QUESTION # 001

Given the following:

- The Plant was at full power when an equipment malfunction resulted in an automatic Reactor trip
- During the performance of EOP-1.0, "Standard Post-Trip Actions," P-1A, Main Feed Pump, Speed controller will not shift into manual
- P-1A speed is constant at 5250 RPM

Based on this, the Reactor Operator will ____(1)____ to prevent ____(2)____.

a. (1) close 'A' Steam Generator Feed Water Regulating Valve
   (2) damage to "A" MFP due to overspeed

b. (1) close 'A' Steam Generator Feed Water Regulating Valve
   (2) overcooling the PCS (Primary Coolant System)

c. (1) trip P-1A
   (2) damage to 'A' MFP due to overspeed

d. (1) trip P-1A
   (2) overcooling the PCS (Primary Coolant System**)**

ANSWER
d.
REFERENCE:
EOP-1.0, Step 3
EOP-1.0 basis document page 10
NEW
FUNDAMENTAL
K/A: CE/EO2 EK3.3 – Knowledge of the reasons for the following responses as they apply to the Reactor Trip Recovery: Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations
DISTRACTOR ANALYSIS

a. First part candidate may confuse the required contingency action of EOP-1 if the MFP will NOT go into manual (and constant speed) with also having to close the FRV which is in another step, second part candidate may think that as feed water demand is reduced the MFP could overspeed resulting in damage.
b. First part candidate may confuse the required contingency action of EOP-1 if the MFP will NOT go into manual (and constant speed with also having to close the FRV which is in another step, second part is correct per EOP-1 basis document.
c. First part is correct, second part candidate may think that as feedwater demand is reduced the MFP could overspeed resulting in damage.
d. correct

QUESTION # 002

Given the following:

- The Plant has been tripped from 100% power due to a small break LOCA
- 4160V Buses 1A and 1B are de-energized due to an equipment malfunction
- The actions of EOP-1.0, "Standard Post Trip Actions," have been completed
- The CRS has given the direction to commence a PCS cooldown and depressurization

Based on the given conditions the NCO will operate the ___(1)___ to lower PCS temperature and the PZR ___(2)___ to lower PCS pressure.

a. (1) TBV (Turbine Bypass Valve)
   (2) Main Spray Valves

b. (1) TBV (Turbine Bypass Valve)
   (2) Auxiliary Spray Valve

c. (1) ADVs (Atmospheric Dump Valves)
   (2) Main Spray Valves

d. (1) ADVs (Atmospheric Dump Valves)
   (2) Auxiliary Spray Valve

ANSWER:
d.
REFERENCE:
EOP-4.0 basis pages 54 and 69
NEW
HIGHER
K/A: 000009A1.01 – Ability to operate and monitor the following as they apply to a small break LOCA: RCS pressure and temperature
DISTRACTOR ANALYSIS

a. This is the preferred method to lower PCS temperature and pressure per EOP-4, LOCA procedure, however, candidate must recognize that due to loss of BUS 1A and 1B there are no Condensate Pumps in service, therefore, per EOP-1.0, Operator actions we must close both MSIVs, resulting in the inability to use the TBV. PCPs are lost therefore we have no forced circulation and hence cannot use the PZR Main Spray Valves and must resort to utilizing the PZR Auxiliary Spray Valve to lower PCS pressure.
b. This is the preferred method to lower PCS temperature and pressure per EOP-4, LOCA procedure; however, candidate must recognize that due to loss of Bus 1A and 1 B there are no Condensate Pumps in service, therefore, per EOP-1.0 Operator actions, we must close both MSIVs, this results in the inability to use the TVB, second part is correct.
c. First part is correct, due to Busses 1A and 1B being de-energized, PCPs are lost and there is no forced circulation, therefore no PZR main spray. Therefore, must use PZR Aux Spray to lower PCS pressure
d. correct

QUESTION # 003
Given the following:

- The Plant was manually tripped from full power due to a large break LOCA
- The Control Room team has implemented EOP-4.0, "LOCA Recovery"
- PCS temperature is 540°F and stable
- PCS pressure is 1250 PSIA and lowering
- The Control Team has determined that PCS cooldown is required
- 2400V Bus 1D is de-energized
- P-55C, Charging Pump, is in service providing 40 GPM charging flow

Based on the given conditions, PCS cooldown __(1)__ commence ___(2)___.

a. (1) may
   (2) with no restrictions

b. (1) may
   (2) but must be stopped at 490°F to verify shutdown margin

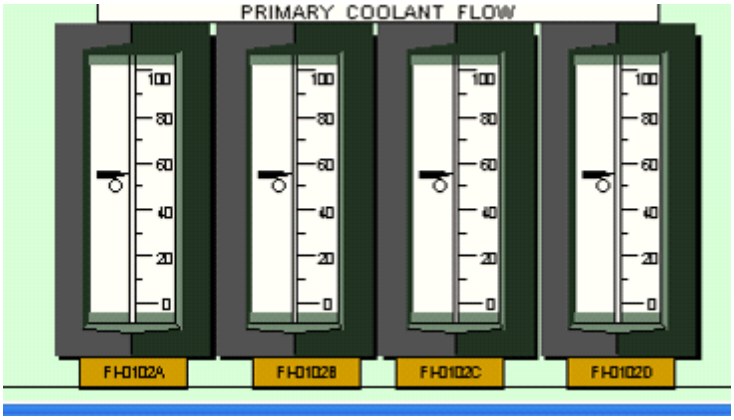
c. (1) cannot
   (2) until additional charging pumps are started

d. (1) cannot
   (2) until adequate shutdown margin has been verified

ANSWER:
a.
REFERENCE:
EOP-4 basis page 52
EOP-9 Resource Assessment Tree 'A' page 3
NEW
HIGHER
K/A: 000011A2.05 – Ability to determine or interpret the following as they apply to a Large Break LOCA: Significance of charging pump operation
DISTRACTOR ANALYSIS
a. CORRECT
b. First part is correct per EOP-4.0 basis document (page 52 of 311, training emphasis section) states it is allowable to commence PCS cooldown as long as emergency boration is in progress. Loss of bus 1D results in loss of LC-12, therefore, P-55A and P-55B have no power. In addition, this also results in a loss of MCC-2 and there is no boric acid pump feed available. Boric acid gravity feed is in service. P-55C charging pump is in service providing 40 GPM charging line flow. For the second part the candidate may confuse this as being correct. This response actually comes from a requirement in EOP-3 for SBO to verify the reactor will remain shutdown at 50 degree intervals.
c. Candidate incorrectly believes that additional charging pumps must be started to support emergency boration when in fact P-55C is providing 40 GPM charging flow.
d. Candidate incorrectly believes that SDM must first be verified prior to commencing a cooldown.

QUESTION # 004

Given the following initial indications for Primary Coolant Flow on Panel C-12:



Which one of the following would validate alarm EK-0902, "PRI COOLANT PUMP P-50B TRIP"? Assume all four PCPs are initially in service.

	FI-0102A	FI-0102B	FI-0102C	FI-0102D
a.	lowers	lowers	lowers	lowers
b.	lowers	lowers	unchanged	unchanged
c.	lowers	lowers	rises	rises
d.	unchanged	lowers	unchanged	unchanged

ANSWER
a.
REFERENCE
ARP-21, window 3
TS Basis 3.3.2, page 4
BANK
HIGHER
K/A: 000015 000017 / 4 G 2.1.31: Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup
DISTRACTOR ANALYSIS

a. Correct – Each PCP has 25% input into each channel of flow indication on C-12, therefore, flow on each indicator will lower by 25%.
b. Incorrect – student believes only Loop 1 Flows will lower and others are unchanged.
c. Incorrect – see distractor b
d. Incorrect – student believes only Loop 1B and 2A flows will lower

QUESTION # 005

Given the following:

- EOP-4.0, "LOCA Recovery," procedure has been implemented due to RV-1040, Pressurizer Safety Valve, lifting
- PCS pressure is 260 PSIA
- PCS temperature is 250°F
- PZR level is 100%
- Control Room indications show RV-1040 has not reseated
- In preparation for Shutdown Cooling operations Low Temperature Overpressure Protection (LTOP) is enabled and placed in the SDC mode

Based on the given conditions, if RV-1040 reseated resulting in a PCS pressure rise to 295 PSIA, _____ PORV(s) (Power Operated Relief Valves) will actuate.

a. no

b. Left Channel PRV-1043B only

c. Right Channel PRV-1042B only

d. Left Channel PRV-1043B and Right Channel PRV-1042B

ANSWER:
a.
REFERENCE:
ARP-8, Window 73
NEW
HIGHER
K/A: 000008A2.06 Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: PORV logic control under low pressure conditions
DISTRACTOR ANALYSIS:
a. correct
b. Plausible if candidate incorrectly applies the SDC LTOP pre-trip setpoint of 265 PSIA (gives alarm only – actual setpoint is 310 PSIA) and believes only left channel will actuate.
c. Plausible if candidate incorrectly applies the SDC LTOP pre-trip setpoint of 265 PSIA and believes only right channel will actuate.
d. Plausible if candidate incorrectly applies the SDC LTOP pre-trip setpoint of 265 PSIA and believes both PORVs will actuate

QUESTION # 006

Given the following with the Plant in MODE 5:

- Shutdown Cooling is in service using P-67A, LPSI Pump, at 3200 gpm
- Bulk PCS Temperature is stable at 105°F
- Shutdown Cooling Return temperature to the PCS is currently 80°F
- The Control Room team notes that Shutdown Cooling Return temperature is rising uncontrollably and implements ONP-17 "Loss of Shutdown Cooling" procedure

Which one of the following is a possible cause of the Shutdown Cooling Return temperature rise?

a. HIC-0826, Instrument Air Regulator for CV-0826, CCW HX E-54B SW Outlet, malfunction resulting in rising output air pressure from 45 to 85 psig.

b. FIC-0306, SDC HX Bypass Controller for CV-3006, SDC Heat Exchangers Bypass, malfunction resulting in rising controller output from 15% to 30%.

c. HIC-03025A, Shutdown Cooling Controller for CV-3025, SDC Heat Exchangers Outlet, malfunction resulting in rising controller output from 30% to 55%.

d. MO-3008, LPSI to Reactor Coolant Loop 1A, Limitorque operator electrical malfunction resulting in valve travel in the open direction an additional 10%.

ANSWER:
a.
REFERENCE:
P&ID M-208 sheet 1A
BANK
HIGHER
K/A: 000025K203: Loss of RHR System: Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following: Service water or closed cooling water pumps
DISTRACTOR ANALYSIS

a. CORRECT – this will result in further closing of SW HI CAP CV-0826 resulting in less SW flow to 'B' CCW HX and SDC temperature rising.
b. Plausible if the candidate has an incorrect mental model of how shutdown temperature control operates, rising controller output would further close CV-3006 resulting in greater flow through SDC HXs, hence lowering temperature.
c. Plausible if the candidate has an incorrect mental model of how shutdown temperature control operates, rising controller output would open CV-3025, therefore, more PCS flow would be going through the SDC HXs and temperature will lower.
d. Plausible if the candidate believes MO-3008 operation in the open direction an additional 10% of valve travel would result in SDC temperature rise.

QUESTION # 007

CV-0823 and CV-0826, CCW Heat Exchanger Service Water High Capacity Outlet Valves, receive an open signal during emergency conditions.

What condition generates the open signal and what is the reason?

a. Safety Injection Signal (SIS). Ensures maximum SW flow to CCW HXs.

b. Recirculation Actuation Signal (RAS). Ensures maximum SW flow to CCW HXs.

c. Safety Injection Signal (SIS). Maintains 100% post accident flow for SW pumps.

d. Recirculation Actuation Signal (RAS). Maintains 100% post accident flow for SW pumps.

ANSWER:
b.
REFERENCE:
DBD 1.02, Section 3.2.2.2.c
BANK
FUNDAMENTAL
K/A: 000026K301: Loss of Component Cooling Water: Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water: The conditions that will initiate the automatic opening and closing of the SWS isolation valves to the CCW/Nuclear Service Water coolers.
DISTRACTOR ANALYSIS
a. Incorrect, SIS does not actuate.
b. CORRECT
c. Incorrect, SIS does not actuate, no connection to 100% post accident SW flow for SW pumps.
d. Incorrect, no connection to 100% post accident SW flow for SW pumps.

QUESTION # 008

Given the following conditions:

- The Plant is at 532°F, 2060 psia
- A PCS leak develops which causes Pressurizer level to lower to 34%

Which one of the following describes the status of the Pressurizer heaters?

a. Proportional Heaters only are energized.

b. Backup Heaters only are energized.

c. All heaters are energized.

d. No heaters are energized.

ANSWER:
d.
REFERENCE:
ARP-4, window 63
ARP-4, window 64
BANK
FUNDAMENTAL
K/A: 000027A1.04 Ability to operate and/or monitor the following as they apply to the Pressurizer Pressure Control Malfunctions: Pressure recovery, using emergency-only heaters
DISTRACTOR ANALYSIS

a. Candidate incorrectly believes that ONLY backup heaters will be de-energized when in fact when PZR level reaches 36% ALL PZR heaters will be de-energized.
b. See distractor a.
c. See distractor a.
d. correct

QUESTION # 009

With the plant at 100% power the following occurs:

- The Main Turbine trips due to a low vacuum condition, but the Reactor does not trip
- The Reactor Operator attempts to trip the reactor using the pushbutton on panel C-02 but is unsuccessful
- The Reactor Operator then successfully trips the reactor using the pushbutton on Panel C-06

Based on the above conditions, which one of the following describes the status of Reactor Trip Breakers, 42-1RPS/42-2RPS and EK-0972, Reactor Trip Alarm Red Tile Annunciator?

a. 42-1RPS and 42-2RPS are closed.
EK-0972 is off.

b. 42-1RPS and 42-2RPS are closed.
EK-0972 is lit.

c. 42-1RPS and 42-2RPS are tripped.
EK-0972 is off.

d. 42-1RPS and 42-2RPS are tripped.
EK-0972 is lit.

ANSWER:
d.
REFERENCE:
ARP-5, window 72
Drawing M1Q-114
BANK
HIGHER
K/A: 000029A202: ATWS: Ability to determine or interpret the following as they apply to a ATWS: Reactor trip alarm
DISTRACTOR ANALYSIS

a. The student misapplies the method of trip from C-06 and believes that the Reactor trip alarm may not annunciate if C-06 method is used.
b. The student correctly applies that the Reactor trip alarm is lit but misapplies the method of reactor trip from C-06.
c. The student correctly applies the method of reactor trip from C-06 and believes that the Reactor trip alarm may not annunciate if C-06 method is used.
d. **CORRECT**

QUESTION # 010

Given the following with the Plant initially at full power:

- The Plant is manually tripped due to a tube rupture in the 'B' Steam Generator (S/G)
- 'B' S/G level is 7% and stable
- 'A' S/G level is 4% and lowering slowly
- T_{AVE} is 535°F and stable
- EOP-1.0, "Standard Post-Trip Actions," Immediate Actions are currently in progress

Which one of the following describes the required action for the above conditions per EOP-1.0?

a. Close CV-0779 and CV-0780, 'B' S/G Atmospheric Dump Valves.

b. Restore 'A' and 'B' S/G levels to a band of 60 - 70%.

c. Cooldown the PCS to < 524°F Hot Leg temperature.

d. Secure Auxiliary Feedwater flow to the 'B' S/G.

ANSWER:
d.
REFERENCE:
EOP-1.0, Step 8.a.3
BANK
HIGHER
K/A: 000038 2.4.49-Ability to perform without reference to procedures those actions that require immediate operation of system components and controls
DISTRACTOR ANALYSIS

a. Plausible because this is accomplished during the ORP when the S/G is isolated but not during EOP-1.0.
b. Plausible because this would normally be accomplished but after EOP-1.0.
c. Plausible because this is accomplished in the Optimal Recovery Procedure (ORP) to prevent the S/G code safeties from lifting when the S/G is isolated but not during EOP-1.0.
d. CORRECT - EOP-1.0 directs securing AFW flow to the S/G that has indications of a SGTR or ESDE.

QUESTION # 011

Given the following conditions:

- An Excess Steam Demand Event (ESDE) inside Containment has occurred from full power
- The Reactor was manually tripped
- PCS temperature is currently 505°F and lowering
- PCS pressure is currently 1650 psia and lowering
- Containment Pressure is currently 4.4 psig and rising
- S/G levels are currently at 20% and lowering
- S/G pressures are 530 psia and lowering

Based on the given conditions which actuation(s), if any, are currently in?

a. Containment Spray and Safety Injection

b. Containment Spray only

c. Safety Injection only

d. None

ANSWER:
a.
REFERENCE:
ARP-36 window 1-1
ARP-8 window 61
E-17 sheet 6
BANK
HIGHER
K/A: CE-E05EK2.1 – Knowledge of the interrelations between the (Excess Steam Demand) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.
DISTRACTOR ANALYSIS
a. correct – CSAS and SIAS actuate at 4 psig.
b. incorrect – see distractor a.
c. incorrect – see distractor a.
d. incorrect – see distractor a.

QUESTION # 012
Given the following plant conditions:

- Plant has been manually tripped from full power due to a transient
- After EOP-1.0, "Standard Post-Trip Actions," is complete, the Control Room Team has implemented EOP-2.0, "Reactor Trip Recovery," procedure
- Subsequently, a major grid disturbance occurs resulting in a transition to EOP-3.0, "Station Blackout Recovery," procedure

Based on the given conditions the Control Team will utilize ___(1)___ to determine that PCS subcooling is at least ___(2)___ °F for the establishment of natural circulation.

a. (1) Sub-Cooling Margin Monitors on panel C-12
   (2) 25

b. (1) Average Qualified CET indication on the PPC
   (2) 25

c. (1) Sub-Cooling Margin Monitors on panel C-12
   (2) 50

d. (1) Average Qualified CET indication on the PPC
   (2) 50

ANSWER:
b.
REVERENCE:
EOP-3.0 step 24
NEW
HIGHER
K/A: 000055K102: Station Blackout: Knowledge of the operational implications of the following concepts as they apply to the Station Blackout: Natural circulation cooling
DISTRACTOR ANALYSIS

a. Plausible if student believes that SMMs can be used in NC cooling of the PCS and the procedure allows it, however the criteria for verifying NC is to utilize qualified Core Exit Thermocouples which is indicated on PPC point Average Qualified CET, second part is correct
b. CORRECT
c. Plausible if student believes that SMMs can be used in NC cooling of the PCS and the procedure allows it, however the criteria for verifying NC is to utilize qualified Core Exit Thermocouples which is indicated on PPC point Average Qualified CET, in the second part the candidate confuses NC verification criteria of core delta T less than 50 degrees
d. Plausible since first part is correct, in the second part the candidate confuses NC verification criteria of core delta T less than 50 degrees

QUESTION # 013
Given the following conditions:

- Plant was at full power when a Loss of Offsite Power occurred
- EOP-1.0, "Standard Post Trip Actions," have been completed and the Control Room Team has transitioned to EOP-8.0, "Loss Of Offsite Power/Forced Circulation Recovery"
- Steam Generator (S/G) levels are 35% and rising slowly

One action in EOP-8.0 is to maintain or restore at least one S/G level to between 60% and 70%.

The reason for the S/G level band is to provide ___(1)___ and the operator should be aware of ___(2)___ due to excessive feeding.

a. (1) heat removal capability under forced flow and natural circulation conditions
   (2) the potential for overcooling

b. (1) heat removal capability under forced flow and natural circulation conditions
   (2) S/G tube sheet damage

c. (1) S/G inventory to mitigate a possible subsequent Loss of All Feedwater event
   (2) the potential for overcooling

d. (1) S/G inventory to mitigate a possible subsequent Loss of All Feedwater event
   (2) S/G tube sheet damage

ANSWER:
a.
REFERENCE:
EOP-8 basis for step 12
EOP-7.0 basis page 16
NEW
HIGHER
K/A: 000056K302: Loss of Off-site Power: Knowledge of the reasons for the following responses as they apply to the Loss of Offsite Power: Actions contained in EOP for loss of offsite power
DISTRACTOR ANALYSIS

a. CORRECT
b. candidate correctly selects the first part, per the EOP-8.0 basis document the 60-70% S/G level band is chosen to provide heat removal capability under forced flow and natural circulation conditions, however the second part is incorrect and the candidate confuses this with a caution fro EOP-7.0 for feeding a S/G when level is -125% (the particular concern is S/G tube bundle damage) this is not a concern with S/G levels at 35% and rising
c. candidate incorrectly believes that the reason is to store up an inventory for subsequent LOAF event since we are in a LOOP event, second part is correct
d. candidate incorrectly believes that the reason is to store up an inventory for subsequent LOAF event since we are in a LOOP event, the second part is incorrect and the candidate confuses this with a caution fro EOP-7.0 for feeding a S/G when level is -125% (the particular concern is S/G tube bundle damage) this is not a concern with S/G levels at 35% and rising.

QUESTION # 014
Given the following:

- The Plant has been manually tripped from full power due to a transient
- During EOP-1.0, "Standard Post Trip Actions," verbal verifications, a loss of Y-01, Instrument AC Bus, occurs
- PZR level is 56% and rising
- LIC-0101B, PZR Level Controller, is in service in the CASCADE mode

Based on the given conditions, the minimum action(s) the NCO will need to perform to maintain PZR level within the normal band is to….

a. maintain PZR Level controller LIC-0101B in cascade

b. shift PZR Level controller LIC-0101B to manual

c. alternate to PZR Level controller LIC-0101A in cascade

d. operate charging and letdown components manually

ANSWER:
d.
REFERENCE:
ONP-24.5, 4.1.b
NEW
FUNDAMENTAL
K/A: 000057: Loss of Vital AC Inst. Bus: Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: Manual control of components for which automatic control is lost
DISTRACTOR ANALYSIS
a. Plausible if candidate incorrectly believes there is no affect to the charging and letdown system on loss of Y-01.Loss of Y-01 causes maximum charging and zero letdown. No matter which PZR level controller is in service and regardless of controller mode.
b. Plausible if candidate believes placing and operating the in service PZR level controller will remedy the situation
c. Plausible if candidate believes that loss of Y-01 will only affect LIC-0101B and placing LIC-0101A will mitigate the situation.
d. **CORRECT**

QUESTION # 015

Given the following with the Plant at full power:

- Battery Chargers #3 and #4 are in service.
- DC Bus #1 Tie Breaker, 72-10, is opened.

Which one of the following loads, if any, will be de-energized?

a. Y10 (Preferred AC Bus No. 1 Inverter), D11-1, and D11-2.

b. Y10 (Preferred AC Bus No. 1 Inverter) only.

c. None.

d. Y30 (Preferred AC Bus No. 3 Inverter) only.

ANSWER:
c.
REFERENCE:
ONP-2.3, attachment 1
BANK
HIGHER
K/A: 000058K101 Loss of DC Power: Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: Battery charger equipment and instrumentation
DISTRACTOR ANALYSIS

a. Plausible if candidate does not recognize that even though BKR 72-10 trips open, D-10R remains energized via station battery #1 and D-10L will remain energized via the battery charger #3, hence there is no loss of D-10L OR D-10R.
b. Plausible , same as above only candidate believes that D-11-1 and D-11-2 are located on D-10L.
c. **CORRECT**
d. Plausible if candidate does not recognize that even though BKR 72-10 trips open, D-10L will remain energized via the battery charger #3 hence there is no affect to Y-30.

QUESTION # 016

Given the following:

- The Plant is at full power
- Frazil Ice conditions are present
- EK-1124, "TRAVELING SCREEN HI Dp," annunciates
- PPC Points DL_1336 and DL_1337 indicate 9" and rising
- The Control Room Team implements ONP-6.1, "Loss of Service Water"

Based on the given information the Traveling Screen Wash system __(1)__ be washing the screens and P-5, Warm Water Recirc Pump, can be started utilizing its control switch located in the ___(2)___ to de-ice the screens.

a. (1) will
   (2) Screen House, Turbine Building

b. (1) will <u>not</u>
   (2) Screen House, Turbine Building

c. (1) will
   (2) Cooling Tower Pump House

d. (1) will <u>not</u>
   (2) Cooling Tower Pump House

ANSWER:
c.
REFERENCE:
ARP-7, window 24
ONP-6.1, page 8
NEW
FUNDAMENTAL
K/A: 000062: 2.1.30 Loss of Nuclear Svc Water: Ability to locate and operate components, including local controls
DISTRACTOR ANALYSIS

a. Plausible, first part is correct, the Traveling Screens wash system will be washing the screens (setpoint 6" H2O) however the candidate believes the location of the P-5 Warm Water Recirc Pump control switch is located in the Screen House with the Traveling Screens when it is located in the Cooling Tower Pump house.
b. Plausible if candidate believes the setpoint for Auto actuation of Traveling Screen Wash System has NOT been reached, second part is correct.
c. **CORRECT**
d. Plausible, first part incorrect and second part correct.

QUESTION # 017

Given the following:

- The Plant is at full power
- A loss of Instrument Air occurs resulting in all three Instrument Air Compressors being in service
- The Control Room Team implements ONP-7.1, "Loss of Instrument Air"
- Instrument Air pressure is 70 psig and stable
- The Nuclear Plant Operator reports:
  - FI-1210, Instrument Air Dryer M-2 Flow, indicates > 300 CFM
  - F-12A, Instrument Air Dryer Pre-filter D/P, is > 4 psid

Based on the above conditions, closing air valve(s) associated with _____ could be a possible action for isolating the air leak.

a. Feedwater Purity Air to Plant Air

b. VRS/Track Alley Fire Deluge System

c. Cooling Tower Pump House

d. West Safeguards Room

ANSWER:
d.
REFERENCE:
ONP-7.1, Step 4.3.d.2
ARP-7, window 2
M-212, Sheet 1
NEW
HIGHER
K/A: 000065A203: Loss of Instrument Air: Ability to determine and interpret the following as they apply to the Loss of Instrument Air: Location and isolation of leaks.
DISTRACTOR ANALYSIS

a. Plausible if candidate incorrectly applies knowledge of plant air diagram, FWP air crosstie ties into air main outlet header at air receiver tanks, a leak here would not show a demand of >300 CFM on the outlet of the Instrument Air dryer. The indications given indicate an air leak in the instrument air system
b. Plausible if candidate incorrectly applies knowledge of plant air diagram and believes VRS/Track alley system located in the auxiliary building use instrument air, they utilize service air for the dry pipe system.
c. Plausible if candidate incorrectly applies knowledge of plant air diagram and believes the Cooling Tower Pump house Area utilizes air after it comes out of the M-2 Air Dryer (specifically the CT basin level indicators) however the area uses Service Air.
d. CORRECT - West Safeguards room control valves utilize instrument air.

QUESTION # 018

Given the following:

- Plant is at 100% power
- The following indications exist on Panel C-01:
  - Main Generator Power = 844 MW
  - Main Generator Reactive Load = 0 MVARS
  - Main Generator Terminal Voltage = 22.6 KV
  - Main Generator Phase currents (X,Y,Z) = 22,000 amps
  - F (front) bus voltage = 357 KV
- Then, an electrical grid disturbance occurs causing 'F' bus voltage to lower to 350 KV

Based on the given conditions and no operator action taken, the C-01 indication for Main Generator VARS will….

a. remain constant

b. indicate VARS in

c. indicate VARS out

d. initially indicate VARS out and slowly return to 0

ANSWER:
c.
REFERENCE:
GFES N-RO-01-L-017-I_18
SOP-30 attachment 3
NEW
HIGHER
K/A: 000077K203 Generator Voltage and Electric Grid Disturbances-Knowledge of the interrelations between Generator Voltage and Electric Grid Disturbances and the following: Sensors, detectors, indicators
DISTRACTOR ANALYSIS

a. Plausible if candidate believes incorrectly the Main Generator Auto Voltage regulator will maintain 0 VARs by adjusting terminal voltage.
b. Plausible if candidate misapplies concepts and believes if grid voltage lowers this will cause a VARs in condition, in actuality main generator terminal voltage will remain constant and when grid voltage lowers the main generator will be supplying VARS to the grid and the meter will indicate a VARS out condition.
c. CORRECT
d. Plausible if candidate believes incorrectly the Main Generator Auto Voltage regulator will automatically adjust the system to return to a 0 VARs condition by adjusting terminal voltage.

QUESTION # 019

Given the following:

- The Plant is at full power
- The Control Room Team has implemented ONP-5.1, "Dropped Rod," due to a dropped rod event

The ONP-5.1 strategy to be utilized with regards to reactivity control is to ….

a. coordinate with PCS dilution and insert group 4 rods above the PDIL limit to minimize worth of the dropped rod.

b. perform PCS dilution to maintain T_{AVE} within 3°F of T_{REF} to minimize worth of the dropped rod.

c. perform control rod insertion in small increments during plant shutdown to maximize shutdown margin.

d. maintain control rods in an all rods out configuration to maximize shutdown margin.

ANSWER:
d.
REFERENCE:
ONP-5.1, NOTE prior to step 6
NEW
HIGHER
K/A: 000003 G 2.4.21: Dropped Control Rod: -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
DISTRACTOR ANALYSIS

a. Plausible if candidate incorrectly believes inserting control rods will minimize the worth of the dropped rod, in addition the procedure states to STOP all positive reactivity additions, PCS dilution is not allowed under dropped rod conditions
b. Plausible if candidate incorrectly believes this action is a strategy, ONP-5.1 states to stop all positive reactivity addition
c. Plausible if candidate incorrectly believes that using small increments of rod insertion during plant shutdown will maximize shutdown margin, ONP-5.1 states to perform shutdown using boration
d. CORRECT

QUESTION # 020

Given the following:

- Plant has been tripped from full power due to a transient
- EOP-1.0, "Standard Post Trip Actions," are in progress
- Control Rod matrix indications are shown below

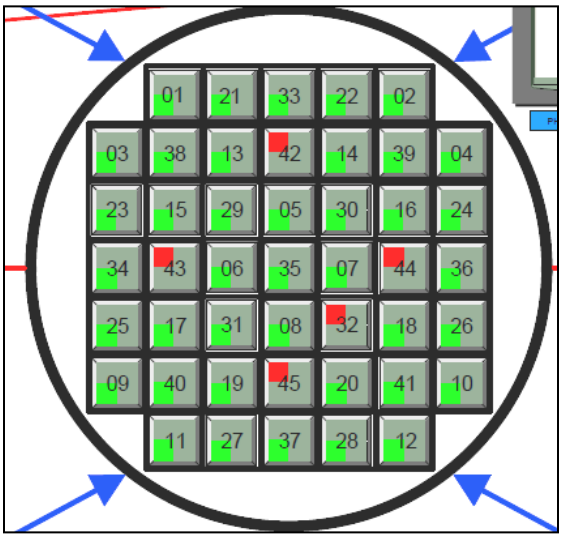
When determining if the Reactivity Control safety function is met for this condition ,the Shutdown Margin (SDM) calculation __(1)__ take into account the present control rod indications and ____(2)____ EOP-1.0 contingency actions are required to address the indications.

a. (1) does
   (2) no additional

b. (1) does
   (2) additional

c. (1) does not
   (2) no additional

d. (1) does not
   (2) additional



ANSWER:
a.
REFERENCE:
EOP-1.0 basis pages 3 and 4
NEW
HIGHER
K/A: 000005K105: Inoperable/Stuck Control Rod: Knowledge of the operational implications of the following concepts as they apply to Inoperable / Stuck Control Rod: Calculation of minimum shutdown margin
DISTRACTOR ANALYSIS

a. CORRECT
b. Plausible since first part is correct, per EOP-1 basis the SDM calculation takes into account the most reactive rod remains full out (stuck) on a reactor trip, however the candidate incorrectly believes that a contingency action is required to address the situation whereas emergency boration is required when TWO rods and are NOT fully inserted, the Control Rod matrix indicates that rod 32 is the only full length control rod stuck out , rods 42-45 are part length rods which do NOT insert on reactor trip
c. Plausible if candidate incorrectly believes that SDM calculation does NOT address the control rod situation , the second part is correct.
d. Plausible if candidate incorrectly believes that SDM calculation does NOT address the control rod situation and additional actions are required i.e. emergency boration.

QUESTION # 021

Given the following:

- The Plant is manually tripped from full power due to a loss of Y01, Instrument AC Bus
- EOP-1.0, “Standard Post Trip Actions,” are in progress
- Plant conditions require manual Emergency Boration

Based on the given conditions which motor operated valves, if any, must be manually operated to ensure proper Emergency Boration is in progress?

a. MO-2087, VCT Outlet Isolation, must be manually closed.

b. MO-2160, SIRW Tank to Charging Pumps Isolation, must be manually closed.

c. MO-2140, Boric Acid Pump Feed Isolation, must be manually opened.

d. No Motor Operated valves will need to be manually operated.

ANSWER:
b.
REFERENCE:
SOP-2A Attachment 14 section 2.0 b.5
NEW
HIGHER
K/A: 000024K203: Emergency Boration -Knowledge of the interrelations between Emergency Boration and the following: Controllers and positioners
DISTRACTOR ANALYSIS

a. Plausible, if candidate incorrectly applies automatic actions that occur on loss of Y-01, the level switch for the VCT loses power resulting in MO-2087 CLOSING and MO-2160 OPENING.
b. CORRECT
c. Plausible, if candidate incorrectly believes loss of Y-01 will prevent MO-2140 from operating when in actuality it is MO-2160 that is affected.
d. Plausible, if candidate incorrectly believes no manual action is required.

QUESTION # 022

Given the following:

- The Plant is in MODE 3
- GCL-3, "MODE 3 ≥ 525F TO MODE 2," checklist is in progress with preparations for critical approach
- PCS boron concentration is 1080 PPM (≥ 525F, 2% Δ ρ)
- Source Range/Wide Range channels NI-1/3 and NI-2/4 are in service
- Source Range NI Audible Counter selected to NI-2 is audible in Control Room
- Due to an equipment malfunction, power is lost to Source Range/Wide Range Channels NI-1/3.

Based on the given plant conditions critical approach ____(1)____ continue due to ____(2)____.

a. (1) may
   (2) Source Range NI Audible Counter remaining audible in Control Room

b. (1) may <u>not</u>
   (2) less than required Source Range/Wide Range channels present

c. (1) may
   (2) Source Range/Wide Range channels NI-2/4 remaining in service

d. (1) may <u>not</u>
   (2) insufficient PCS boron concentration

ANSWER
b.
REFERENCE:
TS 3.3.9; GOP-3 attachment 1 page 7 note prior to step 1.26
NEW
FUNDAMENTAL
K/A: 000032K302: Loss of Source Range NI: -Knowledge of the reasons for the following responses as they apply to the Loss of Source Range Nuclear Instrumentation: Guidance contained in EOP for loss of source-range nuclear instrumentation
DISTRACTOR ANALYSIS

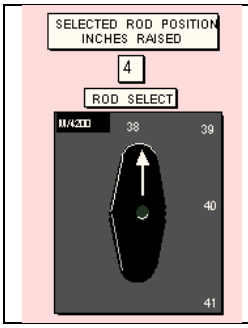
a. Plausible if candidate believes that having the Source Range NI audible counter in service critical approach may continue.
b. CORRECT
c. Plausible if candidate believes that having the Source Range/Wide Range NI-2/4 in service critical approach may continue.
d. Plausible if candidate believes that raising boron concentration would be a mitigating action for loss of the Source Range/Wide Range NI-1/3.

QUESTION # 023

Given the following:

- The Plant was at full power when P-39A, Cooling Tower Pump, tripped
- The Control Room team has implemented ONP-14, "Loss of Condenser Vacuum," and ONP-26, "Rapid Power Reduction"
- Power is 85% and lowering with Turbine Run Back at 300%/hour
- Condenser vacuum is 26" Hg and lowering
- EK-0911, "ROD POSITION 4 INCHES DEVIATION," has annunciated

The Reactor Operator notes the following position indication for Group 4 Rods:



Rod	position (inches)
38	90
39	96
40	94
41	90

Which one of the following action(s), if any, is required to be performed by the Reactor Operator per ONP-26?

a. none, rod insertion may continue

b. balance control rod 39 only

c. balance control rods 39 and 40

d. trip the reactor

ANSWER:
a.
REFERENCE:
ONP-26, page 5
NEW
HIGHER
K/A: 000051A104: Loss of Condenser Vacuum: Ability to operate and / or monitor the following as they apply to the Loss of Condenser Vacuum: Rod position
DISTRACTOR ANALYSIS

a. CORRECT
b. Plausible if candidate believes that a 6 inch deviation requires rod 39 to be balanced, per ONP-26 a control rod is balanced based on 8 inch deviation, however this can be delayed until desired power level is reached.
c. Plausible if candidate believes that ONP-26 would require both rods to be aligned due to 4 inch deviation alarm in with 2 rods at the 4 inch deviation mark.

d. Plausible if candidate believes that trip criteria is met with 2 rods at 4 inches and greater deviation, the criteria states in 2 rods > 8 inch deviation AND an attempt has failed to re-align one of the two THEN trip criteria is met.

QUESTION # 024

Given the following:

- A batch release of T-68C, Waste Gas Decay Tank, is in progress
- EK-1364, "GASEOUS WASTE MONITORING HI RADIATION" annunciates
- RIA-1113, Waste Gas Discharge Process Monitor is in High alarm
- RIA-1113, Waste Gas Discharge Process Monitor counts continue to rise
- Then, RIA-2326, Stack Gas Normal Range Monitor, counts begin to rise

Based on the given conditions, which one of the following action will be used to secure the release?

a. Close CV-1113, WGST Discharge to Stack.

b. Close MV-WG114, Waste Gas Outlet to Stack.

c. Secure V-14A/B, Radwaste Exhausters.

d. Lower High alarm setpoint on RIA-1113, Waste Gas Discharge Process Monitor.

ANSWER:
b.
REFERENCE:
ARP-8i, Attachment 2, Page 2
M-211, sheet 1A (Provided)
M-215, Sheet 2 (Provided)
NEW
HIGHER
K/A: 000060A203: Accidental Gaseous Radwaste Rel: Ability to determine and interpret the following as they apply to the Accidental Gaseous Radwaste Rel: The steps necessary to isolate a given radioactive gas leak using P&IDs.
DISTRACTOR ANALYSIS

a. Plausible if candidate believes this is the only action required, however CV-1123 WGDT will also need to be closed since this is the main path of waste gas discharge.
b. CORRECT
c. Plausible if candidate incorrectly utilizes M-218 Sheet 2 and believes secure radwaste exhauster fans will terminate the release to the stack.
d. Plausible if candidate believes this action will result in the positive closing of CV-1113 and CV-1123.

QUESTION # 025

Given the following conditions:

- P-8B, Turbine Driven Aux. Feedwater Pump, is the only available operating AFW Pump.
- The Control Room has been evacuated due to a fire.
- C-150, Auxiliary Shutdown Panel, is being placed in service.

What will be the effect on the Auxiliary Feedwater components due to C-150 being in service?

a. Any low suction pressure trip of P-8B must be reset at C-150.

b. P-8B low suction pressure trip will not be available.

c. AFW Flow Control Valves, CV-0727 and CV-0749, must be locally controlled.

d. CV-0522B, Steam Supply to P-8B, must be locally controlled.

ANSWER:
b.
REFERENCE:
E-17 sheet 21A
ONP-25.2 NOTE prior to step 45
NEW
FUNDAMENTAL
K/A: 000068 G 2.1.32s: Control Room Evac. Ability to explain and apply system limits and precautions
DISTRACTOR ANALYSIS
a. Plausible if the student believes that the low suction pressure trip will be available since it can normally be reset in the control room with the handswitch.
b. **CORRECT**
c. Plausible if the student believes that control of CV-0727 and 0749 is not available at C-150.
d. Plausible if the student believes that P-8B cannot be controlled from C-150.

QUESTION # 026

Given the following:

- The Control Room team has implemented EOP-6.0, “Excess Steam Demand Event”
- The tubing associated the containment sump level indication has failed resulting in a leak from containment into East Safeguards room
- Containment pressure was initially at 40 psia when the leak was discovered and estimated to be 3 gpm.
- atmospheric pressure in the East Safeguards room is 15 psia

If containment pressure lowers to 20 psia the leak rate will be ____ gpm.

a. 0.60

b. 1.34

c. 1.50

d. 2.12

ANSWER:
b.
REFERENCE:
GFES
BANK
HIGHER
K/A: 000069K101: Loss of CTMT Integrity: Knowledge of the operational implications of the following concepts as they apply to Loss of Containment Integrity: Effect of pressure on leak rate
DISTRACTOR ANALYSIS

a. Plausible if candidate performs incorrect calculation.
b. CORRECT - The leak rate will be proportional to the square root of the differential pressure. The candidate has to remember this fact and recognize the units of the containment pressure are PSIA. This is the unit that would be available in the control room. The correct answer is 3gpm*5psi^0.5/25psi^0.5 = 1.34 gpm. The other answers are the result of either using the wrong units, assuming a straight ratio, or both.
c. Plausible if candidate performs incorrect calculation.
d. Plausible if candidate performs incorrect calculation.

QUESTION # 027

Given the following:

- The Control Room Team has implemented EOP-6.0, "Excess Steam Demand Event," due to a Main Steam Line break on the 'B' S/G inside Containment

Based on the given plant conditions, which one of the following is a concern if a steaming path from the 'A' S/G generator is not established prior to dryout of the 'B' S/G?

a. Void formation in the Reactor Vessel upper head region.

b. A rise in core exit temperatures resulting in the loss of natural circulation.

c. A rise in T_{COLD} of the unaffected loop resulting in a loss of natural circulation.

d. A repressurization of the Primary Coolant System and subsequent pressurized thermal shock.

ANSWER:
d.
REFERENCE:
EOP-6.0, Basis, step 16
BANK
FUNDAMENTAL
K/A: CE/A11 AK2.2: RCS Overcooling: Knowledge of the interrelations between the (RCS Overcooling) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.
DISTRACTOR ANALYSIS
a. Void formation is an undesirable condition, but the concern does not apply here.
b. Valid distractor since loss of natural circulation is a concern, but does not apply for given conditions.
c. Valid distractor since loss of natural circulation is a concern, but does not apply for given conditions.
d. CORRECT - Prevents an uncontrolled heatup and repressurization.

QUESTION # 028

Given the following:

- The Plant is in MODE 3
- PCS temperature is 532°F
- PCS pressure is 2060 psia
- Preparations are in progress for critical approach

Based on the given conditions, which one of the following will lower the departure from nucleate boiling ratio for the Reactor?

a. Fully withdrawing Shutdown Rod Group 'A'.

b. Diluting PCS boron concentration by 50 ppm.

c. Securing a PCP for PZR Spray Valve testing.

d. Raising PCS pressure by 10 psia.

ANSWER:
c.
REFERENCE:
2007 General Physics Corporation PWR/THERMODYNAMICS/CHAPTER 9/Core Thermal limits
BANK
HIGHER
K/A: 003K501: Reactor Coolant Pump Knowledge of the operational implications of the following concepts as they apply to the RCPS: The relationship between the RCPS flow rate and the nuclear reactor core operating parameters (quadrant power tilt, imbalance, DNB rate, local power density, difference in loop T-hot pressure)
DISTRACTOR ANALYSIS

a. Plausible if candidate believes this will lower DNBR, however the reactor remains shutdown-this will NOT affect DNBR since actual heat flux should not change.
b. Plausible if candidate believes this will lower DNBR, however the reactor remains shutdown-this will NOT affect DNBR since actual heat flux should not change.
c. CORRECT
d. Plausible if candidate misapplies concept of DNBR, raising PCS pressure would raise DNBR.

QUESTION # 029

The Plant is in MODE 2 when Component Cooling Water is lost to the Letdown Heat Exchanger.

Which one of the following describes the automatic action that is expected to occur within the Chemical and Volume Control System?

a. CV-2009, Letdown Containment Isolation Valve closes.

b. CV-2003, 2004, and 2005 Letdown Orifice Stop Valves close.

c. CV-2056, VCT Select swaps to the 'TO CLEAN WASTE RCVR TANKS' position.

d. CV-2023, Ion Exchangers Bypass Valve swaps to the 'BYPASS' position.

ANSWER:
d.
REFERENCE:
ARP-4 window 3
M-202 sheet 1
BANK
FUNDAMENTAL
K/A: 004K607: Chemical and Volume Control Knowledge of the effect of a loss or malfunction on the following CVCS components: Heat exchangers and condensers
DISTRACTOR ANALYSIS

a. Plausible if the student believes there is design built in to the CVCS to protect the demineralizers when CCW is lost by closure of the cont. isolation valve.
b. Plausible because if the student believes that there is design built in to the CVCS to protect the demineralizers when CCW is lost by closing Letdown orifice isolation valves.
c. Plausible because letdown isolation valve, CV-2001, isolates letdown, but at a temperature of 460°F.
d. CORRECT

QUESTION # 030

Given the following:

- The Plant is in MODE 4
- The Control Room Team is commencing cooldown of the PCS utilizing the Shutdown Cooling System (SDC)

The Reactor Operator will control PCS cooldown rate and monitor __(1)__ to ensure CCW system design operating temperature limit of __(2)__ °F is not exceeded.

a. (1) TI-0912 and TI-0913, SDC HX CCW Outlet temperatures
   (2) 200

b. (1) TIA-0914 and TIA-0916, CCW HX Outlet temperatures
   (2) 200

c. (1) TI-0912 and TI-0913, SDC HX CCW Outlet temperatures
   (2) 140

d. (1) TIA-0914 and TIA-0916, CCW HX Outlet temperatures
   (2) 140

ANSWER:
c.
REFERENCE:
SOP-3 sec 7.3.3
SOP-16 sec 4.2.2
NEW
FUNDAMENTAL
K/A: 005A103: Residual Heat Removal: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RHRS controls including: Closed cooling water flow rate and temperature
DISTRACTOR ANALYSIS

a. Plausible if candidate believes this is the actual limit, the limit is 140 F, the correct temperature indicators are listed in the second part, monitoring TI-0912 and TI-0913 will show the immediate impact on the CCW piping system as a result of cooling the PCS with the SDC system.
b. Plausible if candidate believes this is the limit(first part) and if candidate incorrectly believes that the direct and immediate impact on the CCW piping system can be monitored utilizing the CCW HX outlet temperatures.
c. CORRECT
d. Plausible since first part is correct and candidate incorrectly believes that the direct and immediate impact on the CCW piping system can be monitored utilizing the CCW HX outlet temperatures.

QUESTION # 031

Given the following:

- The Control Room Team has implemented EOP-4.0, "Loss of Coolant Recovery"
- Safety Injection has initiated
- P-66A, HPSI pump, is unavailable due to a discharge piping rupture
- The rupture has been isolated
- Hot Leg Injection is required

Based on the given conditions Hot Leg Injection is ___(1)___ based on aligning P-66B HPSI pump ____(2)____.

a. (1) available
   (2) to the Cold leg loops and Hot legs via the PZR

b. (1) available
   (2) to the cold leg loops and operating Charging Pumps to the Hot legs via the PZR

c. (1) unavailable
   (2) in this configuration could result in pump damage

d. (1) unavailable
   (2) in this configuration would result in uneven flow to the Cold legs and Hot legs

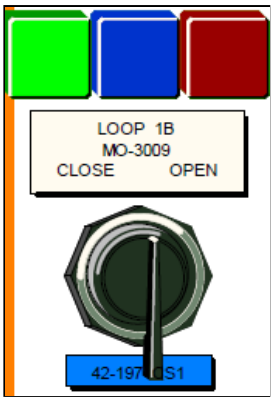
ANSWER:
a.
REFERENCE:
EOP Supplement 20
NEW
HIGHER
K/A: 006A211: Emergency Core Cooling: Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Rupture of ECCS header
DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible (first part is correct) however candidate incorrectly believes charging pumps will be aligned to the Hot legs via the PZR.
c. Plausible if candidate incorrectly believes HLI is unavailable due to P-66B pump damage concerns.
d. Plausible if candidate incorrectly believes HLI is unavailable due to uneven flow concerns to the Cold and Hot legs.

QUESTION # 032

Given the following:

- The Plant has been tripped in response to a Loss of Coolant Accident inside Containment
- Safety Injection has actuated
- EOP-1.0, "Standard Post-Trip Actions," immediate actions are in progress
- The Reactor Operator notes the Green and Blue lights lit for MO-3009, HPSI Train 1 Loop Injection Valve



Based on the given conditions the Blue light lit indicates MO-3009….

a. has received a Safety Injection Signal.

b. breaker has tripped open.

c. motor thermal overload has actuated.

d. has opened to the mid-position.

ANSWER:
c.
REFERENCE:
ARP 8, window 12
NEW
FUNDAMENTAL
K/A: 006A3.03 Ability to monitor automatic operation of the ECCS, including: ESFAS-operated valves.
DISTRACTOR ANALYSIS
a. incorrect – blue light actuates when motor thermal overload has actuated.
b. incorrect – see distractor a. above
c. correct
d. incorrect – see distractor a. above

QUESTION # 033

Given the following Plant conditions:

- Pressurizer pressure is 1000 psia
- Quench Tank pressure is 5 psig
- Quench Tank temperature is 90°F

Which one of the following tailpipe downstream temperatures would be expected for a leaking Pressurizer Safety Valve under these conditions?

a. 300°F

b. 270°F

c. 220°F

d. 180°F

ANSWER:
a.
REFERENCE:
Steam Tables/Mollier Diagram (PROVIDE)
BANK
HIGHER
K/A: 007A410: Pressurizer Relief/Quench Tank: Ability to manually operate and/or monitor in the control room: Recognition of leaking PORV/code safety
DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible if candidate uses the enthalpy value of 1192 for 1000 psia but incorrectly applies it to the constant pressure line.
c. Plausible if candidate incorrectly applies concept that temperature will be the saturation temperature for 5 psig (20 psia).
d. Plausible if candidate incorrectly applies concept that temperature will be the saturation temperature for 5 psia (miss-read of units for 5 psig).

QUESTION # 034

Given the following conditions:

- A Plant cooldown is in progress with PCS temperature currently at 480°F
- The Low Temperature Overpressure Protection (LTOP) system has just been placed in service
- Both Power Operated Relief Valves (PORVs) are in AUTO and both PORV block valves are open
- The Control Room team diagnoses that PRV-1043B, PORV, has started leaking by
- PRV-1043B is declared INOPERABLE

Which one of the following is required within one hour?

a. Verify PRV-1043B indicates closed.

b. Place PRV-1043B in manual control.

c. Close PRV-1043B associated block valve.

d. Place PRV-1043B associated LTOP channel in DEFEAT.

ANSWER:
c.
REFERENCE:
LCO 3.4.11
BANK
FUNDAMENTAL
K/A: 007 G 2.2.39 Knowledge of less than or equal to one hour Technical Specification
DISTRACTOR ANALYSIS

a. Plausible if candidate believes checking PORV position indication closed within 1 hour is required.
b. Plausible if candidate believes taking PRV-1043B handswitch out of auto is required within 1 hour.
c. Correct
d. Plausible if candidate believes placing associated LTOP channel in defeat is required within 1 hour.

QUESTION # 035

Given the following with the Plant at full power:

- The Control Room team notices that T-3, Component Cooling Water (CCW) Surge Tank, level is 76% and rising slowly.
- EK-1365, "PROCESS LIQ MONITORING HI RADIATION," annunciates
- RIA-0915, Component Cooling Water Rad Monitor, is in alarming

Which one of the following describes the expected indication for CV-0915, CCW Surge Tank Vent, and CV-0918, CCW Surge Tank Makeup Valve?

CV-0915 is lined up to the __(1)__ and CV-0918 is __(2)__.

a. (1) Vent Gas Collection Header (VGCH)
   (2) closed

b. (1) Vent Gas Collection Header (VGCH)
   (2) open

c. (1) Waste Gas Surge Tank
   (2) closed

d. (1) Waste Gas Surge Tank
   (2) open

ANSWER:
a.
REFERENCE:
ARP-8, window 65, attachment 3, page 3
ARP-7, window 72
BANK
HIGHER
K/A: 008K103 – Knowledge of the physical connections and/or cause-effect relationships between the CCWS and the following systems: PRMS
DISTRACTOR ANALYSIS
a. Correct
b. Plausible since the first part of the statement is correct, however the makeup valve CV-0918 is closed – setpoint is 74%.
c. Plausible if candidate incorrectly believes CV-0915 aligns to the WGST, second part is correct.
d. Plausible if the candidate incorrectly believes CV-0915 aligns to the WGST and CV-0918 is open (CV-0918 closure setpoint is 74%.

QUESTION # 036

Given the following with the Plant operating at full power:

- A loss of all offsite power occurs
- Diesel Generator (D/G) 1-1 will not start
- D/G 1-2 starts and sequences loads as designed
- Coincident with D/G 1-2 loading, a leak develops in the Component Cooling Water (CCW) System which causes CCW pressure to lower from 105 psig to 77 psig

For the above conditions, which one of the following describes which CCW Pump(s) will be operating five minutes after D/G 1-2 has completed sequencing loads?

a. P-52B only.

b. P-52A only.

c. P-52B and P-52C.

d. P-52A and P-52C.

ANSWER:
a.
REFERENCE:
E-1, Sheet 1
BANK
HIGHER
K/A: 008K202 – Knowledge of bus power supplies to the following: CCW pump, including emergency backup
DISTRACTOR ANALYSIS
a. Correct
b. Plausible if the student believes that P-52B and C are powered from 1C bus.
c. Plausible if the student believes that P-52B and C are powered from 1D bus.
d. Plausible if the student believes that P-52B is powered from 1C bus.

QUESTION # 037

Given the following:

- The Plant is at full power when an equipment issue arises requiring the Control Room Team to implement ONP-26, "Rapid Power Reduction"
- Turbine runback at 100%/hour and rod insertion are in progress
- T_{AVE} is currently higher than T_{REF} by 3°F
- A malfunction occurs in the in-service Pressurizer Pressure Controller resulting in its setpoint failing high

If the rapid power reduction were to continue with current T_{AVE}/T_{REF} deviation and no operator action on the Pressurizer Pressure Controller issue, the Plant would automatically trip on ___(1)___ if PCS pressure reaches ___(2)___ psia.

a. (1) TM/LP
   (2) 1760

b. (1) TM/LP
   (2) 1780

c. (1) High PZR Pressure
   (2) 2235

d. (1) High PZR Pressure
   (2) 2375

ANSWER:
c.
REFERENCE:
ARP-21, window B4
NEW
HIGHER
K/A: 010K302: Pressurizer Pressure Control: Knowledge of the effect that a loss or malfunction of the PZR PCS will have on the following: RPS
DISTRACTOR ANALYSIS

a. Plausible if candidate incorrectly believes that with present conditions PCS pressure would be lowering and a PZR pressure controller setpoint failed high would also lower pressure when in fact since Tref is lower than Tave steam demand is less than reactor power resulting in insurging to the PZR and causing PCS pressure to rise, the controller setpoint failing high would also result in no spray flow (ie the setpoint would be 2500 psia), the second part is Pmin for TMLP setpoint.
b. Plausible see above for explanation, second part misapplies Pmin setpoint for TMLP.
c. **CORRECT**
d. Plausible, candidate selects the correct RPS trip but applies the ATWS setpoint for PZR High pressure.

QUESTION # 038

Which one of the following describes the importance of having Spray Bypass Needle Valves (MV-PC1056 and MV-PC1058) throttled open 2 turns, as required by procedure?

a. Provides faster response for Pressurizer pressure control by raising the differential pressure across the main spray valves.

b. Prevents thermal shock to Pressurizer spray lines by providing a small amount of continuous flow through both spray headers.

c. Ensures the Pressurizer hydrogen concentration is equal to that of the PCS, by continually mixing PCS and Pressurizer inventory, in case of main spray valve closure.

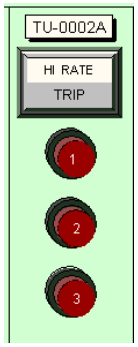
d. Ensures Auxiliary Spray function is maintained ready for emergency use if needed, by providing continual flow through the Auxiliary Spray header.

ANSWER:
b.
REFERENCE:
DBD-2.11, p.33
MODIFIED
FUNDAMENTAL
K/A: 010K401: Pressurizer Pressure Control: Knowledge of PZR PCS design feature(s) and/or interlock(s) which provide for the following: Spray valve warm-up
DISTRACTOR ANALYSIS
a. Plausible because the reason stated is why the plant operates with full heaters to allow the main spray valves to be throttled.
b. **CORRECT**
c. Plausible because the student will believe that H2 concentration will be continuously changing due to dilutions.
d. Plausible because charging temperature is much lower than PCS temperature Student may believe that the reason for the spray bypass flow is to minimize thermal shock.

QUESTION # 039

Given the following:

- The Plant is at 28% power during a startup
- The white High Power Rate pre-trip light for RPS Channel 'A' is lit (see picture below)
- Startup Rate is 0.6 DPM



Which one of the following describes the cause of this condition and the action the operator will perform to verify the cause?

a. Axial Shape Index (ASI) is approaching a limit. Check the "Power Density" status on each Thermal Margin Monitor.

b. Axial Shape Index (ASI) is approaching a limit. Check the "Alarms" sub-screen on each Thermal Margin Monitor.

c. Startup Rate has reached the pre-trip setpoint. Verify EK-0917, "ROD WITHDRAWAL PROHIBIT," is annunciating on panel C-12.

d. Startup Rate has reached the pre-trip setpoint. Verify all control rod motion has stopped and trip the Reactor if an uncontrolled rod withdrawal is occurring.

ANSWER:
a.
REFERENCE:
ARP-21, window A6
BANK
HIGHER
K/A: 012K502 Knowledge of the operational implications of the following concepts as they apply to the RPS: Power Density
DISTRACTOR ANALYSIS
a. correct
b. Plausible but the ARP specifies to check power density status.
c. Plausible as this is a shared alarm but high SRU trip is disabled >15% power.
d. See distractor c.

QUESTION # 040

Given the following:

- Plant is at full power
- The power supply breaker to the 'A' Channel Thermal Margin Monitor (TMM) trips resulting in a loss of power to 'A' Channel TMM

Based on the given conditions, 'A' Channel Reactor Protection system Variable High Power Trip channel will indicate ___(1)___ and TM/LP trip channel will indicate ___(2)___.

a. (1) clear
   (2) clear

b. (1) clear
   (2) tripped

c. (1) tripped
   (2) clear

d. (1) tripped
   (2) tripped

ANSWER:
d.
REFERENCE:
FSAR Chapter 7.2
BANK
FUNDAMENTAL
K/A: 012K607: Reactor Protection: Knowledge of the effect of a loss or malfunction of the following will have on the RPS: Core protection calculator
DISTRACTOR ANALYSIS
a. Plausible if candidate incorrectly believes loss of power will have no effect.
b. Plausible if candidate believes the loss of power will not affect VHPT but does affect TMLP.
c. Plausible if candidate believes loss of power will affect VHPT but does not affect TMLP.
d. **CORRECT**

QUESTION # 041

Given the following

- The Plant has been tripped from full power due to a Loss of Coolant Accident in Containment
- Control Room Team has implemented EOP-4.0 “Loss of Coolant Recovery”
- SIRWT level is 24%
- The Reactor Operator is preparing to place HS-3027A and HS-3056A, SI Pump Minimum Flow Stop Valve Handswitches, to the CLOSE position

Based on the given conditions, the Reactor Operator should observe CV-3027 and CV-3056 SI Pump Minimum Flow Stop Valves going closed ___(1)___ to ensure ___(2)___.

a. (1) after placing the associated Handswitches to CLOSE
   (2) no significant release of radiation to the environment

b. (1) after placing the associated Handswitches to CLOSE
   (2) maximum Safety Injection flow to the PCS

c. (1) when SIRWT level reaches 2%
   (2) no significant release of radiation to the environment

d. (1) when SIRWT level reaches 2%
   (2) maximum Safety Injection flow to the PCS

ANSWER:
c.
REFERENCE:
EOP Supplement 42 pages 1, 3-7
EOP supplement 42 basis page 70
NEW
HIGHER
K/A: 013A106: Engineered Safety Features Actuation: Ability to predict and/or monitor changes in parameters (to Prevent exceeding design limits) associated with operating the ESFAS controls including: RWST level
DISTRACTOR ANALYSIS

a. Plausible if candidate does not understand how RAS (Recirculation Actuation Signal) circuitry works for CV-3027 and CV-3056, the hand switches must be placed in closed AND RAS must actuate at ~ 2% SIRWT level for the valves to go closed, the second part is the correct reason for the valves to close.
b. Plausible if candidate believes valves will close (see above) AND also believes the reason for closing the recircs is to maximize SI flow.
c. CORRECT
d. Plausible since the first part is correct, however the candidate incorrectly believes the reason is to maximize safety injection flow to the PCS.

QUESTION # 042

Given the following with the plant operating at 50% power:

- A fault occurs on Preferred AC Bus Y-20 which subsequently de-energizes Y-20
- The crew enters ONP-24.2, "Loss of Preferred AC Bus Y-20"
- Subsequently, the Plant is manually tripped due to a Main Steam Line Break inside the Containment
- PCS pressure is 1720 psia
- Containment pressure is 4.5 psig

Due to these conditions, which one of the following describes the correct action(s) during EOP-1, "Standard Post trip Actions," if any?

a. Manually align Right Channel SIS equipment only.

b. Start P-54A, Containment Spray Pump, only.

c. Manually align Right Channel SIS equipment and start P-54A, Containment Spray Pump.

d. No actions are necessary; Containment Spray and Safety Injection Actuation will operate automatically for this event.

ANSWER:
c.
REFERENCE:
ONP-24.2, steps 4.15 and 4.16
EOP-1.0 step 6.1.b and 10.2.c
NEW
HIGHER
K/A: 013A204: Engineered Safety Features Actuation; Ability to (a) predict the impacts of the following malfunctions or operations on the ESFAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations; Loss of instrument bus
DISTRACTOR ANALYSIS

a. Plausible if the student believes that manually aligning right channel SI equipment is the ONLY action required, with CNMT pressure at 4.5 psig this will normally initiate SI and CNMT Spray, however due to loss of Y-20 all Right Channel SI equipment will have to be manually aligned and CNMT Spray pump P-54A will need to be manually started.
b. Plausible if the student believes that the only action required is starting P-54A.
c. **CORRECT**
d. Plausible if the student believes loss of Y-20 does not affect CHP or SIS actuation circuits.

QUESTION # 043

Given the following:

- EOP-1.0, “Standard Post Trip Actions,” are in progress:
- EK-1361, “CONTAINMENT HI PRESSURE,” annunciates

Which one of the following describes the status of the Containment Air Cooler Fans?

a. All ‘A’ fans ON.
   All ‘B’ fans ON.

b. All ‘A’ fans ON.
   All ‘B’ fans OFF.

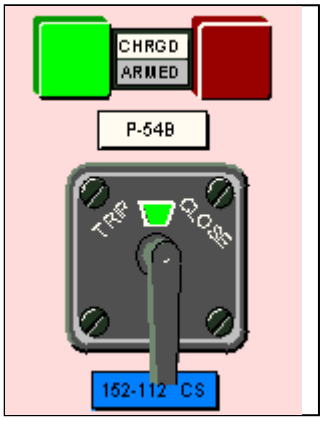
c. V-1A, V-2A, and V-3A ON.
   V-4A and all ‘B’ Fans OFF.

d. V-1A, V-2A, and V-3A OFF, V-4A ON.
   All ‘B’ Fans OFF.

ANSWER:
b.
REFERENCE:
E-17, sheets 4 and 6
BANK
FUNDAMENTAL
K/A: 022A301: Containment Cooling: Ability to monitor automatic operation of the CCS, including: Initiation of safeguards mode of operation
DISTRACTOR ANALYSIS
a. Plausible if candidate believes there is no impact.
b. **CORRECT**
c. Plausible if candidate misapplies knowledge and believes that V-4A fan is automatically tripped.
d. Plausible if candidate incorrectly applies which fans remain running and which are automatically tripped.

QUESTION # 044

Which one of the following describes the operation of the white "ARMED" light located below the breaker "CHARGED" light for P-54A, P-54B and P-54C, Containment Spray Pumps? Refer to the below picture of P-54B controls.



The white light illuminates when...

a. Containment Pressure reaches 0.85 psig.

b. a Containment High Radiation Signal is received.

c. a Safety Injection Actuation Signal is received.

d. the associated Diesel Generator is supplying the bus.

ANSWER:
c.
REFERENCE:
DBD 2.03 page 57
E-251-1
BANK
FUNDAMENTAL
K/A: 026A401: Containment Spray: Ability to manually operate and/or monitor in the control room: CSS controls
DISTRACTOR ANALYSIS

a. Plausible if candidate incorrectly believes that rising CNMT press to 0.85 psig will cause ARM light to illuminate.
b. Plausible if candidate incorrectly believes that a CHR signal will cause ARM light to illuminate.
c. CORRECT
d. Plausible if candidate incorrectly believes that its associated EDG supplying the bus will cause ARM light to illuminate.

QUESTION # 045

Which one of the following strategies will be implemented to maintain PCS Heat Removal during an Excess Steam Demand Event?

a. Steam the least affected S/G using Atmospheric Steam Dumps to maintain least affected S/G pressure 0 to 50 psi above the most affected S/G pressure.

b. Steam the least affected S/G when the affected S/G level reaches -50% using the MSIV bypass valve and Turbine Bypass Valve.

c. Open both MSIV Bypass Valves and steam both S/Gs to Main Condenser to ensure a monitored release path.

d. Maximize Aux Feed flow to most affected S/G while steaming the least affected S/G using Atmospheric Steam Dump Valve.

ANSWER:
a.
REFERENCE:
EOP 6.0 Basis, Step 16
BANK
FUNDAMENTAL
K/A: 039 G 2.4.6: Main and Reheat Steam-Knowledge of EOP mitigation strategies
DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible if candidate believes the strategy is to use allow the affected SG level to reach - (minus) 50% (confuses the 0-50 psi requirement to minimize impact on cooldown rate and incorrectly believes to open the unaffected S/G MSIV bypass valve and TBV.
c. Plausible if candidate believes having a monitored release path takes priority over proper PCS heat removal strategy.
d. Plausible if candidate believes having max AFW flow to affected SG will delay time to dryout.

QUESTION # 046

The plant is operating at 60% power with the Steam Generator Level Control System in automatic, when Annunciator EK-0961, “STEAM GEN E-50A HI LEVEL” alarms.

Which one of the following sets of indications would be expected immediately for the above plant conditions?

	CV-0701, FRV, Position Indicator, POI-0701	LIA-0703 ‘A’ Steam Generator Level Indication
a.	Lowering	55%
b.	Rising	85%
c.	Rising	55%
d.	Lowering	85%

ANSWER:
d.
REFERENCE:
ARP-5, Window 61
BANK
HIGHER
K/A: 059K103 Knowledge of the physical connections and/or cause-effect relationships between the MRW and the following systems: S/Gs
DISTRACTOR ANALYSIS

a. Correct response, but incorrect setpoint.
b. Incorrect response, correct setpoint
c. Incorrect response and incorrect setpoint
d. correct – valve controller output lowers due to a signal from Hi-Level Override circuit

QUESTION # 047

Given the following with the Plant operating at full power:

- A Reactor trip occurs due to a loss of all offsite power
- Diesel Generator 1-2 will not start automatically or manually
- A loss of Y10, Preferred AC Bus, occurs two minutes after the loss of offsite power
- Then, an Auxiliary Feedwater Actuation Signal (AFAS) occurs

Which Auxiliary Feedwater (AFW) Pump, if any, will be operating one-minute after the AFAS occurs? (Assume no Operator actions associated with AFW occur)

a. P-8A, AFW Pump.

b. P-8B, AFW Pump.

c. P-8C, AFW Pump.

d. None.

ANSWER:
a.
REFERENCE:
E-17 sh. 21 and sh. 21A
E-1 Sheet 1
ONP-24.1 section 2.0
BANK
HIGHER
K/A: 061K202: Auxiliary/Emergency Feedwater: Knowledge of bus power supplies to the following: AFW electric driven pumps
DISTRACTOR ANALYSIS

a. CORRECT - D/G 1-1 sequencing power is from Y30 so 1C Bus will have power. Control power for left train AFW automatically swaps to Y30 upon a loss of Y10.
b. Plausible if student believes correctly that P-8C will not be running due to loss of D/G 1-2 but believes that P-8A cannot start due to the loss of Y10 so only P-8B can start.
c. Plausible if student believes that P-8A and P-8B cannot start due to the loss of Y10 and that P-8C is powered from 1C Bus.
d. Plausible if student believes that P-8A/P-8B will not start due to the loss of Y10 and correctly believes that P-8C will not start due to loss of D/G 1-2.

QUESTION # 048

Given the following:

- The Plant is in MODE 3 with the PCS at normal operating temperature and pressure
- Station Battery Chargers 3 and 4 are in service
- Station Battery Chargers 1 and 2 are OPERABLE
- A fault occurs on Bus 1D resulting in EK-0532 "BUS 1C OR 1D OVERCURRENT LOCKOUT" alarming
- Two (2) minutes have elapsed since the fault

Based on the given conditions, which one of the following lists the Station Battery Chargers that will be available?

a. Battery Chargers 2 and 3 only.

b. Battery Chargers 1 and 4 only.

c. Battery Chargers 1 and 3 only.

d. All Battery Chargers.

ANSWER:
b.
REFERENCE:
ARP-3 window 32
EOP-9 Resource Assessment Tree B pages 2 and 3
NEW
FUNDAMENTAL
K/A: 062K303: AC Electrical Distribution: Knowledge of the effect that a loss or malfunction of the ac distribution system will have on the following: DC system
DISTRACTOR ANALYSIS

a. Plausible if candidate believes Battery Chargers 2 and 3 are powered from Bus 1C via MCC-1.
b. CORRECT
c. Plausible if candidate believes Battery Chargers 2 and 3 are powered from Bus 1C via MCC-1.
d. Plausible if candidate believes the 1-2 DG will start and re-power loads on D bus, however since the current lockout alarm is in, the 1-2 DG will start but its associated output breaker will NOT close.

QUESTION # 049

Given the following

- ONP-20, "Diesel Generator Manual Control," for 1-1 Diesel Generator is in progress
- Then, DC Breaker 72-301 for 1-1 D/G Control was found tripped on Panel D-11A
- The Remote Local Transfer Switches (RLTS) on 1-1 D/G Exciter Cabinet (HS-C22-RLTS) and Gauge Board (HS-G20-RLTS) were placed to the LOCAL position
- The DC breaker is then reset and closed on Panel D-11A

Based on the given plant conditions 1-1 D/G …

a. will automatically start on a Bus undervoltage condition and can be started from the Control Room.

b. will automatically start on a Bus undervoltage condition and can not be started from the Control Room.

c. will not automatically start on a Bus undervoltage condition and can be started from the Control Room.

d. will not automatically start on a Bus undervoltage condition and can not be started from the Control Room.

ANSWER:
d.
REFERENCE:
ONP-20 page 3 and attachment 2
NEW
FUNDAMENTAL
K/A: 063K401: DC Electrical Distribution: Knowledge of DC electrical system design feature(s) and/or interlock(s) which provide for the following: Manual/automatic transfers of control
DISTRACTOR ANALYSIS

a. Plausible if candidate incorrectly believes that by resetting the tripped DC breaker successfully the 1-1 DG will start automatically on bus UV and can still be operated from the control room, however placing the associated RLTS in LOCAL removes these functions.
b. Plausible if candidate miss-applies what occurs when placing RLTS on 1-1 DG control panel and gage board to LOCAL, second part is correct.
c. Plausible if candidate misapplies what occurs when placing RLTS on 1-1 DG control panel and gage board to LOCAL, first part is correct.
d. **CORRECT**

QUESTION # 050

Given the following:

- The reactor trips at 0832 due to a loss of all AC Power
- Neither Diesel Generator will start
- EOP-3.0, "Station Blackout Recovery," has been implemented

The latest time that the Station Batteries will be capable of performing their design function, if power is not restored, is ___(1)___ assuming Battery Load Stripping per EOP Supplements 7 and 8 ___(2)___ performed.

a. 1232
   is not

b. 1232
   is

c. 1632
   is not

d. 1632
   is

ANSWER:
b.
REFERENCE:
FSAR Section 8.4.2.3
NEW
FUNDAMENTAL
K/A: 063A101 – Ability to predict and/or monitor changes in parameters associated with operating the DC electrical system controls including: Battery capacity as it is affected by discharge rate.
DISTRACTOR ANALYSIS

a. Plausible if the student believes that the batteries can last 4 hours without load stripping and load stripping just extends battery life past 4 hours.
b. Correct
c. Plausible if the student believes that the battery shoud last 8 hours and load stripping is not required.
d. Plausible if the student knows that load stripping is required but believes that the battery should last 8 hours.

QUESTION # 051

Given the following conditions:

- The Plant has experienced a loss of all offsite power
- Emergency Diesel Generator (D/G) 1-1 is loaded to 2200 kW
- D/G 1-2 is not available
- There is an unrecoverable leak of 1.1 gpm from T-10A
- T-10A, Fuel Oil Storage Tank, level is 92.5" by dipstick

For the above conditions, how many days will T-10A inventory be able to support D/G 1-1 operation?

a. 6.2.

b. 6.8.

c. 8.8.

d. 9.0.

ANSWER:
a.
REFERENCE:
SOP-22 attachments 2 and 3 (PROVIDE)
BANK
HIGHER
K/A: 064K608: Emergency Diesel Generator: Knowledge of the effect of a loss or malfunction of the following will have on the ED/G system: Fuel oil storage tanks
DISTRACTOR ANALYSIS

a. CORRECT – D/G uses ~2.58 gpm @ 2200 kW (from attachment 2)+ 1.1 gpm for leak = 3.68gpm. 32754 usable gallons (from attachment 3)/3.68 gpm = 6.2 days.
b. Plausible if student adds 15 hours from the day tank.
c. Plausible if student does not take into account 1.1 gpm leak.
d. Plausible if student misreads the attachment 3 graph and uses 92.5% instead of 92.5 inches.

QUESTION # 052

All of the following Radiation Monitors will initiate automatic equipment actuation to prevent radioactive releases upon an alarming condition except:

a. RIA-1810, East Engineered Safeguards Radwaste Ventilation Monitor.

b. RIA-0631, Condenser Off-gas Monitor.

c. RIA-0707, Steam Generator Blowdown Monitor.

d. RIA-5711, Radwaste Addition Ventilation Monitor.

ANSWER:
b.
REFERENCE:
ARP-8, attachment 2 & 3
BANK
FUNDAMENTAL
K/A: 073K3401: Process Radiation Monitoring: Knowledge of PRM system design feature(s) and/or interlock(s) which provide for the following: Release termination when radiation exceeds setpoint
DISTRACTOR ANALYSIS
a. Plausible but RIA-1810 isolates east safeguards upon an alarm.
b. **CORRECT**
c. Plausible but RIA-0707 isolates S/G blowdown discharge upon an alarm.
d. Plausible but RIA-5711 trips the Radwaste supply fan to maintain the area at a negative pressure to prevent a release.

QUESTION # 053

Given the following:

- The Plant is at full power
- P-7C, Service Water Pump, is out of service
- Then, P-7B, Service Water Pump, trips
- The Control Room team implements ONP-6.1, “Loss of Service Water”
- Critical SW Header ‘A’ and ‘B’ pressure is 40 psig
- EK-1165, “NON-CRITICAL SERV WATER LO PRESS”, is in

Which one of the following (1) occurs in the Service Water System due to this event and (2) the condition that requires a Reactor trip?

a. (1) P-4, Screen Wash Pump, automatically starts
   (2) EK-0260, “GENERATOR H2 COOLER HI TEMP”

b. (1) P-7A, Service Water Pump, is operating in a runout condition
   (2) EK-0259, “EXCITER COOLER HI TEMP”

c. (1) P-7A, Service Water Pump, is operating in a runout condition
   (2) EK-0260, “GENERATOR H2 COOLER HI TEMP”

d. (1) P-4, Screen Wash Pump, automatically starts
   (2) EK-0259, “EXCITER COOLER HI TEMP”

ANSWER:
b.
REFERENCE:
ONP-6.1 immediate actions
NEW
HIGHER
K/A: 076A201: Service Water: 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
DISTRACTOR ANALYSIS

a. Plausible because this is listed as an automatic action in the ONP but only if the loss of service water was caused by a blocked traveling screen. The student also applies the alarm for high main generator temperature vice exciter temp.
b. CORRECT
c. Plausible if the student applies the alarm for high main generator temperature vice exciter temp.
d. Plausible because this is listed as an automatic action in the ONP but only if the loss of service water was caused by a blocked traveling screen.

QUESTION # 054

Which one of the following correctly completes the following statement regarding automatic operation of C-2A, C-2B, and C-2C, Instrument Air Compressors?

The Instrument Air Compressors will automatically start in standby (AUTO) when pressure reaches __(1)__ and will unload when pressure reaches ___(2)___.

a. (1) 92
   (2) 100

b. (1) 92
   (2) 105

c. (1) 88
   (2) 100

d. (1) 88
   (2) 105

ANSWER:
b.
REFERENCE:
SOP-19, note prior to 7.1.d
DBD-1.05, 3.2.3
NEW
FUNDAMENTAL
K/A: 078A301: Instrument Air: Ability to monitor automatic operation of the IAS, including: Air pressure
DISTRACTOR ANALYSIS

a. Plausible if the student believes that since air pressure is designed to be at nominal 100 psig, that the air compressor will unload at this pressure.
b. CORRECT
c. Plausible if the student confuses the old setpoint with the new setpoint and believes that since air pressure is designed to be at nominal 100 psig, that the air compressor will unload at this pressure.
d. Plausible if the student confuses the old setpoint with the new setpoint.

QUESTION # 055
Given the following conditions with the Plant initially at full power:

- A loss of coolant accident (LOCA) has occurred
- Safety Injection has actuated
- Containment pressure rose to 8.5 psig and has since lowered to 2.0 psig
- The CHP signal is then RESET:
  - The Reactor Operator placed the Containment Spray Pump hand switches in TRIP and returned them to mid-position
  - The Containment Spray valves have been closed

If the LOCA becomes larger causing Containment Pressure to rise and exceed the Containment High Pressure (CHP) actuation setpoint, the Containment Spray valves will ___(1)___ and the Containment Spray Pumps will ___(2)___.

a. (1) not open
   (2) not start

b. (1) open
   (2) start

c. (1) open
   (2) not start

d. (1) not open
   (2) start

ANSWER:
c.
REFERENCE:
EOP-4.0, step 18
E-17 sheet 4, 6
E-251 sheet 1
BANK
HIGHER
K/A: 103A404: Containment: -Ability to manually operate and/or monitor in the control room: Phase A and phase B resets
DISTRACTOR ANALYSIS
a. Plausible if the student recalls the required SIS reset feature but improperly applies it to both the valves and pumps.
b. Plausible if the student does not recall the SIS reset feature.
c. CORRECT
d. Plausible if the student recalls the required SIS reset feature but applies it to the valves instead of the pumps.

QUESTION # 056

Which one of the following correctly completes the following statement?

During a Reactor startup, any Regulating Control Rod group cannot be withdrawn until all Shutdown Control Rods are above a minimum of __(1)__ and during a Reactor shutdown any Shutdown Control Rod group cannot be inserted until all Regulating Control Rods are below a maximum of __(2)__.

a. (1) 122”
   (2) 4”

b. (1) 131”
   (2) 4”

c. (1) 122”
   (2) 6”

d. (1) 131”
   (2) 6”

ANSWER:
c.
REFERENCE:
DBD-2.06, 3.3.4.4
BANK
FUNDAMENTAL
K/A: 001K403: Control Rod Drive: Knowledge of CRDS design feature(s) and/or interlock(s) which provide for the following: Rod control logic
DISTRACTOR ANALYSIS

a. Plausible if the student believes that 4” is the interlock but this is the lower rod stop for the reg rods.
b. Plausible if the student believes that 4” is the interlock but this is the lower rod stop for the reg rods and the student believes that 131” is the interlock but this is the upper rod stop for the shutdown rods.
c. **CORRECT**
d. Plausible if the student believes that 131” is the interlock but this is the upper rod stop for the shutdown rods.

QUESTION # 057

Given the following:

- A power escalation is in progress at 50% power
- PCS temperature parameters are as follows:
  - T_C is 534.5°F
  - T_H is 557.5°F

Which one of the following correctly completes the following statement regarding the expected PCS T_H indication as the Reactor approaches full power?

As Reactor power is raised to full power, hot leg temperature is raised ___(1)___ in order to _____(2)_____.

a. (1) significantly (20 - 25°F)
   (2) offset positive reactivity caused by power defect

b. (1) significantly (20 - 25°F)
   (2) maintain sufficient S/G pressure

c. (1) slightly (2 - 3°F)
   (2) prevent exceeding DNBR limits

d. (1) slightly (2 - 3°F)
   (2) prevent S/G Safety Valves from lifting

ANSWER:
b.
REFERENCE:
FSAR figure 4.9
NEW
FUNDAMENTAL
K/A: 002K510 Knowledge of the operational implications of the following concepts as they apply to the RCS: Relationship between reactor power and RCS differential temperature
DISTRACTOR ANALYSIS

a. Plausible if the student misapplies the power defect concept as power rises and believes that it adds positive reactivity.
b. Correct
c. Plausible if the student confuses T_h control with T_{ave} (T_{ave} is 560°F at full power) and believes that an excessively high hot leg temperature can cause DNBR limits to be approached.
d. Plausible if the student confuses T_h control with T_{ave} (T_{ave} is 560°F at full power) and believes that an excessively high hot let temperature can cause DNBR limits to be approached.

QUESTION # 058

Given the following:

- A Plant start up is in progress
- Shutdown Control Rod Group 'B' is being withdrawn in preparation for a critical approach
- While moving Shutdown Group 'B' rods to the upper electrical limit (UEL), power is lost to the Primary Information Processor (PIP)

Which one of the following describes how Control Rod Position Indication will be affected due to the loss of the PIP?

a. All red Control Rod Matrix lights on Panel C-12 will be lit (ON).

b. All Control Rod Matrix lights on Panel C-12 will be dark (OFF).

c. Position indication from the Reed Switches will be 0.0" on the Plant Process Computer.

d. Position indication from the Synchro-transmitters will be -188.8" on Panel C-02.

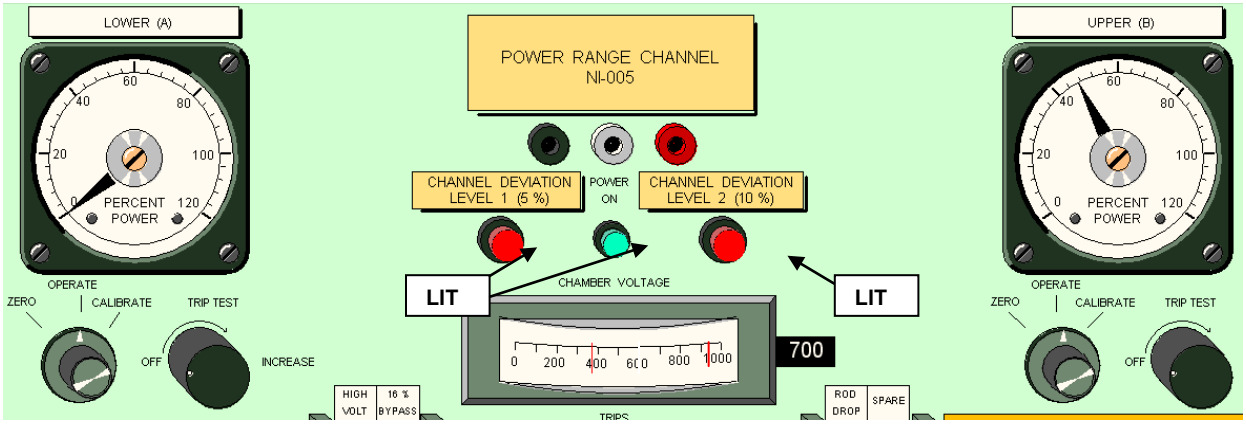
ANSWER:
d.
REFERENCE:
ONP-24.2, attachment 1
NEW
HIGHER
K/A: 014A102: Rod Position Indication: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RPIS controls, including: Control rod position indication on control room panels
DISTRACTOR ANALYSIS

a. Plausible if the student believes that only the red lights receive input from the PIP and they will fail in the ON position.
b. Plausible if the student believes the matrix lights on panel C-12 are powered by the PIP; they are actually powered from Y-01.
c. Plausible if the student believes that reed switch rod indication is developed by the PIP.
d. CORRECT – The PIP powers the rod position indication channel on C-02 and will indicate this on loss of power.

QUESTION # 059

Given the following:

- The Plant is operating at full power
- NI-5, Power Range Nuclear Instrument, sub-channel 'A' fails low due to a faulty amplifier (see picture below showing C-06, Reactor Protective System Panel, indications)



Which one of the following alarms is expected to be received for this condition?

a. EK-0606A, "HIGH POWER RATE CHANNEL PRE-TRIP/ASI."

b. EK-0601A, "VARIABLE HIGH POWER LEVEL CHANNEL TRIP."

c. EK-0608C, "NI CHANNEL TROUBLE."

d. EK-0941, "GROUP 4 PREPWR DEPENDENT INSERTION LIMIT."

ANSWER:
a.
REFERENCE:
ARP-21, windows A1, A6, C8
ARP-5, window 41
TMM Block Diagram
NEW
HIGHER
K/A: 015K601: Nuclear Instrumentation: Knowledge of the effect of a loss or malfunction on the following will have on the NIS: Sensors, detectors, and indicators
DISTRACTOR ANALYSIS

a. CORRECT – The alarm is received due to ASI channel 'A' exceeding the limit.
b. Plausible if the student believes that the VHPT is calculated by adding 15% to the lower of ΔT power or NI power but the VHPT is calculated by adding 15% to the higher of the two.
c. Plausible if the student believes this alarm comes in on any problems with NIS, but this only comes in when detector voltage is lost; as shown, detector voltage is nominal 700 VDC.
d. Plausible if the student believes that PPDIL is determined using NI power; it is determined using PIP delta-T power.

QUESTION # 060

Given the following:

- The Plant is operating at full power
- Qualified Core Exit Thermocouple #2 (CET #2) develops an open in the thermocouple circuit
- KCETA, Qualified CET Average, on the PPC is orange

Which one of the following describes (1) the effect on Qualified CET #2 indication and (2) the required action the Control Room team will take in response to this indication?

a. (1) CET #2 will indicate low
   (2) Manually calculate Qualified CET Average.

b. (1) CET #2 will indicate high
   (2) Manually calculate Qualified CET Average.

c. (1) CET #2 will indicate low
   (2) Utilize Excores to monitor Linear Heat Rate.

d. (1) CET #2 will indicate high
   (2) Utilize Excores to monitor Linear Heat Rate.

ANSWER:
a.
REFERENCE:
N-RO-01-L-020-I
SOP-34, 4.2.2
NEW
HIGHER
K/A: 017A201: In-core Temperature Monitor: Ability to (a) predict the impacts of the following malfunctions or operations on the ITM system; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations: Thermocouple open and short circuits
DISTRACTOR ANALYSIS
a. **CORRECT**
b. Plausible if the student applies the indication for an open circuit in an RTD.
c. Plausible if the student believes that CETs are used to monitor Linear Heat Rate, when in fact, the Incore NIs are used.
d. Plausible if the student applies the indication for an open circuit in an RTD that CETs are used to monitor Linear Heat Rate, when in fact, the Incore NIs are used.

QUESTION # 061

Given the following with the Plant in MODE 6:

- Reactor Cavity water level is 647' 2"
- Door-950, Spent Fuel Pool (SFP) South Tilt Pit Gate, is removed
- EK-1309, SPENT FUEL POOL HI/LO LEVEL, alarm annunciates due to a leak in the SFP Cooling System
- The Control Room team confirms that SFP level is lowering
- The Control Room Supervisor implements ONP-23.3, "Loss of Refueling Water Accident"

Which one of the following conditions requires tripping the in-service SFP Cooling Pump?

a. Alarm EK-1308, FUEL POOL CLG PUMPS DISCH LO PRESS, annunciates.

b. RIA-2313, Spent Fuel Pool Criticality Monitor, alarms.

c. Spent Fuel Pool temperature indicates greater than 108°F.

d. Spent Fuel Pool temperature rises uncontrollably.

ANSWER:
a.
REFERENCE:
ONP-23.3, 4.4
BANK
FUNDAMENTAL
K/A: 033A302: Spent Fuel Pool Cooling: Ability to monitor automatic operation of the Spent Fuel Pool Cooling System including: Spent fuel leak or rupture
DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible because this is the criteria for evacuating the area; student applies this to pump trip criteria.
c. Plausible because this is the temperature at which action must be taken to minimize cavitation of the in service spent fuel pool cooling pump; student applies this to pump trip criteria.
d. Plausible because this is the criteria for requiring addition of water to the SFP from external sources; student applies this to pump trip criteria.

QUESTION # 062

Given the following:

- The Reactor was manually tripped 45 minutes ago due to S/G tube leak indication on the 'B' Steam Generator
- EOP-1.0, "Standard Post Trip Actions," have been completed and all equipment operated as designed
- EOP-5.0, SGTR Recovery, is being implemented.
- 'B' S/G has been isolated per EOP Supplement 13
- 'B' S/G pressure is 700 psia
- PCS pressure is 900 psia

Which one of the following is the highest 'B' S/G level that does not exceed the maximum allowable in accordance with EOP-5.0 for the above conditions?

a. 84%.

b. 90%.

c. 105%.

d. 125%.

ANSWER:
d.
REFERENCE:
EOP-5.0, step 35
BANK
FUNDAMENTAL
K/A: 035A406: Steam Generator: Ability to manually operate and/or monitor in the control room: S/G isolation on steam leak or tube rupture/leak
DISTRACTOR ANALYSIS

a. Plausible if the student confuses the maximum allowable S/G level with the maximum allowable PZR level.
b. Plausible if the student confuses maximum allowable level with the high level override function of the feed reg valves.
c. Plausible if the student confuses the limit for these conditions with the limit for degraded containment conditions which is 110% (there are not degraded containment conditions for this event).
d. **CORRECT**

QUESTION # 063

Given the following:

- The Control Room team is implementing EOP-7.0, "Loss of all Feedwater Recovery," in response to a trip of both Main Feed Pumps from full power
- Auxiliary Feedwater is not available
- Emergency Boration is in progress
- The Control Room Supervisor directs the Reactor Operator to verify conditions are met to feed the S/Gs with P-2A, Condensate Pump

Which one of the following conditions would preclude the Control Room team from using P-2A to feed the S/Gs?

a. Either S/G level is less than – 75%.

b. Turbine Bypass Valve is not available.

c. The Condensate Storage Tank is isolated from the Condenser Hotwell.

d. Condenser Hotwell level is less than 40%.

ANSWER:
d.
REFERENCE:
EOP-7.0, step 12
NEW
HIGHER
K/A: 056 G2.2.44: Condensate: 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.
DISTRACTOR ANALYSIS

a. Plausible if the student believes this is a limit but this is actually the level at which the AFW pump would be used if it was being supplied by fire water or service water.
b. Plausible believes that if the TBV is unavailable then the inability to conserve condensate inventory loss would prohibit use of P-2A.
c. Plausible if the student believes that the condensate storage tank is required to provide makeup but the procedure directs this to be isolated.
d. CORRECT – Hotwell level must be > 40%.

QUESTION # 064

Given the following:

- A leak on the Instrument Air system occurs
- Instrument Air pressure is 93 psig and lowering slowly

If Instrument Air pressure continues to lower, which one of the following lists the pressure at which CV-1212, Service Air Isolation Valve, is expected to automatically close?

a. 88 psig.

b. 85 psig.

c. 80 psig.

d. 75 psig.

ANSWER:
b.
REFERENCE:
ARP-7, Window 2
BANK
FUNDAMENTAL
K/A: 079K101 Knowledge of the physical connections and/or cause-effect relationships between the SAS and the following systems: IAS
DISTRACTOR ANALYSIS

a. Plausible because this is the pressure at which the air compressors recently started in AUTO (This setpoint was recently changed.).
b. Correct
c. Plausible because this is the service air low pressure alarm setpoint.
d. Plausible because this is the instrument air dryer purge air pressure setpoint.

QUESTION # 065

Given the following:

- The Plant is shutdown in MODE 3
- A Fire Protection System rupture has occurred which renders the system unavailable

Which one of the following lists a system or component that will lose a backup water supply due to the above conditions?

a. Non-critical Service Water System.

b. C-2B, Instrument Air Compressor.

c. P-8C, Auxiliary Feedwater Pump.

d. P-8A, Auxiliary Feedwater Pump.

ANSWER:
d.
REFERENCE:
M-207, sheet 2
NEW
FUNDAMENTAL
K/A: 086K301: Fire Protection: Knowledge of the effect that a loss or malfunction of the Fire Protection System will have on the following: Shutdown capability with redundant equipment
DISTRACTOR ANALYSIS

a. Plausible because FPS supplies backup water to the critical service water system.
b. Plausible because FPS supplies backup water to C-2A and C-2C air compressors.
c. Plausible because FPS supplies P-8A and P-8B AFW pumps.
d. **CORRECT – This meets the K/A because a loss of backup water to the Auxiliary Feedwater system could impact the ability to maintain the plant in a safe shutdown condition.**

QUESTION # 066

Which one of the following is not an acceptable two-handed operation in the Control Room per EN-OP-115, "Conduct of Operations?"

a. Adjusting Cooling Tower level in response to a Cooling Tower Pump trip.

b. Testing Control Room Annunciators.

c. Closing Main Steam Isolation Valves when directed by a GOP.

d. Performing a manual scram using individual Control Rod clutch toggle switches.

ANSWER:
a.
REFERENCE:
EN-OP-115, attachment 9.6, section 3
MODIFIED – 2012 NRC RO EXAM #66
FUNDAMENTAL
K/A: G 2.1.1-Knowledge of conduct of operations requirements.
DISTRACTOR ANALYSIS
a. **CORRECT**
b. This is an acceptable method per EN-OP-115.
c. This is an acceptable method per EN-OP-115.
d. This is an acceptable method per EN-OP-115.

QUESTION # 067

Which one of the following condition will cause V-94, Control Room Purge Exhaust Fan, to automatically trip when in service?

a. Control Room pressure lowers to < 0.125" H_2O.

b. V-26A, Emergency Filter Fan, starts.

c. VC-10, Control Room HVAC Condensing Unit, trips.

d. RIA-1818A, Control Room Continuous Air Monitor, alarms.

ANSWER:
b.
REFERENCE:
M-218 Sheet 6
DBD-1.06 section 3.3.14.3
BANK
FUNDAMENTAL
K/A: G 2.1.28: Knowledge of the purpose and function of major system components and controls.
DISTRACTOR ANALYSIS
a. Plausible if the student believes that this parameter will automatically trip V-94.
b. **CORRECT**
c. Plausible if student believes VC-10 tripping will cause a trip of V-94.
d. Plausible if student believes an alarm on RIA-1818A will cause V-94 to trip.

QUESTION # 068

Given the following with the Plant initially at 100% power:

- Preparations are being made to lower Plant power to 50% due to a problem with Steam Generator chemistry
- A 500 gallon continuous boration of the Primary Coolant System is commenced at 7 gpm

Which one of the following correctly completes the statement below describing the expected effect on Moderator Temperature Coefficient (MTC) and Axial Shape Index (ASI) due to the boration?

MTC will be ___(1)___ and ASI will be ___(2)___.

a. (1) Less negative
   (2) More negative (less positive)

b. (1) More negative
   (2) More negative (less positive)

c. (1) Less negative
   (2) More positive (less negative)

d. (1) More negative
   (2) More positive (less negative)

ANSWER:
a.
REFERENCE:
EM-04-17, attachment 5
General Physics course 192004
BANK
HIGHER
K/A: G 2.1.43-Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc.
DISTRACTOR ANALYSIS

a. **CORRECT**
b. Plausible; the student believes that the value of MTC will become more negative as boron concentration rises.
c. Plausible; the student believes that ASI will become more positive or less negative as boron concentration rises.
d. Plausible due to a combination of ‘a’ and ‘b’.

QUESTION # 069

Which one of the following is not a criterion that is considered when evaluating if the controls of EN-OP-116, "Infrequently Performed Tests or Evolutions," apply for a given test or evolution?

The test or evolution …

a. has the potential to introduce plant transients if performed incorrectly.

b. requires the use of special test procedures in conjunction with existing procedures.

c. is performed on equipment essential to maintain the plant within Technical Specification limits.

d. is performed by an inexperienced operator.

ANSWER:
d.
REFERENCE:
EN-OP-116, Attachment 9.2
NEW
FUNDAMENTAL
K/A: G 2.2.7 – Knowledge of the process for conducting special or infrequent tests.
DISTRACTOR ANALYSIS
a. incorrect
b. incorrect
c. incorrect
d. correct answer – not a criterion

QUESTION # 070

Given the following:

- The Plant is operating at full power
- The Pressurizer Level Control System is lined-up normally
- Then, the in-service Pressurizer Level Transmitter, LT-0101B, fails low
- The following alarms are received:

    - EK-0704, LETDOWN HT EX TUBE INLET HI-LO PRESS
    - EK-0741, PRESSURIZER HTR TRANSF #15 AND #16 BREAKERS TRIP
    - EK-0742, PRESSURIZER HTR BUS GROUND/UNDERVOLTAGE
    - EK-0761, PRESSURIZER LEVEL HI-LO
    - EK-0764, PRESSURIZER LEVEL CH 'B' LO-LO

Approximately how long will it take for Pressurizer level to reach a Technical Specification limit? (Assume no operator action)

a. 2 minutes, 58 seconds.

b. 4 minutes, 7 seconds.

c. 5 minutes, 44 seconds.

d. 11 minutes, 12 seconds.

ANSWER:
a.
REFERENCE:
M-201 sheet 2
M-202 sheet 1B
LCO 3.4.9
ARP-4, window 64
DBD-1.04, 3.2.1
DBD-2.04, 3.2.1.2
BANK
HIGHER
K/A: G 2.2.42-Ability to recognize system parameters that are entry-level conditions for Technical Specifications.
DISTRACTOR ANALYSIS

a. CORRECT - 133 gpm charging minus 4 gpm PCP CBO flow is 129 gpm going into PZR. The Pressurizer starts @57% and Tech spec limit is 62.8% @66 gal/% this is 383 gallons to tech spec limit. 383/129 = 2.97 minutes.
b. Plausible if the student believes that CV-2003 does not close and fails to account for PCP cbo flow.
c. Plausible if the student uses 68.2% as TS level.
d. Plausible if the student believes that CV-2003 does not close and uses 68.2% as TS level.

QUESTION # 071

Given the following:

- Preparations are being made to synchronize the Turbine Generator to the Grid
- T_{AVE} is 538°F and stable
- Reactor power is 13% and stable by Nuclear Instrumentation (NI)
- PIC-0511, Turbine Bypass Valve Controller, output is 50% and stable
- The Reactor Operator begins withdrawing Control Rods to raise PIC-0511 output

Which one of the following alarms will annunciate if the Reactor Operator continues to withdraw Control Rods and power reaches 15%?

a. EK-0917, "ROD WITHDRAWAL PROHIBIT"

b. EK-0107, "TURBINE NO LOAD PRETRIP"

c. EK-0101, "TURBINE TRIP"

d. EK-0605A, "VARIABLE HIGH POWER LEVEL CHANNEL PRE-TRIP"

ANSWER:
c.
REFERENCE:
SOP-8, 7.1.3.f.8 caution
E-17 sheet 9
NEW
HIGHER
K/A: G 2.2.44-Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.
DISTRACTOR ANALYSIS

a. Plausible if the student believes that since power is >15% and the turbine is not synched to the grip that rods are prohibited from being withdrawn.
b. Plausible if the student correctly believes that turbine will trip but incorrectly believes there will be a pre-trip alarm. This particular no load trip is based on first stage pressure and the main generator breakers must be closed to actuate it.
c. **CORRECT – The turbine generator coast-down trip is actuated at 15% NI power with both main generator breakers open.**
d. Plausible if the student misapplies the VHP pre-trip setpoint of 28.5% (minimum) with the Variable setpoint 13.5% above reset power level.

QUESTION # 072

The Plant is being cooled down in MODE 4 following a Steam Generator Tube Rupture event. An RP Technician performing a survey in the Component Cooling Water room measures a dose rate of 120 mrem/hr one-foot away from the 'B' Steam Generator Main Steam line.

Which one of the following postings is required for this dose rate at this location?

a. Radiation Area.

b. High Radiation Area.

c. Very High Radiation Area.

d. Locked High Radiation Area.

ANSWER:
b.
REFERENCE:
EN-RP-105, 3.0.15
BANK - 2010 NRC RO Exam Question # 72
FUNDAMENTAL
K/A: G 2.3.7-Ability to comply with radiation work permit requirements during normal or abnormal conditions.
DISTRACTOR ANALYSIS

a. Plausible that the student believes that this meets the threshold for a radiation area 5 - 100 mr/hr.
b. **CORRECT - areas that are > 100 mr/hour but < 1000 mr/hour are high radiation areas.**
c. Plausible that the student believes this is a very high radiation area but this is > 500 Rads/hr.
d. Plausible that the student believes that this meets the threshold for a locked high radiation area > 1 rem/hr.

QUESTION # 073

Which one of the following is not an action from ONP-23.2, "Steam Generator Tube Leak," to help limit the spread of contamination following the discovery of a Steam Generator Tube Leak?

a. Start a Plant Heating Boiler.

b. Route After Condenser Drains to the Condenser.

c. Isolate Steam Generator Blowdown flow.

d. Isolate the Moisture Separator Reheaters.

ANSWER:
d.
REFERENCE:
ONP-23.2, step
BANK
FUNDAMENTAL
K/A: G 2.3.14-Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.
DISTRACTOR ANALYSIS

a. A plant heating boiler is started so that all extraction steam can be isolated. Plausible if the student fails to link the plant heating boiler to the extraction steam system.
b. The procedure ensures after condenser drains are captured. Plausible if the student fails to realize that after condenser drains can be routed to the floor.
c. Blowdowns are isolated to keep contamination levels in the turbine building down. Plausible if the student believes that blowdown flow is vital during a S/G tube leak incident.
d. **CORRECT**

QUESTION # 074

Given the following:

- The Plant is at full power
- A steam line break occurs outside the Containment Building upstream of CV-0510, 'A' Steam Generator Main Steam Isolation Valve (MSIV)
- 'A' S/G Pressure indicates 475 psia
- 'B' S/G Pressure indicates 850 psia

Which one of the following describes the expected response of the MSIVs and Feed Regulating Valves (FRVs) to this event?

a. Both 'A' and 'B' S/G MSIVs close.
Both 'A' and 'B' S/G FRVs close.

b. Both 'A' and 'B' S/G MSIVs close.
Only 'A' S/G FRV closes.

c. Only 'A' S/G MSIV closes.
Both 'A' and 'B' S/G FRVs close.

d. Only 'A' S/G MSIV closes.
Only 'A' S/G FRV closes.

ANSWER:
b.
REFERENCE:
EOP-6.0, section 2.0
M-207, sheet 1
EOP-1.0, step 8
BANK – 2012 NRC RO Exam Question #44
HIGHER
K/A: G 2.4.2-Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.
DISTRACTOR ANALYSIS

a. Plausible if the student believes that all valves close similar to a CHP event.
b. **CORRECT - S/G pressure is a diagnostic indication in determining entry into EOP-6.0, ESDE.**
c. Plausible if the student misapplies the concept that only the "A" FRV closes.
d. Plausible if the student believes that the goal of a MSIS on low S/G pressure is to isolate only the affected S/G.

QUESTION # 075

Given the following:

- The Plant is in MODE 1 at full power
- Charging and Letdown systems are aligned for normal operation
- Alarm EK-0709, "VOLUME CONTROL TANK HI-LO LEVEL" annunciates
- While investigating EK-0709, alarm EK-0710, "VOLUME CONTROL TANK LO-LO LEVEL" alarm annunciates

Which one of the following describes the effect on the Plant due to this condition and the reason?

a. Reactor power will be lowering due to Charging Pumps swapping suction to Boric Acid Storage Tanks.

b. Reactor power will be lowering due to Charging Pumps swapping suction to the SIRW Tank.

c. Pressurizer level will be lowering due to all Charging Pumps automatically tripping.

d. Pressurizer level will be lowering due to all Letdown Orifice Stop Valves automatically opening.

ANSWER:
b.
REFERENCE:
ARP-4, window 10
BANK
HIGHER
K/A: G 2.4.46-Ability to verify that the alarms are consistent with the plant conditions.
DISTRACTOR ANALYSIS

a. Plausible if the student confuses the automatic swap-over to the SIRW tank with Boric Acid Storage Tanks.
b. **CORRECT**
c. Plausible if the student believes that this is an automatic action, which it is not.
d. Plausible if the student believes that this is an automatic action, which it is not