV-202 to be opened in this situation per EOP-AOP Attachment 23, "RESTORATION OF LETDOWN"?

- A. Reset Engineered Safeguards relays.
- B. Block PPLS, Reset PPLS and CIAS lockout relays.
- C. Place the CIAS override switches for HCV-204 and TCV-202 in override.
- D. Place the Defeat switch for HCV-204 in the defeat position.

Question # 56 REV 0 K/A# 011000 2.4.06 Pressurizer Level Control System Tier 2
Group 2 Knowledge EOP mitigation strategies.
RO Importance 3.7 SRO Importance 4.7

CFR Number 55.41(b)(10)

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

OBJ# 0711-02 01.02

EXPLAIN, the manual and automatic functions of control valves in the CVCS.

KA#:	011000 2.4.06	Bank Ref #:	07-11-02 051
LP# / Objective:	0711-02 01.02	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	EOP/AOP ATT 23	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 057

How could inoperability of the containment purge exhaust fans affect a refueling outage?

- A✓ Containment entry could be delayed due to higher airborne activity.
- B. Containment entry could be delayed due to higher temperatures in containment.
- C. Fuel movement could be delayed because tech specs require operability of the purge fans.
- D. Plant startup could be delayed because tech specs require operability of the purge fans.

Question # 57 REV 0 K/A# 029000 K3.02 Containment Purge System Tier 2 Group 2 Knowledge of the effect that a loss or malfunction of the Containment Purge System will have on the following:Containment entry RO Importance 2.9 SRO Importance 3.5

CFR Number 55.41(b)(9)
Shielding, isolation, and containment design features, including access limitations.

OBJ# 0714-04 01.01
STATE the purpose of the Containment Purge System.

KA#:	029000 K3.02	Bank Ref #:	07-14-04 003
LP# / Objective:	0714-04 01.01	Exam Level:	RO-9
Cognitive Level:	LOW	Source:	NRC 01-2 EXAM
Reference:	STM 10	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 058

The plant is in a refueling outage. Shutdown Cooling is in service and the refueling cavity is flooded. The core has been offloaded to the spent fuel pool.

Spent Fuel Pool Cooling Pump, AC-5A, has just tripped and can not be restarted. Spent Fuel Pool Cooling Pump, AC-5B, will not start either.

How will alternate spent fuel pool cooling be established per AOP-36?

- A. The Fuel Transfer Canal Drain pumps, AC-13A and AC-13B, will be aligned to circulate water through the spent fuel pool.
- B. The Fuel Transfer Canal Drain pumps, AC-13A and AC-13B, will be aligned to circulate water between the refueling cavity and spent fuel pool, back through the fuel transfer tube.
- C. The Low Pressure Safety Injection Pumps, SI-1A and SI-1B, will be aligned to circulate water through the spent fuel pool.
- D. The Low Pressure Safety Injection Pumps, SI-1A and SI-1B, will be aligned to circulate water between the refueling cavity and spent fuel pool, back through the fuel transfer tube.

Question # 58 REV 0 K/A# 033000 K1.02 Spent Fuel Pool Cooling System Tier 2 Group 2 Knowledge of the physical connections and/or cause-effect relationships between the Spent Fuel Pool Cooling System and the following systems:RHRS RO Importance 2.5 SRO Importance 2.7

CFR Number 55.41(b)(10)

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

OBJ# 0717-36 01.00

Use the Loss of Spent Fuel Pool Cooling Procedure to mitigate the consequences due to a loss of SFPC pumps, heat exchanger or a leak in the pool.

KA#:	033000 K1.02	Bank Ref #:	NONE
LP# / Objective:	0717-36 01.00	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-36	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 059

How will the Steam Dump and Bypass valves respond to an uncomplicated reactor trip if the output from pressure controller PIC-910 fails low?

(Assume all systems are in automatic.)

- A. The Steam Dump Valves, TCV-909s, will open fully and then reclose. The Bypass Valve, PCV-910, will open fully and remain open.
- B. The Steam Dump Valves, TCV-909s, will open fully and then modulate to control RCS average temperature between 530°F and 535°F. The Bypass Valve, PCV-910, will remain fully closed.
- C. The Steam Dump Valves, TCV-909s, and The Bypass Valve, PCV-910, will open fully and then modulate to control RCS average temperature between 530°F and 535°F.
- D. The Steam Dump Valves, TCV-909s, and The Bypass Valve, PCV-910, will open fully and then modulate to control RCS average temperature between 535°F and 540°F.

Question # 59 REV 0 K/A# 041000 K6.03 Steam Dump System and Turbine Bypass Control Tier 2 Group 2 Knowledge of the effect of a loss or malfunction on the following will have on the SDS:Controller and positioners, including ICS, S/G, CRDS RO Importance 2.7 SRO Importance 2.9

CFR Number 55.41(b)(5)

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

OBJ# 0712-31 02.03

STATE the indications and points of control available to the operator for RRS functions.

KA#:	041000 K6.03	Bank Ref #:	07-12-31 002
LP# / Objective:	0712-31 02.03	Exam Level:	RO-5
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	STM 36	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 060

Condenser Evacuation Pumps, FW-8A and FW-8C, are operating, FW-8B is the standby Pump. The "43/FW" switch is in the "OFF" position.

What will happen if FW-8A trips due to high seal water temperature?

- A. FW-8B will start immediately. Condenser vacuum will be maintained steady.
- B. FW-8B will start automatically if condenser vacuum drops to 24.5 inches of mercury. FW-8B will continue to run after automatically starting.
- C. FW-8B will start automatically if condenser vacuum drops to 24.5 inches of mercury. FW-8B will then cycle on and off to maintain condenser vacuum between 24.5 and 25.5 inches of vacuum.
- D. FW-8B will not start automatically unless the "43/FW" switch is placed in the "AUTO" position.

Question # 60 REV 0 K/A# 055000 K3.01 Condenser Air Removal System Tier 2 Group 2 Knowledge of the effect that a loss or malfunction of the CARS will have on the following:Main condenser RO Importance 2.5 SRO Importance 2.7

CFR Number 55.41(b)(7)

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

OBJ# 0711-05 01.02

EXPLAIN the operation of controllers located in the Control Room associated with the Condenser Air Removal System.

KA#:	055000 K3.01	Bank Ref #:	NONE
LP# / Objective:	0711-05 01.02	Exam Level:	RO-7
Cognitive Level:	LOW	Source:	NEW
Reference:	STM 9	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 061

The plant is operating at 40% power. Condensate pump, FW-2A is out of service. Condensate pump, FW-2B, is operating. FW-2B is selected on SIAS/CSAS selector switch, 43-SIAS/FW2

What action, if any, should be taken and for what reason?

- A. The selected pump should be changed to FW-2C to ensure that FW-2C will start automatically if FW-2B trips following a SIAS or CSAS actuation.
- B. The selected pump should be changed to FW-2C to ensure that FW-2B will continue to run following a SIAS or CSAS actuation.
- C. FW-2B should remain as the selected pump to ensure that FW-2B will trip following a SIAS or CSAS actuation.
- D. FW-2B should remain as the selected pump to ensure that FW-2B will continue to run following a SIAS or CSAS actuation.

Question # 61 REV 0 K/A# 056000 A2.04 Condensate System Tier 2 Group 2 Ability to (a) predict the impacts of the following malfunctions or operations on the Condensate System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of condensate pumps RO Importance 2.6 SRO Importance 2.8

CFR Number 55.41(b)(7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

OBJ# 0712-14 02.02

EXPLAIN the operation/function of ESC switches and controls located in the Control Room.

KA#:	056000 A2.04	Bank Ref #:	NONE
LP# / Objective:	0712-14 02.02	Exam Level:	RO-7
Cognitive Level:	HIGH	Source:	NEW
Reference:	STM 20	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 062

A Waste Monitor tank has been recirculated, sampled, and a release permit issued.

Under what condition may the Waste Monitor Tank be released with Overboard Discharge Radiation Monitor, RM-055 inoperable?

- A. If at least, two Circulating Water Pumps are Operating during the release.
- B. If the release rate is maintained at less than 10 gpm.
- C. If the effluent is sampled at least hourly during the release and the sample results independently verified by two qualified individuals.
- D. If two independent samples of the monitor tank contents have been analyzed and the release rate calculations independently verified by two qualified individuals.

Question # 62 REV 0 K/A# 068000 K6.10 Liquid Radwaste System Tier 2 Group 2 Knowledge of the effect of a loss or malfunction on the following will have on the Liquid Radwaste System :Radiation monitors RO Importance 2.5 SRO Importance 2.9

CFR Number 55.41(b)(13)

Procedures and equipment available for handling and disposal of radioactive materials and effluents.

OBJ# 0711-32 02.04

Explain the actions taken in the Control Room for a liquid release from the WDLS.

KA#: 068000 K6.10
LP# / Objective: 0711-32 02.04
Cognitive Level: LOW
Reference: ODCM

Bank Ref #: 07-11-32 028
Exam Level: RO-13
Source: MODIFIED
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 063

Waste Gas Compressor, WD-28A, is lined up and discharging to Gas Decay Tank, WD-29B. The Control Switch for WD-28A is in the "HAND" Position. The Control Switch for Waste Gas Decay Tank, WD-29B's, Inlet Pressure Control valve, PCV-514B, is also in the "HAND" position.

If vent header pressure is sufficient, which one of the following will act first to prevent overpressurizing WD-29B?

- A. Waste Gas Compressor, WD-28A, will trip on high discharge pressure.
- B. The Inlet Pressure Control Valves to Waste Gas Decay Tank, WD-29B, will close on high tank pressure.
- C. The WD-29B rupture disk will break relieving to the room.
- D. The WD-29B relief valve will open relieving to the Auxiliary Building Exhaust Duct.

Question # 63 REV 0 K/A# 071000 K4.01 Waste Gas Disposal System Tier 2 Group 2 Knowledge of design feature(s) and/or interlock(s) which provide for the following: Pressure capability of the waste gas decay tank RO Importance 2.6 SRO Importance 3

CFR Number 55.41(b)(13)

Procedures and equipment available for handling and disposal of radioactive materials and effluents.

OBJ# 0711-31 01.05

EXPLAIN the automatic operation of components in the Waste Disposal (Gas) System.

KA#: 071000 K4.01
LP# / Objective: 0711-31 01.05
Cognitive Level: LOW
Reference: STM 48

Bank Ref #: NONE
Exam Level: RO-13
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 064

The Distributed Control System (DCS) core mimic monitor provides color graphic displays for each CEDM. Green squares are used to indicate that the CEDM is fully inserted. The DCS input that results in the green square display comes from:

- A. The synchro-transmitters.
- B. The ERF computer.
- C. The magnet actuated reed switches.
- D. The cam actuated limit switches.

Question # 64 REV 0 K/A# 014000 K4.03 Rod Position Indication System Tier 2 Group 2 Knowledge of RPIS design feature(s) and/or interlock(s) which provide for the following: Rod bottom lights RO Importance 3.2 SRO Importance 3.4

CFR Number 55.41(b)(6)

Design, components, and functions of reactivity control mechanisms and instrumentation.

OBJ# 0712-26 01.07

Describe the methods of control rod position indication. Include the readouts and displays associated with each method.

KA#: 014000 K4.03
LP# / Objective: 0712-26 01.07
Cognitive Level: LOW
Reference: OI-RR-1

Bank Ref #: NONE
Exam Level: RO-6
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 065

If the Raw Water system was rendered inoperable due to a failure of all Raw Water pumps, AOP-18, "LOSS OF RAW WATER", directs you to use hoses to supply water to the RW/CCW heat exchangers from _____.

- A. the Fire Protection System.
- B. the Spent Fuel Pool Cooling System.
- C. the Fuel Transfer Canal.
- D. the Demineralized Water System.

Question # 65 REV 0 K/A# 086000 K1.02 Fire Protection System Tier 2 Group 2
Knowledge of the physical connections and/or cause-effect relationships between the Fire Protection System and the following systems: Service water
RO Importance 2.7 SRO Importance 3.2

CFR Number 55.41(b)(10)

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

OBJ# 0717-18 01.03

Describe the major recovery actions of this AOP.

KA#: 086000 K1.02
LP# / Objective: 0717-18 01.03
Cognitive Level: LOW
Reference: AOP-18

Bank Ref #: 07-17-18 009
Exam Level: RO-10
Source: MODIFIED
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 066

For what procedures are you allowed to use the Indexes on the Document Control Web Page to verify that the most current revision of a procedure is being used per SO-G-7, "OPERATING MANUAL"?

- A✓ For all plant procedures.
- B. Only for procedures designated as "Information Use."
- C. Only for procedures designated as "Information Use" or "Reference Use"
- D. Can not be used to verify current revision for any procedures.

Question # 66 REV 0 K/A# 000000 2.1.21 Generic Knowledges and Abilities Tier 3 Group 1 Ability to verify the controlled procedure copy. RO Importance 3.5 SRO Importance 3.6

CFR Number 55.41(b)(10)
Administrative, normal, abnormal, and emergency operating procedures for the facility.

OBJ# 0778-04 01.02
Be able to UTILIZE procedures, instructions and surveillance instructions in performing Control Room tasks.

KA#:	000000 2.1.21	Bank Ref #:	NONE
LP# / Objective:	0778-04 01.02	Exam Level:	RO-10
Cognitive Level:	LOW	Source:	NEW
Reference:	SO-G-7	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 067

Spent fuel is being moved in the Spent Fuel Pool using FH-12. The plant HVAC systems are required to be in the following configuration:

- A. One Auxiliary Building Supply and two Auxiliary Exhaust Fans must be running.
- B. All Auxiliary Building Exhaust Fans must be running.
- C. VA-66 must be in the Filtered Position and Control Room Ventilation must be operating in the Filtered Air Makeup Mode.
- D. VA-66 must be in the Filtered Position and Control Room Ventilation must be operating in the Recirculation Mode.

Question # 67 REV 0 K/A# 000000 2.1.42 Generic Knowledges and Abilities Tier 3
Group 1 Knowledge of new and spent fuel movement procedures
RO Importance 2.5 SRO Importance 3.4

CFR Number 55.41(b)(10)

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

OBJ# 0714-06 01.08

Explain the principles of emergency operation of the Control Room Ventilation System in terms of flow path, major parameters (temp., press., flow, etc.), alarms and control devices.

KA#: 000000 2.1.42
LP# / Objective: 0714-06 01.08
Cognitive Level: LOW
Reference: OP-12

Bank Ref #: NONE
Exam Level: RO-10
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 068

A surveillance test is being performed that measures the closure time of a containment isolation valve. A suggestion is made that the test be conducted first for "just in time training" prior to the actual surveillance test being conducted. Is this allowed in accordance with SO-G-23, "SURVEILLANCE TEST PROGRAM"?

- A. Yes, SO-G-23 requires pre-cycling of the valves to ensure operability prior measuring the stroke time.
- B. Yes, this is a good practice although it is not required by SO-G-23.
- C. No, This is not a good practice because it involves excessive valve cycling.
- D. No, this is not allowed because SO-G-23 requires the test be conducted from the "as found" condition.

Question # 68 REV 0 K/A# 000000 2.2.12 Generic Knowledges and Abilities Tier 3
Group 2 Knowledge of surveillance procedures.
RO Importance 3.7 SRO Importance 4.1

CFR Number 55.41(b)(10)
Administrative, normal, abnormal, and emergency operating procedures for the facility.

OBJ# 0762-01 01.00
STATE the major sections of the Standing Orders.

KA#:	000000 2.2.12	Bank Ref #:	07-62-11 075
LP# / Objective:	0762-01 01.00	Exam Level:	RO-10
Cognitive Level:	HIGH	Source:	NRC 04 EXAM
Reference:	SO G-23	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 069

During the conduct of a surveillance test, the control switch for a pump that is required to be operable by technical specifications is placed in the "PULL-TO-LOCK" position. No other changes have been made to the system.

How does this affect the Operability and Availability of the pump?

- A. The pump is "Operable" and the pump is "Available".
- B. The pump is NOT "Operable" but the pump is "Available".
- C. The pump is "Operable" but the pump is NOT "Available".
- D. The pump is NOT "Operable" and the pump is NOT "Available".

Question # 69 REV 0 K/A# 000000 2.2.44 Generic Knowledges and Abilities Tier 3 Group 2 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions. RO Importance 4.2 SRO Importance 4.4

CFR Number 55.41(b)(5)

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

OBJ# 0778-06 01.02

Be able to UTILIZE procedures, instructions and surveillance instructions in performing Control Room tasks.

KA#:	000000 2.2.44	Bank Ref #:	NONE
LP# / Objective:	0778-06 01.02	Exam Level:	RO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	SO-O-1	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 070

An instrument bus has been placed in an abnormal alignment to allow for maintenance activities. Which one of the following alignments requires logging into a Limiting Condition for Operation?

- A. Instrument Bus "A" is being supplied by swing inverter, EE-8T.
- B. Instrument Bus "A" is being supplied by its bypass transformer.
- C. Instrument Bus "1" is being supplied by its bypass transformer.
- D. Instrument bus "1" is being supplied by its testing transformer.

Question # 70 REV 0 K/A# 000000 2.2.36 Generic Knowledges and Abilities Tier 3 Group 2 Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operation. RO Importance 3.1 SRO Importance 4.2

CFR Number 55.41(b)(5)

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

OBJ# 0762-08 05.00

Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

KA#:	000000 2.2.36	Bank Ref #:	NONE
LP# / Objective:	0762-08 05.00	Exam Level:	RO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	TS 2.7	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 071

When are Control Room Log entries required for containment entry and exit per Standing Order O-22, "CONTAINMENT ACCESS AND EGRESS?"

- A. When there is fuel in the reactor vessel.
- B. When containment integrity is required.
- C. When entering without Radiation Protection coverage.
- D. When the containment security card readers are not operational.

Question # 71 REV 0 K/A# 000000 2.3.12 Generic Knowledges and Abilities Tier 3 Group 3 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc. RO Importance 3.2 SRO Importance 3.7

CFR Number 55.41(b)(12)
Radiological safety principles and procedures.

OBJ# 0711-08 03.02
Logging requirements for entry and exit.

KA#:	000000 2.3.12	Bank Ref #:	NONE
LP# / Objective:	0711-08 03.02	Exam Level:	RO-12
Cognitive Level:	LOW	Source:	NEW
Reference:	SO-O-22	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 072

How will placing the keyswitch on a control room process radiation monitor ratemeter in the "KEYPAD" position affect operation of the radiation monitor?

- A✓ Annunciation and equipment actuations will be blocked.
- B. Annunciation will still work but equipment actuations will be blocked.
- C. Annunciation and equipment actuations will still work but output to the radiation monitor recorder will be blocked.
- D. Annunciation and equipment actuations will still work but output to the ERF computer will be blocked.

Question # 72 REV 0 K/A# 000000 2.3.05 Generic Knowledges and Abilities Tier 3 Group 3 Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. RO Importance 2.9 SRO Importance 2.9

CFR Number 55.41(b)(11)

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

OBJ# 0712-03 04.00

EXPLAIN the operations, actuations and applications of the individual radiation monitors.

KA#: 000000 2.3.05
LP# / Objective: 0712-03 04.00
Cognitive Level: LOW
Reference: STM-33

Bank Ref #: 07-12-03 032
Exam Level: RO-11
Source: MODIFIED
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 073

Why does EOP-04, "STEAM GENERATOR TUBE RUPTURE", have the control room direct that blowdown sample flow be realigned to the Spent Regenerent Tank?

- A✓ To limit the release of radioactive liquid to the river.
- B. To limit contamination of the water in the Condenser Hotwell.
- C. To minimize radiation levels in Room-81.
- D. To minimize radiation levels in the secondary sampling room.

Question # 73 REV 0 K/A# 000000 2.3.11 Generic Knowledges and Abilities Tier 3
Group 3 Ability to control radiation releases. RO Importance 3.8 SRO Importance 4.3

CFR Number 55.41(b)(13)

Procedures and equipment available for handling and disposal of radioactive materials and effluents.

OBJ# 0715-33 01.03

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

KA#: 000000 2.3.11
LP# / Objective: 0715-33 01.03
Cognitive Level: LOW
Reference: TDB EOP-04

Bank Ref #: NONE
Exam Level: RO-13
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 074

In the control room, plant instruments that have been qualified to survive in an accident environment (EEQ) can be identified by:

- A. Orange tape.
- B. Orange dots.
- C. Yellow labels.
- D. Red and white striped label borders.

Question # 74 REV 0 K/A# 000000 2.4.03 Generic Knowledges and Abilities Tier 3
Group 4 Ability to identify post-accident instrumentation. RO Importance 3.7 SRO
Importance 3.9

CFR Number 55.41(b)(10)

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

OBJ# 0778-06 01.03

Be able to OPERATE specific Control Room switches and controls.

KA#:	000000 2.4.03	Bank Ref #:	NONE
LP# / Objective:	0778-06 01.03	Exam Level:	RO-10
Cognitive Level:	LOW	Source:	NEW
Reference:	EEQM	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 075

A reactor startup is in progress with Wide Range NI power indicating $5 \times 10^{-5}\%$ power with a sustained positive startup rate of 1.5 DPM on all channels. All Zero Power Mode Bypass Switches are in the "BYPASS" position. All Reactor Coolant Pumps are operating.

If Reactor Coolant Pump, RC-3D, were to trip from these conditions, when and why would an automatic reactor trip occur and EOP-00 be entered?

Assume no operator actions.

- A. The reactor would trip immediately due to low RCS flow.
- B. The reactor would trip on low RCS flow when power reaches $1 \times 10^{-4}\%$ power.
- C. The reactor would trip immediately due to high startup rate.
- D. The reactor would trip on high startup rate when power reaches $1 \times 10^{-4}\%$ power.

Question # 75 REV 0 K/A# 000000 2.4.02 Generic Knowledges and Abilities Tier 3 Group 4 Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. RO Importance 4.5 SRO Importance 4.6

CFR Number 55.41(b)(6)

Design, components, and functions of reactivity control mechanisms and instrumentation.

OBJ# 0718-10 01.06

GIVEN a set of plant conditions, DETERMINE if the Standard Post Trip Actions (SPTA's), the Optimal Recovery Guidelines or the Functional Recovery Guideline (FGR) should be used.

KA#: 000000 2.4.02
LP# / Objective: 0718-10 01.06
Cognitive Level: HIGH
Reference: STM-38

Bank Ref #: NONE
Exam Level: RO-6
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 076

The Power Dependent (transient) Insertion Limits (PDILs) specified in the Core Operating Limits Report (COLR) are based on ensuring that:

- A✓ Adequate shutdown margin is available following a reactor trip.
- B. The rate of reactivity addition during a CEA withdrawal event does not exceed the value used in the chapter 14 analysis.
- C. A diverging xenon oscillation will not be initiated.
- D. Excessive swelling of the B₄C in the CEAs is prevented.

Question # 76 REV 0 K/A# CE-E02 2.2.25 Reactor Trip Recovery Tier 1 Group 1
Knowledge of bases in Technical Specifications for limiting conditions for operations and safety limits. RO Importance 3.2 SRO Importance 4.2

CFR Number 55.43(b)(2)

Facility operating limitations in the technical specifications and their bases.

OBJ# 0762-08 06.01

DISCUSS the basis for the LCOs (SRO only).

KA#:	CE-E02 2.2.25	Bank Ref #:	NONE
LP# / Objective:	0762-08 06.01	Exam Level:	SRO-2
Cognitive Level:	HIGH	Source:	NEW
Reference:	TECH SPECS	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 077

Following isolation of a small break LOCA, the RCS Pressure and Temperature limits of EOP-AOP Attachment 2, "RCS Pressure-Temperature Limits for 40 EFPY" have been violated. What action is required to be taken after pressure and temperature have been stabilized?

- A. Enter TDB-IX, "RCS Pressure and Temperature Limits Report" and reduce RCS pressure to less than 1000 psia using pressurizer spray or PORVs.
- B. Enter TDB-IX, "RCS Pressure and Temperature Limits Report" and establish an RCS cooldown at less than 50°F/hour.
- C. Enter EOP-AOP Attachment 27, "P-T Limit Restoration" and soak the RCS at the current pressure and temperature for 3 hours.
- D. Enter EOP-AOP Attachment 27, "P-T Limit Restoration" and contact the PRC for an Appendix E limit evaluation.

Question # 77 REV 0 K/A# 000011 EA2.14 Large Break LOCA Tier 1 Group 1
Ability to determine or interpret the following as they apply to a Large Break
LOCA:Actions to be taken if limits for PTS are violated RO Importance 3.6 SRO
Importance 4

CFR Number 55.43(b)(5)

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

OBJ# 0718-15 02.01

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

KA#: 000011 EA2.14

Bank Ref #: NONE

LP# / Objective: 0718-15 02.01

Exam Level: SRO-5

Cognitive Level: HIGH

Source: NEW

Reference: EOP-AOP ATT 27

Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 078

With the plant operating at full power, Annunciator CB-1/2/3 A6 A-4, "REACTOR COOLANT PUMP RC-3A VIBRATION HI" came into alarm. A plant operator was dispatched to AI-270 and reports that the alarm is valid and that the vibration on the upper guide bearing is above the action level but below the shutdown limit.

What action should you direct be taken as a result of this alarm?

- A. Enter AOP-35, "REACTOR COOLANT PUMP MALFUNCTION" and continue to monitor the vibration level.
- B. Enter AOP-05, "EMERGENCY PLANT SHUTDOWN. Trip RC-3A after the reactor has been shut down.
- C. Reference OI-RC-13, "OPERATION OF RCP VIBRATION MONITORING SYSTEM" and contact the system engineer.
- D. Trip the reactor and enter EOP-00, STANDARD POST-TRIP ACTIONS. Trip RC-3A after the reactor has been shut down.

Question # 78 REV 0 K/A# 000017 AA2.01 Reactor Coolant Pump Malfunctions (Loss of RC Flow) Tier 1 Group 1 Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):Cause of RCP failure RO Importance 3 SRO Importance 3.5

CFR Number 55.43(b)(5)

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

OBJ# 0711-20 03.02

LIST the major steps required to operate a reactor coolant pump per OI-RC-9.

KA#:	000017 AA2.01	Bank Ref #:	NONE
LP# / Objective:	0711-20 03.02	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	ARP CB-1/2/3 A6	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 079

The plant is operating at 100% power when alarms came in on both Steam Generators, "FEEDWATER CONTROL STEAM GENERATOR RC-2A(B) LEVEL LO-LO."

The BOPO referred to the steam flow- feed flow trends on the DCS display and reported that the levels were continuing to lower slowly with two main feedwater pumps operating and the FW level control valves LCV-1101 and LCV-1102 100% open in automatic control.

What actions should you direct the Operators to take.

- A✓ Trip the reactor and enter EOP-00, "STANDARD POST TRIP ACTIONS". Establish auxiliary feedwater flow to the steam generators using the contingency actions of EOP-00.
- B. Trip the reactor and enter EOP-00, "STANDARD POST TRIP ACTIONS". After Reactivity Control is verified, transition to EOP-06, "LOSS OF ALL FEEDWATER" and establish auxiliary feedwater flow to both steam generators.
- C. Refer to the ARP and attempt to restore main feedwater flow by taking manual control of feedwater using DCS.
- D. Refer to the ARP and attempt to restore main feedwater flow by starting a third main feedwater pump.

Question # 79 REV 0 K/A# 000054 AA2.08 Loss of Main Feedwater Tier 1 Group 1 Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW):Steam flow-feed trend recorder RO Importance 2.9 SRO Importance 3.3

CFR Number 55.43(b)(5)

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

OBJ# 0711-11 02.07

INTERPRET Feedwater System alarms and actions in the Control Room using the Alarm Response Procedures as a guide.

KA#:	000054 AA2.08	Bank Ref #:	NONE
LP# / Objective:	0711-11 02.07	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	ARP CB4/A8	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 080

The reactor was in hot shutdown with RCS cold leg temperatures being maintained at 532°F, when a steam generator tube rupture occurred along with a loss of instrument air due to a ruptured header in the auxiliary building. The steam generator tube rupture is large enough to result in a PPLS actuation. Instrument air pressure is below 40 psig.

- A. Enter AOP-22, "REACTOR COOLANT LEAK" , perform attachment B, " PRIMARY TO SECONDARY LEAK RATE" actions, after completing these actions, enter AOP-17, "LOSS OF INSTRUMENT AIR' which will direct you to isolate the ruptured header.
- B. Enter AOP-22, "REACTOR COOLANT LEAK" , and perform the initial actions then enter AOP-17, "LOSS OF INSTRUMENT AIR, which will direct you to isolate the ruptured header. After performing these actions return to AOP-22 and perform attachment B, " PRIMARY TO SECONDARY LEAK RATE" actions
- C. Enter EOP-00, STANDARD POST TRIP ACTIONS, after performing the required actions, go to EOP-20, "FUNCTIONAL RECOVERY PROCEDURE". EOP-20, MVA-IA will direct you to isolate the ruptured header.
- D✓ Enter EOP-00, STANDARD POST TRIP ACTIONS, after performing the required actions, go to EOP-20, "FUNCTIONAL RECOVERY PROCEDURE". EOP-20, MVA-IA will direct you to implement AOP-17, LOSS OF INSTRUMENT AIR, which will direct you to isolate the ruptured header..

Question # 80 REV 0 K/A# 000065 2.4.06 Loss of Instrument Air Tier 1 Group 1 Knowledge EOP mitigation strategies. RO Importance 3.7 SRO Importance 4.7

CFR Number 55.43(b)(5)

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

OBJ# 0718-10 01.05b

GIVEN a set of plant conditions and a copy of the EOP resource Assessment Trees, DETERMINE the correct success path for any of the following safety functions:

Maintenance of Vital Auxiliaries (MVA)

KA#:	000065 2.4.06	Bank Ref #:	NONE
LP# / Objective:	0718-10 01.05B	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	SO-O-1, EOP-20	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 081

The plant was operating at full power when a "GENERATOR FIELD OVERVOLTAGE" alarm was received on CB-20/A14. The BOPO entered the ARP and adjusted field voltage using the DC (Manual) voltage regulator switch.

Step 5 of the ARP says, "Verify that the generator is operating within its capability curves."

The copy of the capability curve normally located on CB-20 has been removed for some control board mimic changes. Where else can the main generator capability curve be found?

- A. In AOP-27, "MAIN GENERATOR MALFUNCTIONS."
- B. In AOP-31, "161 KV GRID MALFUNCTIONS."
- C. In OI-ST-1, "TURBINE GENERATOR NORMAL OPERATION."
- D. In the TDB, "TECHNICAL DATA BOOK."

Question # 81 REV 0 K/A# 000077 AA2.02 Generator Voltage and Electric Grid Disturbances Tier 1 Group 1 Ability to determine and interpret the following as they apply to Generator Voltage and Electric Grid Disturbances: Voltage outside the generator capability curve RO Importance 3.5 SRO Importance 3.6

CFR Number 55.43(b)(5)

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

OBJ# 0713-06 01.02

EXPLAIN the instrumentation on CB-20 that is available to the operator for monitoring generator operation.

KA#: 000077 AA2.02
LP# / Objective: 0713-06 01.02
Cognitive Level: LOW
Reference: ARP-CB-20/A14

Bank Ref #: NONE
Exam Level: SRO-5
Source: NEW
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 082

The reactor is operating at 55% power during a power ascension, when the following alarms are received on CB-4:

"DROPPED ROD" and "ROD DROP NUCLEAR INSTRUMENTATION CHANNEL"

The ATCO reports that one of the CEAs in group two is completely inserted.

What actions must be taken as a result of these conditions?

- A. Trip the reactor immediately and enter EOP-00, STANDARD POST TRIP ACTIONS.
- B. Enter AOP-02, "CEA AND CONTROL SYSTEM MALFUNCTIONS" and reduce power to less than 50% using AOP-05, EMERGENCY SHUTDOWN. Then attempt to realign the dropped CEA.
- C. Enter AOP-02, "CEA AND CONTROL SYSTEM MALFUNCTIONS" and attempt to realign the dropped CEA. If the CEA can not be realigned within one hour, then trip the reactor and enter EOP-00, STANDARD POST TRIP ACTIONS.
- D. Enter AOP-02, "CEA AND CONTROL SYSTEM MALFUNCTIONS" and attempt to realign the dropped CEA. If the CEA can not be realigned within one hour, then verify shutdown margin and perform a plant shutdown using OP-4, "LOAD CHANGE AND NORMAL POWER OPERATIONS."

Question # 82 REV 0 K/A# 000003 AA2.03 Dropped Control Rod Tier 1 Group 2
Ability to determine and interpret the following as they apply to the Dropped Control Rod: Dropped rod, using in-core/ex-core instrumentation, incore or loop temperature measurements RO Importance 3.6 SRO Importance 3.8

CFR Number 55.43(b)(5)

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

OBJ# 0717-02 01.02

Describe how the plant responds to a CEA or Control System malfunction in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

KA#:	000003 AA2.03	Bank Ref #:	NONE
LP# / Objective:	0717-02 01.02	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP 02	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 083

A plant startup is in progress. Criticality has just been achieved and power has been stabilized at 1×10^{-3} % Power.

24 hours prior to startup, Wide range channel "A" was removed from service due to a failed fission chamber. Wide range channels "B" and "D" have just failed low following a voltage transient

What action is required by AOP-15, "Loss of Flux Indication or Flow Streaming" and why?

- A. The reactor must be shutdown by manually inserting CEAs because wide range channel "D" failed and reactor power indication will not be available on AI-212.
- B. The reactor must be shutdown by manually inserting CEAs because SCEAPIS (DCS) requires at least 2 wide range channels greater than 10^{-4} % power to enable the rod block function.
- C. The reactor must be tripped because there are an inadequate number of operable channels for the RPS high startup rate trip.
- D. The reactor must be tripped because there are an inadequate number of operable channels for the RPS axial power distribution trip.

Question # 83 REV 0 K/A# 000033 2.1.32 Loss of Intermediate Range Nuclear Instrumentation Tier 1 Group 2 Ability to explain and apply system limits and precautions. RO Importance 3.8 SRO Importance 4

CFR Number 55.43(b)(2)

Facility operating limitations in the technical specifications and their bases.

OBJ# 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#: 000033 2.1.32
 LP# / Objective: 0712-25 04.01
 Cognitive Level: HIGH
 Reference: TDB-AOP-15

Bank Ref #: 07-12-25 005
 Exam Level: SRO-2
 Source: NRC 97 EXAM REWORD
 Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 084

A refueling outage is in progress. 106 fuel assemblies have been loaded in to the core and the 107th fuel assembly (a new fuel assembly) is being moved over the core.

All of the following are open: the equipment hatch, room 66 roll-up doors, room 66 construction access opening and both PAL doors.

The moving fuel assembly drops from FH-1. No radiation monitor alarms are received.

Which one of the following actions meets the requirements of AOP-08, "FUEL HANDLING INCIDENT?"

- A. Initiate CIAS using the EMERGENCY OPERATE switches. Close the equipment hatch and one of the PAL doors within one hour.
- B. Initiate CIAS using the EMERGENCY OPERATE switches. Close the room 66 rollup doors and both of the PAL doors within one hour.
- C. Initiate VIAS using the CRHS test switches. Close the equipment hatch and one of the PAL doors within one hour.
- D. Initiate VIAS using the CRHS test switches. Close the room 66 rollup doors and both of the PAL doors within one hour.

Question # 84 REV 0 K/A# 000036 2.4.09 Fuel Handling Incidents Tier 1 Group 2 Knowledge of low power / shutdown implications in accident (e.g. Loss of coolant accident loss of residual heat removal) mitigation strategies. RO Importance 3.8 SRO Importance 4.2

CFR Number 55.43(b)(7)
Fuel handling facilities and procedures.

OBJ# 0711-08 02.03
Briefly DESCRIBE actions necessary if containment integrity is violated as per AOP-12 and Tech Spec 2.6.

KA#:	000036 2.4.09	Bank Ref #:	NONE
LP# / Objective:	0711-08 02.03	Exam Level:	SRO-7
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-08	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 085

During full power operation, the "RM-057 CONDENSER OFF GAS HIGH RADIATION" alarm was received on AI-33. The radiation level on RM-057 was found to be just above the Alert setpoint and rising slowly. Pressurizer level is steady at 60% with charging flow at 40 gpm and letdown at 36 gpm.

The Shift Chemist reports that the primary to secondary leak rate is 8 gallons per day. What action is required?

- A✓ Enter AOP-22, "REACTOR COOLANT LEAK" and perform attachment B, "PRIMARY TO SECONDARY LEAK RATE ACTIONS." Use SO-G-105, "STEAM GENERATOR TUBE LEAKAGE" to determine action level and other required actions.
- B. Enter AOP-22, "REACTOR COOLANT LEAK" and perform attachment B, "PRIMARY TO SECONDARY LEAK RATE ACTIONS." SO-G-105, "STEAM GENERATOR TUBE LEAKAGE" is not used unless primary to secondary leakage exceeds 10% of the Technical Specification Limit.
- C. Enter AOP-22, "REACTOR COOLANT LEAK" but do not perform attachment B, "PRIMARY TO SECONDARY LEAK RATE ACTIONS" unless the primary to secondary leakage increases to greater than 10 gpd. Use SO-G-105, "STEAM GENERATOR TUBE LEAKAGE" to determine action level and other required actions.
- D. Use SO-G-105, "STEAM GENERATOR TUBE LEAKAGE" to determine action level and required actions. AOP-22, "REACTOR COOLANT LEAK" will not be entered with normal indications of pressurizer level, charging and letdown.

Question # 85 REV 0 K/A# 000037 2.4.47 Steam Generator Tube Leak Tier 1 Group 2 Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. RO Importance 4.2 SRO Importance 4.2

CFR Number 55.43(b)(5)

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

OBJ# 0717-22 01.03

Describe the major recovery actions of this AOP.

KA#:	000037 2.4.47	Bank Ref #:	NONE
LP# / Objective:	0717-22 01.03	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-22	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 086

The plant is shutdown with the RCS at mid-loop for replacement of a reactor coolant pump seal. Boric Acid Pump Header to Charging Pumps Isolation Valve, "HCV-268" is tagged out of service. All other CVCS components are operable.

All CEAs are fully inserted. The ATCO reports that the count rates indicated by two of the four operable Wide Range Nuclear Instrumentation Channels are rising steadily and have doubled in the past 15 minutes. All four Power Range channels are indicating 0% and are steady.

What action should you direct be taken?

- A✓ Enter AOP-03, "EMERGENCY BORATION". Perform emergency boration from the Boric Acid Storage Tanks per the procedure.
- B. Enter EOP-20, "FUNCTIONAL RECOVERY PROCEDURE", Success Path RC-2, and perform alternate emergency boration from the SIRWT.
- C. Enter SO-O-21, "SHUTDOWN OPERATIONS PROTECTION PLAN" Attachment 7.6, "REDUCED INVENTORY" and ensure reactivity management resources are available.
- D. Enter AOP-15, "LOSS OF FLUX INDICATION OR FLOW STREAMING." Direct I&C to recalibrate the Wide Range NI Channels.

Question # 86 REV 0 K/A# 004000 A2.06 Chemical and Volume Control System Tier 2 Group 1 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: Inadvertent boration/dilution RO Importance 4.2 SRO Importance 4.3

CFR Number 55.43(b)(5)

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

OBJ# 0717-03 01.00

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

KA#:	004000 A2.06	Bank Ref #:	NONE
LP# / Objective:	0717-03 01.00	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-03	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 087

Shutdown Cooling was in operation using Low Pressure Safety Injection Pump, SI-1A. with RCS Temperature at 250°F, pressurizer pressure at 250 psia and pressurizer level at 50%.

SI-1A trips and the following alarm is received on A33-1:

"LPSI PUMP SI-1A O/L OR TRIP"

Voltage on bus 1A3 is 4120 Volts
Voltage on bus 1A4 is 4160 Volts.

What action should be taken?

- A✓ Enter AOP-19, "LOSS OF SHUTDOWN COOLING" , and place LPSI pump SI-1B in service.
- B. Enter AOP-19, "LOSS OF SHUTDOWN COOLING", and place Containment Spray Pump, SI-3A, in service to provide shutdown cooling flow.
- C. Enter AOP-32, LOSS OF 4160 VOLT OR 480 VOLT BUS POWER, and place LPSI pump SI-1B in service.
- D. Enter AOP-32, LOSS OF 4160 VOLT OR 480 VOLT BUS POWER, and place Containment Spray Pump, SI-3A, in service to provide shutdown cooling flow.

Question # 87 REV 0 K/A# 006000 A2.01 Emergency Core Cooling System Tier 2 Group 1 Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:High bearing temperature RO Importance 2.9 SRO Importance 3.1

CFR Number 55.43(b)(5)

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

OBJ# 0717-19 01.02

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

KA#:	006000 A2.01	Bank Ref #:	NONE
LP# / Objective:	0717-19 01.02	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	ARP-AI-30A/A33	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 088

A large LOCA has occurred inside containment. PPLS, CPHS and CSAS actuations have all occurred.

Containment Cooling and Filtering Units, VA-3A tripped and VA-3B failed to start. Containment pressure has risen to 62 psig.

What actions should be taken after EOP-03, "LOSS OF COOLANT ACCIDENT" has been entered?

- A. Ensure maximum CCW flow to Containment Cooling Units, VA-7A and VA-7B. Do NOT start any containment spray pumps.
- B. Manually initiate SGLS to enable containment spray operation.
- C. Transition to EOP-20, "FUNCTIONAL RECOVERY PROCEDURE", Success Path CI and establish containment spray flow using one containment spray pump.
- D. Transition to EOP-20, "FUNCTIONAL RECOVERY PROCEDURE", Success Path CI and establish containment spray flow using all available containment spray pumps.

Question # 88 REV 0 K/A# 026000 2.4.21 Containment Spray System Tier 2 Group 1 Knowledge of the parameters and logic used to assess the status of safety functions such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc. RO Importance 4 SRO Importance 4.6

CFR Number 55.43(b)(5)
Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

OBJ# 0718-10 01.05g
GIVEN a set of plant conditions and a copy of the EOP resource Assessment Trees, DETERMINE the correct success path for any of the following safety functions:
Containment Temperature and Pressure Control

KA#:	026000 2.4.21	Bank Ref #:	NONE
LP# / Objective:	0718-10 01.05G	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	EOP-03,EOP-20	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 089

The plant is operating at 60% power when an alarm came in on CB-4/A8, "FEEDWATER CONTROL STEAM GENERATOR RC-2B LEVEL HI-HI."

The BOPO reports that steam generator, RC-2B, narrow range level is 84% and that the DCS controller, FC1102, has transferred to manual and that Feed Reg Valve, FCV-1102, had closed but is now reopening.

What actions should be taken?

- A. Enter ARP CB-4/A8 and direct the BOPO to monitor FC1102 and verify that control transfers back to automatic.
- B. Enter ARP CB-4/A8 and direct the BOPO to return level to 63% using manual control of FCV-1102.
- C. Enter ARP CB-4/A8 and transition to OI-FW-3, "STEAM GENERATOR LEVEL CONTROL." Direct the BOPO to transfer FC1102 to three element control.
- D. Enter ARP CB-4/A8 and transition to OI-FW-3, "STEAM GENERATOR LEVEL CONTROL." Direct the BOPO to open FCV-1102 to 50% in manual and then place Feed Feg Bypass Valve, FCV-1106 in automatic control.

Question # 89 REV 0 K/A# 059000 A2.12 Main Feedwater System Tier 2 Group 1 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: Failure of feedwater regulating valves
RO Importance 3.1 SRO Importance 3.4

CFR Number 55.43(b)(5)
Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
OBJ# 0711-11 02.06

EXPLAIN the operation of the feed

KA#:	059000 A2.12	Bank Ref #:	NONE
LP# / Objective:	0711-11 02.06	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	ARP-CB-4/A8,OI-FW-3	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 090

Following a severe storm, a buildup of debris in the river has resulted in reduced flow through the Raw Water system.

What action should be taken as a result?

- A✓ Enter AOP-01, "ACTS OF NATURE" and place the Raw Water Strainers in "MANUAL BACKWASH."
- B. Enter AOP-01, "ACTS OF NATURE" and ensure that Raw Water pump AC-10D is not running.
- C. Enter AOP-10, "LOSS OF CIRCULATING WATER," and ensure that the traveling screens are operating in MANUAL-SLOW.
- D. Enter AOP-18, "LOSS OF RAW WATER," and shutdown the Circulating Water Pumps that share cells with the running Raw Water pumps.

Question # 90 REV 0 K/A# 076000 A2.01 Service Water System Tier 2 Group 1 Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:Loss of SWS RO Importance 3.5 SRO Importance 3.7

CFR Number 55.43(b)(5)
Assessment of facility conditions and selection of appropriate procedures during normal, abnormal,and emergency situations.

OBJ# 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#:	076000 A2.01	Bank Ref #:	NONE
LP# / Objective:	0717-01 01.00	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	AOP-01	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 091

The plant was operating at full power. During surveillance testing, it was determined that one of the group 4 Control Element Assemblies was immovable due to excessive friction. Adequate shutdown margin was verified assuming the inoperable CEA and the highest worth CEA do not insert following a reactor trip.

What action is required by Technical Specifications.

- A. Enter Tech Spec 2.0.1 and place the plant in hot shutdown within 6 hours.
- B. Place the plant in hot shutdown within 7 hours.
- C. Lower reactor power to less than 70% within one hour. Operation below 70% power may continue up to 8 hours.
- D. Continued operation is allowed indefinitely as long as adequate shutdown margin is verified daily.

Question # 91 REV 0 K/A# 001000 2.2.42 Control Rod Drive System Tier 2 Group 2 Ability to recognize system parameters that are entry-level conditions for Technical Specifications. RO Importance 3.9 SRO Importance 4.6

CFR Number 55.43(b)(2)
Facility operating limitations in the technical specifications and their bases.

OBJ# 0762-08 05.00
Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

KA#:	001000 2.2.42	Bank Ref #:	NONE
LP# / Objective:	0762-08 05.00	Exam Level:	SRO-2
Cognitive Level:	HIGH	Source:	NEW
Reference:	T.S. 2.10.2	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 092

A Loss of Coolant Accident has occurred that resulted in a sustained core uncover, high core exit thermocouple temperatures high radiation inside containment and high containment pressure and temperature.

A Control Room Operator has placed the hydrogen analyzers in service and reports that containment hydrogen concentration is 3.2%. The ERF computer shows that containment temperature is 205°F.

What action is required to correct the indicated hydrogen concentration for high containment temperature?

- A. Use the correction curve in OI-VA-6, "CONTAINMENT HYDROGEN ANALYZER OPERATION," which will result in a higher than indicated hydrogen concentration.
- B. Use the correction curve in OI-VA-6, "CONTAINMENT HYDROGEN ANALYZER OPERATION," which will result in a lower than indicated hydrogen concentration.
- C. Use the correction curve in EOP-AOP Attachment 16, "CONTAINMENT HYDROGEN ANALYZER STARTUP," which will result in a higher than indicated hydrogen concentration.
- D. Use the correction curve in EOP-AOP Attachment 16, "CONTAINMENT HYDROGEN ANALYZER STARTUP," which will result in a lower than indicated hydrogen concentration.

Question # 92 REV 0 K/A# 028000 2.1.25 Hydrogen Recombiner and Purge Control System Tier 2 Group 2 Ability to interpret reference materials such as graphs, curves, etc. RO Importance 3.9 SRO Importance 4.2

CFR Number 55.43(b)(5)

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

OBJ# 0714-03 02.01

EXPLAIN how the procedure is used to obtain accurate % hydrogen levels under conditions of 100% relative humidity.

KA#:	028000 2.1.25	Bank Ref #:	NONE
LP# / Objective:	0714-03 02.01	Exam Level:	SRO-5
Cognitive Level:	LOW	Source:	NEW
Reference:	OI-VA-6	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 093

The plant was operating at 100% power when an event occurred which resulted in a loss of the intake structure and all of the equipment inside. The turbine and reactor tripped automatically due to a loss condenser vacuum.

After completing EOP-00, "STANDARD POST TRIP ACTIONS," which one of the following actions should be taken to cool components that are normally cooled by Component Cooling Water?

- A. Use AOP-10, "LOSS OF CIRCULATING WATER," to provide cooling to required components using Potable Water.
- B. Use AOP-11, "LOSS OF COMPONENT COOLING WATER," to provide cooling to required components using the RW/CCW interface valves.
- C. Use AOP-18, "LOSS OF RAW WATER" to line up alternate cooling to a RW/CCW Heat Exchanger using hoses from the plant Fire Protection System.
- D. Use OCAG-1, OPERATIONAL CONTINGENCY ACTION GUIDELINE," to line up alternate cooling to a RW/CCW Heat Exchanger using hoses from the FCS Fire Engine.

Question # 93 REV 0 K/A# 075000 A2.01 Circulating Water System Tier 2 Group 2 Ability to (a) predict the impacts of the following malfunctions or operations on the circulating water system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of intake structure RO Importance 3 SRO Importance 3.2

CFR Number 55.43(b)(5)

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

OBJ# 1074-01 02.02

STATE the conditions that OCAG-1 is designed to mitigate.

KA#:	075000 A2.01	Bank Ref #:	NONE
LP# / Objective:	1074-01 02.02	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	OCAG-1	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 094

The plant is operating at full power. You have just received a FC-214 report from chemistry that reports the following plant chemistry parameters:

- Oxygen concentration is 0.12 ppm.
- Chloride concentration is 0.12 ppm.
- Flouride concentration is 0.12 ppm.

What action, if any is required by technical specifications?

- A. Begin action to restore oxygen concentration within 8 hours.
- B. Begin action to restore chloride concentration immediately.
- C. Begin action to restore oxygen and flouride concentrations within 8 hours.
- D. Begin action to restore oxygen and flouride concentrations immediately.

Question # 94 REV 0 K/A# 000000 2.1.34 Generic Knowledges and Abilities Tier 3
Group 1 Knowledge of primary and secondary plant chemistry limits.
RO Importance 2.7 SRO Importance 3.5

CFR Number 55.43(b)(2)

Facility operating limitations in the technical specifications and their bases.

OBJ# 0711-20 02.00

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

KA#: 000000 2.1.34
LP# / Objective: 0711-20 02.00
Cognitive Level: HIGH
Reference: TS 2.1.4

Bank Ref #: NONE
Exam Level: SRO-2
Source: NEW
Handout: TS 2.1.4

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 095

Fuel movement is in progress using FH-1 and FH-12. A vendor is being used to operate the fuel handling equipment. What are the requirements for OPPD supervision of the vendor activities?

- A✓ A Fuel Handling Coordinator with a SRO license to supervise Fuel Movement at FH-1.
- B. A Fuel Handling Coordinator with a RO or a SRO license to supervise Fuel Movement at FH-1.
- C. Fuel Handling Coordinators with SRO licenses to supervise Fuel Movement at both FH-1 and FH-12.
- D. Fuel Handling Coordinators with RO or SRO licenses to supervise Fuel Movement at both FH-1 and FH-12.

Question # 95 REV 0 K/A# 000000 2.1.40 Generic Knowledges and Abilities Tier 3
Group 1 Knowledge of refueling administrative requirements.
RO Importance 2.8 SRO Importance 3.9

CFR Number 55.43(b)(7)
Fuel handling facilities and procedures.

OBJ# 0711-13 02.01
Discuss the prerequisites and precautions associated with fuel handling equipment and the refueling machine.

KA#:	000000 2.1.40	Bank Ref #:	NONE
LP# / Objective:	0711-13 02.01	Exam Level:	SRO-7
Cognitive Level:	LOW	Source:	NEW
Reference:	OP-12	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 096

The pressure and level of each Safety Injection Tank is listed below:

	<u>LEVEL</u>	<u>PRESSURE</u>
SI-6A	67.2%	245 psig
SI-6B	69.5%	241 psig
SI-6C	72.2%	265 psig
SI-6D	74.6%	258 psig

What action is required to make all Safety Injection Tanks operable prior to taking the plant from mode 3 to mode 2?

- A. Raise the level in SI-6A.
- B. Raise the pressure in SI-6B.
- C. Lower the pressure in SI-6C.
- D. Lower the level in SI-6D.

Question # 96 REV 0 K/A# 000000 2.2.37 Generic Knowledges and Abilities Tier 3
Group 2 Ability to determine operability and/or availability of safety related equipment.
RO Importance 3.6 SRO Importance 4.6

CFR Number 55.43(b)(2)

Facility operating limitations in the technical specifications and their bases.

OBJ# 0711-22 01.12

Given a copy of Technical Specifications, apply the applicable Limiting Conditions for Operation (LCO).

KA#: 000000 2.2.37
LP# / Objective: 0711-22 01.12
Cognitive Level: HIGH
Reference: TS 2.3

Bank Ref #: 07-11-22 002
Exam Level: SRO-2
Source: NRC 97 EXAM
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 097

Steam Generator "A" Blowdown Radiation Monitor, RM-054A, has just been declared inoperable. Analysis of secondary chemistry samples indicates background activity only.

What action is required to be taken within 2 hours by CH-ODCM-0001, "OFF-SITE DOSE CALCULATION MANUAL?"

- A. Isolate blowdown flow from Steam Generator, RC-2A.
- B. Reduce blowdown flow from Steam Generator, RC-2A, to less than 10,000 lbm/hr.
- C. Align blowdown sample flow to the Spent Regenerent Tank.
- D. Align blowdown sample flow such that blowdown from both Steam Generators is sampled by RM-054B.

Question # 97 REV 0 K/A# 000000 2.3.15 Generic Knowledges and Abilities Tier 3 Group 3 Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. RO Importance 2.9 SRO Importance 3.1

CFR Number 55.43(b)(2)

Facility operating limitations in the technical specifications and their bases.

OBJ# 0711-32 01.03

Identify the ODCM requirements for release of radioactive liquid waste.

KA#:	000000 2.3.15	Bank Ref #:	NONE
LP# / Objective:	0711-32 01.03	Exam Level:	SRO-2
Cognitive Level:	HIGH	Source:	NEW
Reference:	CH-ODCM-001	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 098

RM-052 and RM-062 are being used for monitoring during a waste gas decay tank release. RM-052 is aligned to the stack and is powered by its alternate bus and instrument power supplies.

What action would be required to continue monitoring the release if power were lost to the Instrument bus supplying power to RM-062 (AI-40D)

- A. The release would continue to be monitored in this alignment.
- B. RM-052 would need to have its MCC power supply switched to its preferred source.
- C. RM-052 would have to have its instrument bus power supply switched to its preferred source.
- D. RM-063 would need to be placed into service.

Question # 98 REV 0 K/A# 000000 2.3.13 Generic Knowledges and Abilities Tier 3 Group 3 Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc. RO Importance 3.4 SRO Importance 3.8

CFR Number 55.43(b)(4)
Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

OBJ# 0711-31 03.00
In a classroom discussion, EXPLAIN the steps taken by Control Room operators during a waste gas release; use OI-WDG-2 as a guide.

KA#:	000000 2.3.13	Bank Ref #:	07-11-31 025
LP# / Objective:	0711-31 03.00	Exam Level:	SRO-4
Cognitive Level:	HIGH	Source:	MODIFIED
Reference:	OI-RM-1	Handout:	NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 099

How are the FCS Severe Accident Management Guideline's (SAMGs) used?

- A. EOF personnel use the SAMGs to support the Control Room Operators in mitigating core damage events.
- B. TSC personnel use the SAMGs to support the Control Room Operators in mitigating core damage events.
- C. The Control Room Operators use the SAMGs along with the EOPs to mitigate core damage events.
- D. The Control Room Operators transition from the EOPs to the SAMGs to mitigate core damage events.

Question # 99 REV 0 K/A# 000000 2.4.16 Generic Knowledges and Abilities Tier 3 Group 4 Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines such as, operating procedures, abnormal operating procedures, and severe accident management guidelines.
RO Importance 3.5 SRO Importance 4.4

CFR Number 55.43(b)(5)

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

OBJ# 1074-01 01.00

EXPLAIN how the FCS SAMGs would be used to manage a severe accident at FCS.

KA#: 000000 2.4.16
LP# / Objective: 1074-01 01.00
Cognitive Level: LOW
Reference: SAMGS

Bank Ref #: ADM-EP 016
Exam Level: SRO-5
Source: NRC 01-1 EXAM
Handout: NONE

NRC EXAM MATERIAL

NRC EXAM MATERIAL

QUESTION NUMBER: 100

A steam generator tube rupture has occurred in Steam Generator, RC-2A. The Steam Generator has been isolated and a plant cooldown is being performed using Steam Generator, RC-2B.

The following plant conditions exist:

- RCS cooldown rate = 30°F/hour.
- RCS pressure = 700 psia and lowering.
- Core exit thermocouples indicate 400°F.
- Pressurizer level = 48% and steady.
- RVLMS level = 100%.
- RC-2A pressure = 740 psia and steady.
- RC-2B pressure = 240 psia and lowering.

What action should be taken as a result of these plant conditions?

- A. Implement EOP floating step CC, "SAMPLING THE RCS FOLLOWING SGTR" to ensure RCS activity remains below limits that would require a change in Emergency Action Levels.
- B. Implement EOP floating step CC, "SAMPLING THE RCS FOLLOWING SGTR" to ensure RCS boron concentration is high enough to ensure adequate shutdown margin.
- C. Implement EOP Attachment 14, "RCS VOID ELIMINATION" to prevent void formation in Steam Generator RC-2A's tubes.
- D. Implement EOP Attachment 14, "RCS VOID ELIMINATION" to prevent void formation in Steam Generator RC-2B's tubes.

Question # 100 REV 0 K/A# 000000 2.4.18 Generic Knowledges and Abilities Tier 3
Group 4 Knowledge of the specific bases for EOPs.
RO Importance 3.3 SRO Importance 4

CFR Number 55.43(b)(5)

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

OBJ# 0718-14 01.04

GIVEN a copy of the Technical Basis Documents (TBDs), EXPLAIN the bases behind the major operator actions contained in EOP-04, SGTR.

NRC EXAM MATERIAL

NRC EXAM MATERIAL

KA#:	000000 2.4.18	Bank Ref #:	NONE
LP# / Objective:	0718-14 01.04	Exam Level:	SRO-5
Cognitive Level:	HIGH	Source:	NEW
Reference:	TDB-EOP/AOP FLOATING	Handout:	NONE

NRC EXAM MATERIAL
