

U.S. Nuclear Regulatory Commission Site-Specific Written Examination

Applicant Information

Name: MASTER Region: III
Date: 10/29/01 Facility: Braidwood
License Level: RO Reactor Type: W
Start Time: _____ Finish Time: _____

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected five hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

Applicant's Signature

Results

Examination Value: 98.0 Points

Applicant's Score _____ Points

Applicant's Grade _____ Percent

QUESTION 001

The following conditions exist on Unit 1:

- Unit 1 is in MODE 2, performing a Reactor Startup.
- All Shutdown Banks are fully withdrawn.
- Control Bank A withdrawal has been stopped at 50 steps.
- Source Range Counts are STABLE.
- SDM is inadequate per the COLR.

What action is required?

- a. RESTORE SDM within 15 minutes.
- b. RESTORE SDM within 1 hour.
- c. INITIATE Boration within 15 Minutes.
- d. INITIATE Boration within 1 hour.

QUESTION 002

The following conditions exist on Unit 1:

- Unit is in MODE 3 after a loss of offsite power.
- The Control Room was evacuated due to a fire.
- The Remote Shutdown Panel is manned.

Using equipment controlled from the Remote Shutdown Panel, which ONE of the following is used to maintain RCS pressure control?

- a. Aux spray; PZR heater groups A and B.
- b. Aux spray; PZR heater group C.
- c. Normal spray; PZR heater groups A and B.
- d. Normal spray; PZR heater group C.

QUESTION 003

With the unit in mode 1, which ONE of the following would require LCO entry?

- a. RCS Tave at 594°F.
- b. Pressurizer Pressure at 2215 psig.
- c. Containment Pressure at 0.85 psig.
- d. Pressurizer Level at 72%.

QUESTION 004

The following conditions exist on Unit 1:

- MODE 3 at Normal Operating Temperature and Pressure, preparing for Reactor Startup.
- The RCS has been diluted to the ECC Startup Boron concentration.
- Letdown Temperature Control valve controller, TCV 1CC-130A is in MANUAL.
- All other controls are in AUTOMATIC and functioning NORMALLY.

If the operator REDUCES letdown flow from 120 gpm to 75 gpm with NO other manipulations, over time, Source Range counts will . . .

- a. INCREASE due to cooler water exiting the letdown heat exchanger.
- b. INCREASE due to warmer water exiting the letdown heat exchanger.
- c. DECREASE due to cooler water exiting the letdown heat exchanger.
- d. DECREASE due to warmer water exiting the letdown heat exchanger.

QUESTION 5

Which ONE of the following is the HIGHEST RCS pressure listed without exceeding the Safety Limit?

- a. 2650 psig.
- b. 2700 psig.
- c. 2750 psig.
- d. 2800 psig.

QUESTION 6

The PREFERRED method of Reactor Cavity Fill from just below the reactor vessel flange to the Refueling level (424'6") is via . . .

- a. An SI pump through the RCS Cold Legs.
- b. Gravity Drain of the RWST through the RCS Hot Legs.
- c. An RH pump through the RCS Hot Legs.
- d. SI Accumulator dump through the RCS Cold Legs.

QUESTION 7

Given the following information for a rad worker qualified operator:

- Age 25 yrs.
- Total Lifetime exposure 3800 mrem TEDE
- Current Year exposure 800 mrem TEDE

A Site Area Emergency has been declared due to a LOCA Outside Containment with limited makeup to the RWST available. The above operator volunteers to make an emergency entry into the penetration area to attempt to isolate the leak. This action would result in a significant reduction in offsite dose. The individual has all the required approvals.

What is the MAXIMUM exposure the operator may receive while performing this action?

- a. 1200 mrem TEDE.
- b. 4200 mrem TEDE.
- c. 24200 mrem TEDE.
- d. 25000 mrem TEDE.

QUESTION 8

The following conditions exist on Unit 1:

- Unit 1 is in MODE 4.
- Containment Purge is in progress using Mini-Purge Supply and Exhaust Fans.

While the purge is in progress, 1RE-PR001, Containment Purge Effluent Rad monitor, exceeds the ALERT setpoint. Which ONE of the following should the operator verify?

- a. MANUALLY stop the containment purge.
- b. Ensure containment purge AUTOMATICALLY stops.
- c. Ensure Post-LOCA Purge filter unit AUTOMATICALLY aligns.
- d. MANUALLY align Post LOCA Purge filter unit.

QUESTION 9

The following conditons exist at the site:

- Approximately 15 minutes ago a radiation release occurred at the site.
- A Control Room Ventilation Isolation Signal was AUTOMATICALLY Actuated.
- The crew is checking the Control Room Ventilation Alignment per procedures.

If the Control Room Ventilation Systems have properly re-aligned, the Control Room Pressure is . . .

- a. EQUAL TO outside air pressure.
- b. GREATER THAN air pressure in the adjacent areas.
- c. LESS THAN outside air pressure.
- d. LESS THAN air pressure in the adjacent areas.

QUESTION 010

The following conditons exist on Unit 1:

- 100% Reactor power.
- VCT level is 50%.
- VCT pressure is 18 psig.
- Spent Fuel Pool cooling is aligned to Unit 1.
- Unit '0' CC Heat Exchanger is in standby.
- Excess Letdown is ON LINE, due to a Letdown Orifice Block valve (1CV8149A) problem.
- Component Cooling Water Surge Tank level is slowly INCREASING.

In order to MINIMIZE further contamination of the Component Cooling Water system, consideration should be given to . . .

- a. Swapping Spent Fuel Pool Heat Exchangers.
- b. Aligning the Unit '0' CC Heat exchanger to Unit 1, and Isolating the Unit 1 CC Heat Exchanger.
- c. Isolating the Seal Water Heat Exchanger.
- d. Isolating the Excess Letdown Heat Exchangers.

QUESTION 011

A Fire is reported on the 401' Turbine Building Trackway.

EXCLUDING the Fire Chief, which ONE of the following describes the MINIMUM number of Fire Brigade members and the REASON for their INITIAL reporting location?

- a. 4 to pickup their personal protection equipment and portable fire fighting equipment.
- b. 4 to assess the extent of the fire and identify the portable fire fighting equipment needed.
- c. 5 to pickup their personal protection equipment and portable fire fighting equipment.
- d. 5 to assess the extent of the fire and identify the portable fire fighting equipment needed.

QUESTION 012

During an emergency situation, the 1B AFW pump failed to start in AUTO or MANUAL from the main control room.

To what Auxiliary Building Elevation should a team be dispatched to attempt a LOCAL start of the 1B Auxiliary Feedwater pump?

- a. 383' level.
- b. 401' level.
- c. 426' level.
- d. 451' level.

QUESTION 013

The following time line of events occurred on Unit 1:

- 1000 PZR Level started decreasing.
- 1001 SJAE/GS Exhauster Radiation level alarm.
- 1005 Reactor Trip/ Manual Safety Injection.
- 1010 Event Classified as ALERT (FA1) 1A SGTR.

In order to meet the notification requirements for NARS, the INITIAL notification to the State and Local agencies must be made NOT LATER THAN . . .

- a. 1015.
- b. 1016.
- c. 1020.
- d. 1025.

QUESTION 014

Unit 1 was at 100% Reactor power when a Differential Overcurrent Trip occurred on the Main Generator. PREDICT the impact on the Control Rod Drive System and IDENTIFY the action required to be performed by the operator.

Predicted Impact on the Reactor Trip Breakers	Required Operator Action
_____	_____
a. OPEN	VERIFY Turbine Trip.
b. OPEN	VERIFY ECCS pumps running.
c. CLOSED	VERIFY 6.9 Bus ABT.
d. CLOSED	VERIFY DGs started.

QUESTION 015

The following conditions exist on Unit 2:

- 80% Reactor power and ramping UP at 5 MW per minute.
- Tave and Tref are matched.
- Rod Control is in AUTOMATIC.

ONE Minute later:

- DRPI Indication for Control Bank D Rod D-12 is 180 steps.
- All Other Control Bank D Rods are indicating 216 Steps.

With NO Operator action taken, the DEMAND for rod motion will be ___(1)___, and the trend in Delta I for the channel NEAREST the rod problem will be to become ___(2)___.

ROD MOTION	DELTA I TREND
_____	_____
a. INWARD	LESS NEGATIVE
b. INWARD	MORE NEGATIVE
c. OUTWARD	LESS NEGATIVE
d. OUTWARD	MORE NEGATIVE

QUESTION 016

With the Reactor at 100% power on Unit 2, which ONE of the following will REDUCE RCS Subcooling?

- a. Turn ON ALL Pressurizer Heaters.
- b. OPEN a Pressurizer PORV.
- c. DECREASE Reactor power.
- d. CLOSE Pressurizer Sprays.

QUESTION 017

Simultaneous faults on BOTH ESF Buses at 100% Power requires . . .

- a. A Reactor Trip because there is NO charging flow to replace letdown.
- b. A Controlled Shutdown because the Charging pump will overheat without Essential Service Water cooling flow.
- c. A Controlled Shutdown because the RCP seals will overheat without charging flow.
- d. A Reactor Trip because the RCP motors will overheat without component cooling flow.

QUESTION 018

Given the following conditions on Unit 1:

- 100% Reactor power.
- Chemical analyses of the RCS indicate INCREASING RCS Activity.
- Gross Failed Fuel rad monitor (1PR006J) indicates an INCREASING trend.
- CVCS Letdown flow is 75 gpm.

Which ONE of the following actions are directed by the applicable Abnormal Operating Procedure?

- a. MAXIMIZE letdown flow.
- b. MAINTAIN present letdown flowrate and place the STANDBY Mixed Bed Demineralizer in service.
- c. MAINTAIN present letdown flowrate and place the Cation Demineralizer in service.
- d. MINIMIZE letdown flow.

QUESTION 019

The lineup for placing the Unit 1 Boric Acid Storage Tank on RECIRCULATION using the Unit 1 Boric Acid Transfer pump is complete. The Unit 1 Boric Acid Transfer Pump filter is plugged .

Taking the Boric Acid Transfer Pump Control Switch to "START" would . . .

- a. Result in the Unit 1 Boric Acid Pump operating against a shutoff head.
- b. Result in additional recirculation flow of the Unit 2 Boric Acid Storage Tank.
- c. Prevent the discharge of Unit 2 Boric Acid Tank contents to the Unit 2 blender.
- d. Damage the Unit 1 Boric Acid Pump due to operating with no suction.

QUESTION 020

Given the following conditions on Unit 1:

- RCS is in a solid plant condition.
- 1B RH pump is operating in Shutdown Cooling mode.
- RCS Pressure is being AUTOMATICALLY controlled at 340 psig.

A failure of the letdown pressure control valve controller 1PK-131 causes RCS pressure to rise to 515 psig, with 1B RH pump discharge pressure of 625 psig. In response to this transient, ___(1)___, will OPEN, and the operator should take MANUAL control of 1PK-131 and ___(2)___ to reduce pressure.

- | | ___(1)___ | ___(2)___ |
|----|---|-----------------|
| a. | ONLY the RH Loop Suction Relief, | INCREASE demand |
| b. | ONLY the RH Loop Suction Relief, | DECREASE demand |
| c. | the RH Loop Suction Relief
and RH Discharge Relief, | DECREASE demand |
| d. | the RH Loop Suction Relief
and RH Loop Discharge Relief, | INCREASE demand |

QUESTION 021

BOTH Braidwood Units undergo LOCA transients. All equipment in BOTH Units operate as designed. BOTH Units implement appropriate procedures. The RWST level for each Unit is 65%.

Unit 1 RCS Pressure is 50 psig and STEADY.
Unit 2 RCS Pressure is 650 psig and STEADY.

Currently . . .

- a. SI and RH pump amps are near their MAXIMUM on Unit 2.
- b. CV and RH pump amps are near their MINIMUM on Unit 2.
- c. CV and SI pump amps are near their MINIMUM on Unit 1.
- d. CV and RH pumps amps are near their MAXIMUM on Unit 1.

QUESTION 022

During recovery from a Large Break LOCA, a LOSS of which ONE of the following pumps will have the GREATEST impact on LONG TERM CORE COOLING?

- a. Reactor Coolant Pumps.
- b. Residual Heat Removal Pumps.
- c. Safety Injection Pumps.
- d. Centrifugal Charging Pumps.

QUESTION 023

Which ONE of the following RELIEF VALVES discharge to the Pressurizer Relief Tank?

- a. Charging Pump Discharge Relief Valve.
- b. Letdown Line Relief Valve.
- c. RCP Thermal Barrier Relief Valve.
- d. RH Pump Discharge Relief Valve.

QUESTION 024

Given the following conditions for Unit 1:

- Unit 1 is being heated up to return to power from a Cold Shutdown Condition.
- RCS is FILLED and VENTED.
- Pressurizer is SOLID.
- A Nitrogen blanket has been established on the PRT.
- PRT Level is 95%.
- Waste Gas System is aligned to support a bubble.
- PZR Heaters are energized.

Prior to drawing a bubble in the pressurizer, which ONE of the following must be accomplished?

- a. Bump the RCPs to remove entrained gasses.
- b. Drain the PRT to 70-79%.
- c. Drain the Pressurizer to 50%.
- d. Pressurize the RCS to 200-275 psig.

QUESTION 025

The following conditions are noted on Unit 1:

- A spurious start of a second CCW pump has occurred.
- Component Cooling Water Surge Tank level is DECREASING rapidly.

Assuming the surge tank level DECREASE continues, which ONE of the following describes the response of makeup to the surge tank?

- a. DEMIN Water makeup valve OPENS before the PRIMARY Water makeup valve, BOTH valves CLOSE at the same level.
- b. PRIMARY Water makeup valve OPENS before the DEMIN Water makeup valve, BOTH valves CLOSE at the same level.
- c. DEMIN Water makeup valve OPENS before the PRIMARY Water makeup valve, DEMIN Water makeup valve then CLOSES at a LOWER level than PRIMARY Water makeup valve.
- d. PRIMARY Water makeup valve OPENS before the DEMIN Water makeup valve, PRIMARY Water makeup valve then CLOSES at a LOWER level than the DEMIN Water makeup valve.

QUESTION 026

The Master Pressurizer Pressure Controller OUTPUT has failed to MINIMUM. Assuming NO operator action, which ONE of the following describes the effect on the Reactor Protection System?

- a. OT Delta T Reactor Trip Setpoints INCREASE.
- b. OP Delta T Reactor Trip Setpoints INCREASE.
- c. OT Delta T Reactor Trip Setpoints DECREASE.
- d. OP Delta T Reactor Trip Setpoints DECREASE.

QUESTION 027

While performing a Heatup the following conditions are noted:

- Charging flow control is in MANUAL and controlling PZR level at 35%.
- CC flow to the letdown heat exchanger is in MANUAL due to an auto failure.
- RCS pressure has decreased, adding another letdown orifice has INCREASED letdown flow to 140 gpm.

Which ONE of the following predicts the plant response and describes what procedural actions must be taken immediately?

- a. To prevent a further decrease in PZR level, the NSO should DECREASE charging flow by throttling OPEN 1CV-121.
- b. To prevent challenging the Demin High Temperature Divert valve, the NSO should DECREASE CC flow to the letdown heat exchanger by throttling OPEN 1CC-130A.
- c. To prevent demineralizer resin channelling, the NSO should REDUCE letdown flow to less than 120 gpm by taking an orifice off line.
- d. To prevent causing an AUTO Makeup to the VCT, the NSO should REDUCE letdown flow to less than 120 gpm by taking an orifice off line.

QUESTION 028

While at 100% Reactor power, an instrument tap leak in the side of the Pressurizer develops. Charging and letdown have been manipulated to provide the following conditions:

- Pressurizer Pressure STABILIZED at 2215 psig.
- Pressurizer Level STABILIZED at 12%.

What is the status of the pressurizer heaters?

	VARIABLE HEATERS	BACKUP HEATERS
	_____	_____
a.	ON	ON
b.	OFF	OFF
c.	ON	OFF
d.	OFF	ON

QUESTION 029

While at 100% Reactor power on Unit 1, the following occurred:

- A trip of the operating charging pump resulted in the crew isolating letdown.
- Problem has been fixed, and letdown is about to be restored.

The crew should ____ (1) ____ first, then ____ (2) ____.

- | | ____(1)____ | ____(2)____ |
|----|-------------------|--|
| a. | start the CV pump | establish letdown, to avoid flashing in the letdown line. |
| b. | establish letdown | start the CV pump, to avoid overcooling the mixed bed demineralizer. |
| c. | start the CV pump | establish letdown, to avoid overheating the mixed bed demineralizer. |
| d. | establish letdown | start the CV pump, to avoid an unwanted auto makeup to the VCT. |

QUESTION 030

During MODE 1 operations on Unit 1, the following maintenance needs to be accomplished:

The transmitter for Presurizer Pressure Channel, 1PT-457 needs to be calibrated and the entire channel must be placed in "TEST". A work package has been prepared and reviewed.

Tripping the bistables for this channel will result in various trip status lights being lit. How many bistable switches are tripped when this channel is taken to test, and how many status lights are lit because of tripping these bistables?

- a. 5 bistable switches are tripped, and 4 status lights are lit.
- b. 5 bistable switches are tripped, and 5 status lights are lit.
- c. 6 bistable switches are tripped, and 5 status lights are lit.
- d. 6 bistable switches are tripped, and 6 status lights are lit.

QUESTION 031

The Reactor is at 100% power. Which ONE of the following will result in a Solid State Protection System Train A General Warning alarm?

- a. A Loss of 120 VAC Instrument Bus 112.
- b. A Loss of 120 VAC Instrument Bus 114.
- c. Rack IN and CLOSE Reactor Trip Bypass Breaker A (BYA).
- d. Rack IN and CLOSE Reactor Trip Bypass Breaker B (BYB).

QUESTION 032

In order to align valves in the NORMAL CHARGING flowpath to RESTORE CHARGING flow after a Reactor Trip and Safety Injection, the operators must . . .

- a. RESET SI, then RESET Phase A.
- b. RESET SI.
- c. RESET SI, RESET Phase A, and then OPEN Instrument Air Containment Isolation Valves (1IA065 and 1IA066).
- d. RESET Phase A, then OPEN Instrument Air Containment Isolation Valves (1IA065 and 1IA066).

QUESTION 033

The plant is operating at 100% Reactor power. Containment Pressure Channel 1PT-937 fails HIGH. NO operator actions have yet been taken. Of the remaining channels, ___(1)___ is the MINIMUM number of channels that have to trip to cause a Containment Spray Actuation, and ___(2)___ is the MINIMUM number of channels that have to trip to cause a Main Steam Isolation.

- | | ___(1)___ | ___(2)___ |
|----|-----------|-----------|
| a. | TWO | ONE |
| b. | ONE | TWO |
| c. | ONE | ONE |
| d. | TWO | TWO |

QUESTION 034

Rod Control System testing is in progress on Unit 2, and shutdown banks are being individually withdrawn. Which ONE of the following ROD BANK SELECT Switch positions will provide indications of BOTH of the following when the bank of moving rods is at 210 steps on the Bank Demand Step Counters:

- DRPI ROD Height within 12 steps,
AND
 - ROD SPEED.
- a. SD B.
 - b. SD C.
 - c. SD D.
 - d. SD E.

QUESTION 035

With the Unit at 100% Reactor power, a REDUCTION in feedwater temperature occurred. The relationship between NIS indicated power and actual reactor power is that NIS Power indicates . . .

- a. HIGHER THAN actual power due to HIGHER Tave.
- b. LOWER THAN actual power due to HIGHER Tave.
- c. HIGHER THAN actual power due to LOWER T cold.
- d. LOWER THAN actual power due to LOWER T cold.

QUESTION 036

The following conditions exist on Unit 1:

- A Reactor Startup is in progress.
- Reactor Power is ABOVE the P6 Setpoint and STABLE.
- The Source Range High Flux Trips have NOT been blocked.

The Reactor will STAY CRITICAL if the Source Range N31 Level Trip Switch is in . . .

- a. NORMAL, and N31 Instrument Power Fuses FAIL.
- b. NORMAL, and N31 Control Power Fuses FAIL.
- c. BYPASS, and N31 Instrument Power Fuses FAIL.
- d. BYPASS, and N31 Control Power Fuses FAIL.

QUESTION 037

The following has occurred on Unit 1:

- Train 'A' CETCs have lost power.

What action, if any, is required to have current, correct Train 'A' CETC temperatures displayed after power is restored?

- a. No action is required.
- b. Must depress ACK pushbutton, then SYSTEM RESET pushbutton.
- c. Must depress SYSTEM RESET pushbutton, then ACK pushbutton.
- d. Must depress SYSTEM RESET pushbutton only.

QUESTION 038

A Natural Circulation cooldown is being performed on Unit 1. Which ONE of the following problems with a SINGLE Core Exit Thermocouple (CETC) will cause an indication of Natural Circulation conditions degrading?

- a. A SHORT develops at the head connection.
- b. An OPEN develops at the head connection.
- c. Corrosion develops at the head connection.
- d. Loss of power occurs.

QUESTION 039

The following conditions were present on Unit 1:

- 100% Reactor power.
- 1A and 1D RCFC were operating in HIGH SPEED.
- 1B RCFC was OFF.
- 1C RCFC was operating in LOW SPEED.

A Small Break LOCA occurred and the operators initiated SI. For the first 20 seconds after the SI the ONLY RCFC(s) cooling containment was/were . . .

- a. 1A and 1D.
- b. 1B.
- c. 1C.
- d. 1B and 1C.

QUESTION 040

Which ONE of the following combinations of CRDM Booster and Exhaust Fans provides the MOST even air distribution across the CRDMs?

CRDM Booster Fans	CRDM Exhaust Fans
_____	_____
a. A and B	A and C
b. A and C	A and D
c. A and B	A and D
d. A and C	A and C

QUESTION 041

A LOCA has occurred on Unit 1 and it is necessary to start up the Hydrogen Recombiner system.

- Containment Hydrogen concentration is 3% and slowly increasing.
- Containment ambient temperature is 156°F.

Which ONE of the following conditions must be met to place the Hydrogen Recombiner in service aligned to Unit 1?

- a. At least ONE RCFC must be in operation and Containment Pressure must be LESS THAN 5 psig.
- b. At least TWO RCFCs must be in operation and Containment Pressure must be LESS THAN 5 psig.
- c. At Least ONE RCFC must be in operation and Containment Pressure must be LESS THAN 21 psig.
- d. At Least TWO RCFCs must be in operation and Containment Pressure must be LESS THAN 21 psig.

QUESTION 042

Assuming ALL Emergency Diesel Generators are OPERABLE, which Emergency Diesel Generator will power the 0B Hydrogen Recombiner during a Loss of Offsite Power to the Station?

- a. 1A.
- b. 1B.
- c. 2A.
- d. 2B.

QUESTION 043

The following conditions exist on Unit 1:

- Unit 1 is in MODE 1.
- All RCFCs are in HIGH speed.
- Containment air sample results require a purge of containment to allow maintenance.
- Containment release package has appropriate approvals.
- Mini-Flow Purge Exhaust Isolation Valves (1VQ005A, B and C) are OPEN.
- Mini-Flow Purge Supply Isolation Valves (1VQ004A, and B) are OPEN.

The operator takes the control switch for the Mini-Flow Purge Supply Fan to "START" and then IMMEDIATELY releases the switch to the "NAC" position. The Mini-Flow Purge Supply fan . . .

- a. Does NOT Start. The operator must start the Mini-Flow Purge Exhaust fan first.
- b. Does NOT Start. The operator must hold the start switch in the start position until the suction damper, 1VQ01Y, is OPEN.
- c. Starts. The operator must immediately OPEN the suction damper, 1VQ01Y.
- d. Starts. The operator must START the Mini-Flow Purge Exhaust fan before containment pressure reaches 0.3 psig.

QUESTION 044

The detector for 1RT-AR011, Containment Fuel Handling Incident Train A rad monitor, fails causing the output to go HIGH. Which ONE of the following would AUTOMATICALLY occur due to this failure?

- a. CLOSES 1VQ005C, Containment Mini-Flow Purge Exhaust Isolation.
- b. STARTS 0VA04CB, Fuel Handling Building Charcoal Booster Fan.
- c. STARTS 0VA04CA, Fuel Handling Building Charcoal Booster Fan.
- d. CLOSES 1VQ003, Containment Post-LOCA Purge Exhaust Isolation.

QUESTION 045

The following conditions exist at the plant:

- BOTH Units are in MODE 1 at Rated Thermal Power.
- The SFP level at the Tech Spec limit.
- The Transfer Canal is drained for maintenance work on one of the Upenders.
- The Sluice Gate OPENS allowing the SFP to drain into the Transfer Canal.

With NO operator action, Spent Fuel Pool Temperature will . . .

- a. DECREASE due to MORE Spent Fuel Pool water flow through the Spent Fuel Pool Heat Exchanger.
- b. DECREASE due to a REDUCTION of Spent Fuel Pool water volume needing to be cooled.
- c. INCREASE due to MORE Spent Fuel Pool water volume needing to be cooled.
- d. INCREASE due to a LOSS of Spent Fuel Pool water flow through the Spent Fuel Pool Heat Exchanger.

QUESTION 046

While withdrawing CONTROL BANKS during a Reactor Startup following a 5 day late-cycle outage, which ONE of the following will result in the CRITICAL ROD HEIGHT being LOWER THAN the predicted value in the ECC?

- a. REDUCED Feed Flow.
- b. FAILED OPEN S/G PORV.
- c. ISOLATION of all MSIVs.
- d. BORATE the RCS 10 gallons.

QUESTION 047

A spurious turbine runback occurs on Unit 1, reducing power from 100% to 60% as designed. If the effects of shrink and swell are IGNORED, which ONE of the following describes the INITIAL plant response?

- a. Steam Dumps arm and open to return Tave to the program value.
- b. Feed Reg Valves throttle open to increase steam generator levels.
- c. Rods withdraw to restore Tave to the program value.
- d. Feed Reg Valves throttle close to reduce steam generator levels.

QUESTION 048

Given the following Unit 1 conditions:

- 100% Reactor power.
- THREE CD/CB pumps are running.
- The CD/CB Pump Selector Position is selected to the STANDBY CD/CB Pump.
- 1B and 1C Feedwater pumps are running.

Which ONE of the following AUTOMATIC actions occurs if the shaft shears between the reduction gear and the condensate pump casing for a running CD pump and what MANUAL action needs to be performed?

AUTOMATIC ACTIONS	MANUAL ACTIONS NECESSARY
_____	_____
a. 1CD152, CD Pump Recirc Valve OPENS.	TRIP affected CD/CB Pump and CLOSE 1CD152.
b. 1CD157A and B, GS Condenser Bypass Valves OPEN.	Manually OPEN 1CD210A and B, CP Bypass Valves.
c. 1HD046A and B, HDP Discharge Valves CLOSE.	Manually OPEN 1HD046A and B to prevent HDT overflow.
d. Both Main Feed Pump speeds DECREASE.	Manually INCREASE feed pumps speed to restore Feed/Steam delta P.

QUESTION 049

Given the following Unit 1 conditions:

- 50% Reactor power.
- 1C Feedwater pump is operating in AUTOMATIC.
- ATWS Mitigation System (AMS) has inadvertently actuated.
- Both Auxiliary Feed Pumps are running.
- SG levels are INCREASING.

Which ONE of the following describes the response of the 1C Feedwater pump to this event?
Main Feed Pump Turbine speed will . . .

- a. INCREASE due to an increase in SG steam flow.
- b. REMAIN CONSTANT since level does NOT affect speed.
- c. DECREASE due to an increase in feedwater header pressure.
- d. DECREASE due to an increase in steam header pressure.

QUESTION 050

Given the following conditions on Unit 1:

- 33% Reactor power.
- 1B Feedwater pump is operating.
- Steam Generator Water Level Controls are in AUTOMATIC.

Which ONE of the following failures will cause RCS Tave to INITIALLY INCREASE?

- a. Selected Level Channel 1LT-519 fails LOW.
- b. Selected Steam Pressure Channel 1PT-514 fails HIGH.
- c. Feed Reg Bypass Valve, 1FW510A fails OPEN.
- d. Feed Header Pressure Transmitter 1PT-508 fails HIGH.

QUESTION 051

Which ONE of the following provides "STARTING" power to the 1B Auxilliary Feedwater pump diesel engine?

- a. 125 VDC Bus 112.
- b. 125 VDC Bus 114.
- c. 250 VDC Bus 123.
- d. 24 VDC Battery Bank.

QUESTION 052

How is power supplied to 120 VAC Instrument Bus 112 when the "RESERVE AC" feeder breaker supplying the bus is CLOSED?

- a. 125 VDC from Battery 112, supplied to 125 VDC Bus 112 and INVERTED to 120 VAC.
- b. 480 VAC from MCC 132X2 INVERTED to 120 VAC.
- c. 480 VAC from MCC 132X1 TRANSFORMED to 120 VAC.
- d. 480 VAC from MCC 132X1 RECTIFIED to 125 VDC and INVERTED to 120 VAC.

QUESTION 053

While in MODE 1, an inadvertant SI occurred. The operators performed the following:

- RESET the SI.
- Terminated ECCS flow.

Shortly after stopping the last ECCS pump, a LOSS of OFFSITE POWER occurred. ONE MINUTE later, which ONE of the following pumps were running?

- a. 1A CV pump.
- b. 1A SI pump.
- c. 1A RH pump.
- d. 1A CS pump.

QUESTION 054

Which ONE of the following tanks provides an INPUT to the WASTE GAS VENT HEADER?

- a. Turbine Building Equipment Drain Tank.
- b. Radwaste Monitor Tank.
- c. Release Tank.
- d. Pressurizer Relief Tank.

QUESTION 055

What TWO conditions will INDEPENDENTLY cause automatic CLOSURE of Liquid Radwaste Release Tank Pump Discharge Key Locked valve, 0WX353?

- a. LOW Circulating Water Blowdown flow, and HIGH Radiation sensed in the release header.
- b. LOW Circulating Water Blowdown flow, and HIGH Radiation sensed in the Circulating Water Blowdown flow.
- c. HIGH Release Header flow, and HIGH Radiation sensed in the release header.
- d. HIGH Release Header flow, and HIGH Radiation sensed in the Circulating Water Blowdown flow.

QUESTION 056

The AUTOMATIC realignment of the STANDBY Waste Gas Decay Tank will occur when the ON LINE Tank . . .

- a. Reaches 5.0 Curies.
- b. EXCEEDS 100 days in service.
- c. Reaches 95 psig.
- d. Requires 2 Compressors to maintain pressure.

QUESTION 057

Of the following mixtures containing various concentrations of Hydrogen and Oxygen, which ONE requires IMMEDIATE SUSPENSION of additions to the WASTE GAS HOLDUP SYSTEM?

	<u>HYDROGEN CONCENTRATION</u>	<u>OXYGEN CONCENTRATION</u>
a.	8%	3%
b.	3%	8%
c.	4%	3%
d.	5%	5%

58

Radiation levels in the Fuel Handling Building INCREASE causing BOTH Fuel Handling Building Incident rad monitors (AR055 and AR056) to simultaneously reach their actuation setpoints.

Which ONE of the following would AUTOMATICALLY occur due to this condition?

- a. B Train FHB Charcoal Booster Fan starts, then A Train FHB Charcoal Booster Fan starts.
- b. B Train FHB Charcoal Booster Fan will start ONLY IF A Train has failed to start.
- c. A Train FHB Charcoal Booster Fan starts, then B Train FHB Charcoal Booster Fan starts.
- d. A Train FHB Charcoal Booster Fan will start ONLY IF B Train has failed to start.

QUESTION 059

A Surveillance is being performed on FHB Incident Monitor 1AR055 to check interlock functions. The Background reading for this monitor is currently:

- 5×10^{-7} mr/hr.

Adjusting the ___(1)___ setpoint to ___(2)___, will cause the interlock actions to occur.

- | | ___(1)___ | ___(2)___ |
|----|-----------|--------------------|
| a. | ALERT | 5×10^{-6} |
| b. | HIGH | 5×10^{-8} |
| c. | ALERT | 5×10^{-8} |
| d. | HIGH | 5×10^{-6} |

QUESTION 060

The following conditions exist on unit 2:

- 100% Reactor power.
- The "0" CC Heat Exchanger is in service with the 2A Component Cooling pump running.
- The In-service Letdown Heat Exchanger (2A) has developed a tube leak.
- All other systems are functioning NORMALLY.

Which ONE of the following predicts the response of the Component Cooling System to these conditions?

- a. When 0RE-PR009 reaches the HIGH Alarm setpoint, BOTH Units CC SURGE TANK Vent valves (1/2CC017) will CLOSE.
- b. When 0RE-PR009 reaches the HIGH Alarm setpoint, ONLY Unit 2 CC SURGE TANK Vent valve (2CC017) will CLOSE.
- c. When Unit 2 CC Surge Tank Level DECREASES to 50%, AUTO Makeup will occur from the Primary Water System.
- d. When Unit 2 CC Surge Tank Level INCREASES to 60%, Unit 2 CC SURGE TANK Vent valve (2CC017) will CLOSE.

QUESTION 061

An approved release is occurring from the release tank to the river. Which ONE of the following lists the rad monitors that monitor the release activity levels?

- a. 1/2PR08J S/G Blowdown monitor AND 0PR10J Station Blowdown monitor.
- b. 1/2PR08J S/G Blowdown monitor AND 0PR16J Blowdown After Filter monitor.
- c. 0PR01J Liquid Radwaste Effluent monitor AND 0PR16J Blowdown After Filter monitor.
- d. 0PR01J Liquid Radwaste Effluent monitor AND 0PR10J Station Blowdown monitor .

QUESTION 062

What is the MAXIMUM pressure in the Instrument Air header that would require a start of a Station Air Compressor by using bottled Nitrogen?

- a. 8 psig.
- b. 28 psig.
- c. 58 psig.
- d. 78 psig.

QUESTION 063

Which ONE of the following indications on the Main Control Room Fire Detection Panel (1PM09J) will alert the control room operators to a FIRE in a specific zone?

- a. AMBER "Trouble Wire Open" light LIT.
- b. AMBER "Trouble" light LIT.
- c. RED "Fire Wire Open" light LIT.
- d. RED "Fire" light LIT.

QUESTION 064

Given the following conditions on Unit 1:

- 100% Reactor power, all controls in AUTOMATIC.
- 10 minutes ago, an inadvertent Containment Isolation Phase A Signal occurred.
- No operator actions have been taken yet.

Which ONE of the following is occurring?

- a. Pressurizer Level is DECREASING.
- b. Pressurizer Pressure is INCREASING.
- c. Seal Return is going to the RECYCLE HOLD UP TANK.
- d. Letdown Flow is going to the PRESSURIZER RELIEF TANK.

QUESTION 065

With Unit 1 operating at 88% power, the following symptoms occur:

- Reactor power INCREASING.
- Tave GREATER THAN Tref.
- Pressurizer Pressure INCREASING.
- Pressurizer Level INCREASING.

Which ONE of the following would cause the above symptoms to occur INITIALLY?

- a. Uncontrolled rod withdrawal.
- b. Impulse Channel 1PT-505 Failed LOW.
- c. Failed OPEN SG safety valve.
- d. Power range channel N-43 fails high.

QUESTION 066

The following conditions exist on Unit 1:

- 100% Reactor power.
- Control Bank D rod height 216 steps.
- All system controls in automatic.
- All operating conditions NORMAL.
- All Governor Valves are 100% OPEN.
- 1260 MWe output from the turbine generator.

A Control Bank D rod drops into the core. Turbine Generator MWe will . . .

- a. INCREASE due to Impulse Pressure increasing as the Governor Valves throttle closed.
- b. DECREASE due to a drop in Steam Pressure, then the Throttle Valves will return MWe to 1260.
- c. REMAIN at 1260 due to the DEHC IMP feedback loop in service.
- d. DECREASE due to a drop in Steam Pressure, and remain there until the rod is recovered.

QUESTION 067

The following conditions exist on Unit 1:

- 50% Reactor power.
- A Control Bank C rod has become stuck.
- The affected rod has been electrically aligned for attempted recovery.
- The Rod Bank Select switch is in the "CB C" position.

When the IN-HOLD-OUT switch is moved to OUT, what will be the indicated rod speed?

- a. 0 spm.
- b. 8 spm.
- c. 48 spm.
- d. 64 spm.

QUESTION 068

Given the following Unit 1 conditions:

- A small break LOCA is in progress.
- SI has actuated.
- All systems and automatic actions are operating as expected.

Which ONE of the following is the reason for maintaining a secondary heat sink?

- a. To ensure removal of RCS heat if any RCPs are still running.
- b. RCS pressure may remain so high that cooling from injection flow alone is inadequate.
- c. Reflux boiling is the primary means of heat removal prior to voiding in the hot legs.
- d. To provide an alternate means of RCS pressure control.

QUESTION 069

Which of the following RCP malfunctions would be expected to cause an increase in RCP motor amps?

- a. Loss of Seal Injection.
- b. Loss of Thermal Barrier flow.
- c. Sheared RCP shaft.
- d. Thrust Bearing failure.

QUESTION 070

Given the following Unit 2 Conditions:

- Unit 2 is in Mode 3, at NOT and NOP.
- 1B RCP Trips.

What happened to loop flow and core flow as a result of the RCP trip? With THREE RCPs running, the flow in the loops with RCPs running is ___(1)___, and total flow through the core is ___(2)___.

- | | ___(1)___ | ___(2)___ |
|----|----------------------------------|----------------------------------|
| a. | 3/4 of the value
for 4 RCPs | 3/4 of the value
for 4 RCPs |
| b. | 3/4 of the value
for 4 RCPs | < 3/4 of the value
for 4 RCPs |
| c. | > 3/4 of the value
for 4 RCPs | < 3/4 of the value
for 4 RCPs |
| d. | < 3/4 of the value
for 4 RCPs | < 3/4 of the value
for 4 RCPs |

QUESTION 071

The following conditions exist on Unit 1:

- A Large Break LOCA has occurred.
- All RCPs are stopped.
- ECCS and ESF systems functioned as designed.
- RCS pressure equals Containment pressure.
- The operating crew is ready to transition out of 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION.

RCP #1 Seal Leakoff is . . .

- a. OCCURRING and flowing to the Pressurizer Relief Tank.
- b. OCCURRING and flowing to the Volume Control Tank.
- c. OCCURRING and flowing to the Reactor Coolant Drain Tank.
- d. NOT OCCURRING.

QUESTION 072

Which ONE of the following will render the Boric Acid Storage Tank INOPERABLE during Mode 1 operations?

- a. Tank Temperature 40°F and Level 65%.
- b. Tank Temperature is 65°F and Level is 40%.
- c. Boron concentration is 7100 ppm and temperature is 65°F.
- d. Boron Concentration is 7000 ppm and Level is 40%.

QUESTION 073

The following conditions and indications are present on Unit 1:

- RCS Temperature is 300°F.
- Wide range RCS pressure is 300 psig.
- 1A RH Train is in a Shutdown Cooling alignment.
- 1A RH pump current has started oscillating.
- 1A RH pump discharge pressure has started fluctuating.
- 1A RH loop temperature has started to INCREASE.

Which ONE of the following valve indications will lead the operator to the problem?

- a. 1RH8701A, RC Loop 1A to RH pump 1A Suction Isol valve OPEN light Lit.
- b. 1RH8701B, RC Loop 1A to RH pump 1A Suction Isol valve CLOSED light Lit.
- c. 1RH8716A, 1A RH Discharge Header X-Tie valve OPEN light Lit.
- d. 1SI8809A RH to Cold Legs 1A and 1D Isol Valve CLOSED light Lit.

QUESTION 074

Given the following conditions on Unit 1:

- CETCs indicate 100°F.
- RH cooling has been lost and attempts are being made to restore a RH pump.
- The following is the timeline for Unit 1 operations following a 300 day continuous run:
 - 10/1/01, 1000 Reactor Shutdown. Cooldown initiated for MAINTENANCE outage.
 - 10/4/01, 1300 Entered MODE 5.
 - 10/17/01, 2200 Operating RH pump TRIPPED.

What is the MINIMUM amount of makeup required to PREVENT BOILING in the RCS?

- a. 40 gpm.
- b. 60 gpm.
- c. 350 gpm.
- d. 500 gpm.

QUESTION 075

Given the following conditions on Unit 1:

- 85% Reactor Power.
- All systems and controls are in automatic.
- 1B Main Feed Pump trips.
- 1A Main Feed Pump will NOT start.
- The OUTPUT of the PZR Master Pressure Controller is failed AS IS.
- The Unit 1 Admin NSO initiates a turbine runback.

What is the INITIAL response of the Pressurizer Pressure Control System during this event?

- a. BACKUP Heaters turn OFF due to the pressure increase.
- b. BACKUP Heaters turn ON to heat incoming surge volume.
- c. BOTH PZR Spray valves THROTTLE OPEN to reduce pressure to normal.
- d. BOTH PZR PORVs OPEN to maintain pressure below the High reactor trip setpoint.

QUESTION 076

The following conditions exist on Unit 1:

- 50% Reactor power.
- PZR Pressure control is in automatic
- One set of Backup heaters is in "ON".
- Actual PZR Pressure is 2250 psia.

The PZR Pressure Master Controller malfunctions and the SETPOINT drifts to 2100 psia over a 10 minute period. Which ONE of the following describes the INITIAL automatic responses of the control elements of the PZR Pressure Control System as a result of this failure?

- a. Spray valves throttle open and variable heaters go to minimum current.
- b. Spray valves throttle closed and variable heaters go to maximum current.
- c. PORV 1RY455A opens, Spray valves throttle open, variable heaters go to minimum current.
- d. PORV 1RY456 opens, Spray valves throttle open, variable heaters go to minimum current.

QUESTION 077

With the Pressurizer Level Control Select switch in the 461/460 position, the ONLY Pressurizer Level Channel failure that will NOT ISOLATE letdown is Pressurizer Level Channel . . .

- a. 1LT-461 failed HIGH.
- b. 1LT-461 failed LOW.
- c. 1LT-460 failed HIGH.
- d. 1LT-460 failed LOW.

QUESTION 078

Limiting the magnitude of a potential release during a fuel handling accident is accomplished by limiting the maximum load traveling over the fuel assemblies in the Spent fuel Pool to LESS THAN OR EQUAL TO _____.

- a. 1000 lbs.
- b. 1500 lbs.
- c. 2000 lbs.
- d. 2500 lbs.

QUESTION 079

The following conditions existed on Unit 1:

- 100% Reactor power.
- Small Steam Generator Tube Leak (5 gpd) on 1A Steam Generator.
- A Shutdown has been commenced to repair the leak.

If the turbine were to trip, what is the MAXIMUM power level that the turbine could trip from that would result in the least amount of direct radioactive release to the environment?

- a. 20%.
- b. 40%.
- c. 60%.
- d. 80%.

QUESTION 080

One of the criteria to stop the RCS depressurization in 1BwEP-3, Steam Generator Tube Rupture, is unacceptable subcooling. How does the ICONIC display indicate the value of Subcooling is UNACCEPTABLE?

The value displayed is . . .

- a. CYAN.
- b. WHITE.
- c. YELLOW.
- d. MAGENTA.

QUESTION 081

The following indications were observed during a Steam Generator Tube Rupture just prior to tripping the Unit:

- Charging flow 140 gpm.
- Letdown flow 75 gpm.
- PZR Level steady DECREASE of 10% over 3 minutes.
- Reactor and Turbine power constant.

What is the approximate primary to secondary leakage rate?

- a. 1280 gpm.
- b. 480 gpm.
- c. 128 gpm.
- d. 65 gpm.

QUESTION 082

During a Unit 2 Startup, while the Unit is still in MODE 3, the operating crew observes a number of abnormal indications relative to primary and containment parameters. The crew determines the indications are signs of either a moderately sized LOCA or a moderately sized steam break. Which ONE of the following parameters should be used to differentiate between the early stages of the two possible events?

- a. Containment Pressure.
- b. RCS Pressure.
- c. RCS Temperature.
- d. Pressurizer Level.

QUESTION 083

Using the "Turbine Load vs Condenser Pressure" figure (1BwOA SEC-3-1) provided, determine which ONE of the following conditions requires a Reactor Trip?

	MEGAWATTS	CONDENSER ABSOLUTE PRESSURE IN HGA
	_____	_____
a.	1200	6
b.	600	7
c.	900	7
d.	400	6

QUESTION 084

During a Reactor Coolant Filter change out, a small amount (~ 1 liter) of contaminated liquid escaped onto the floor. The liquid was quickly covered, contained, and cleaned up using a long handled mop. No airborne contamination resulted. The exposure from this type of work is primarily a threat to the . . .

- a. Whole Body.
- b. Skin.
- c. Extremities.
- d. Lens of the eye.

QUESTION 085

A rupture of the ON LINE Gas Decay Tank has occurred, and the effluent is escaping through the Plant Vent Stack. As the ALERT setpoint is exceeded for the ON LINE Vent Stack Effluent Rad Monitor, 1PR28J, the RM-11 indications for the channels of this monitor will respond by . . .

- a. REMAINING GREEN and ON LINE.
- b. CHANGING to YELLOW and REMAINING ON LINE.
- c. CHANGING to CYAN and GOING OFF LINE.
- d. CHANGING to DARK BLUE and GOING OFF LINE.

86

Why should an ELEVATED rad level on a Main Steam Line rad monitor be confirmed by a chemistry sample? Elevated Main Steam Line Rad indications will be caused by . . .

- a. Increasing temperatures in the MSIV room.
- b. Small Break LOCA inside containment.
- c. Main steam line isolation.
- d. Feedwater isolation.

QUESTION 087

An extended loss of all AC power has occurred and the crew is placing equipment in PULL OUT to inhibit automatic loading of the AC Emergency Buses per the Attachment for Recovery from an Extended LOSS OF ALL AC POWER procedure. Which pump Control switches will be left in normal after trip (NAT), and why?

- a. One charging pump on either train, to provide RCP sealing cooling.
- b. One charging pump on either train to provide RCS inventory makeup.
- c. One essential service water pump on either train to provide emergency diesel generator cooling.
- d. One essential service water pump on either train to provide charging pump lube oil cooling.

QUESTION 088

The following conditions exist on Unit 1:

- Reactor tripped from 100% power due to a S/G Tube Rupture and RCS LOCA.
- Containment Integrity has been breached.
- The crew is at step 11 of 1BwCA-3.1, SGTR with LOCA, Subcooled Recovery Desired.
- RWST level is 54% and slowly DECREASING.
- Containment pressure is 5 psig.
- Ruptured S/G level is 43% Narrow Range
- Containment Floor Water level (1LI-PC006/007) is 3 inches.
- ALL systems and components are available and responding as designed.

The NSO can expect the crew to . . .

- a. Consult the TSC to determine if recovery should be completed using the SGTR with LOCA, Saturated Recovery Desired procedure (1BwCA-3.2).
- b. Transition to the SGTR with LOCA, Saturated Recovery Desired procedure (1BwCA-3.2), without consulting the TSC since the requirements are met.
- c. Remain in the SGTR with LOCA, Subcooled Recovery procedure (1BwCA-3.1), without consulting the TSC since the requirements are met.
- d. Transition to the SGTR procedure (1BwEP-3), since an unisolated Steam Generator Tube Rupture exists.

QUESTION 089

Which ONE of the following groups of instruments input to the Subcooling Margin Monitor (SMM)?

- a. Train 'A' or 'B' (whichever is higher) Average of the 10 HIGHEST CETCs and Wide Range RCS Pressure.
- b. 10 HIGHEST CETCs and Wide Range RCS Pressure.
- c. Average of the RCS Loop Wide Range T Hots and Pressurizer Pressure.
- d. Average of the RCS Loop Wide Range T Hots and Wide Range RCS Pressure.

QUESTION 090

Initially, the following conditions existed on Unit 1:

- 100% Reactor power.

Subsequently, the following occurred:

- A Reactor Trip coincident with a loss of Instrument Bus 114.
- All systems respond as expected after the trip.

With NO operator action, 5 minutes after the trip S/G levels will be . . .

- a. HIGHER than normal post trip response due to a delay in ISOLATING AFW flow and the Rediagnosis procedure 1BwEP ES-0.0 should be used.
- b. HIGHER than normal post trip response due to a delay in ISOLATING AFW flow and the Rediagnosis procedure 1BwEP ES-0.0 should NOT be used.
- c. LOWER than normal post trip response due to DECREASED AFW flow and the Rediagnosis procedure 1BwEP ES-0.0 should be used.
- d. LOWER than normal post trip response due to DECREASED AFW flow and the Rediagnosis procedure 1BwEP ES-0.0 should NOT be used.

QUESTION 091

In the REDIAGNOSIS procedure, 1BwEP ES-0.0, SG level is checked INCREASING in an UNCONTROLLED manner in ANY Steam Generator to determine if . . .

- a. ANY SG secondary pressure boundary is intact.
- b. An adequate secondary heat sink exists.
- c. SG tubes are ruptured.
- d. RCS pressure boundary is intact.

QUESTION 092

Which ONE of the following describes the action the operator should take upon determining pressure in the 1A Steam Generator (unisolated) is decreasing UNCONTROLLABLY while in 1BwEP ES-1.1 "SI TERMINATION"?

- a. Shut all MSIVs, SG PORVS, and ISOLATE Main Feedwater, Auxiliary Feedwater, Sampling and Blowdown Lines.
- b. Initiate Operator Action Summary (OAS) and transition to 1BwEP-2, FAULTED STEAM GENERATOR ISOLATION.
- c. Initiate OPERATOR ACTION SUMMARY (OAS) and transition to 1BwEP-1 LOSS OF REACTOR OR SECONDARY COOLANT.
- d. Verify all Steam Generator PORVs and steam dumps are shut, then shut all MSIVs.

QUESTION 093

A steam line break occurred 10 minutes ago in the Turbine Building while at 100% power. All MSIVs failed OPEN. The following conditions exist on the Unit:

- All SG Wide Range Levels are 8% and DECREASING.
- ALL RCS Loop T Cold Temperatures indicate 190°F.
- AFW flow to each SG is 45 gpm.
- All RCPs are stopped.
- RCS Pressure is 600 psig.

Which ONE of the following describes the consequences of this accident and the actions to be taken?

- a. A Loss of Forced Circulation is causing a challenge to core cooling, maximize AFW flow to the Steam Generators.
- b. A Loss of Heat Sink is causing the RCS to repressurize, maximize AFW flow to the Steam Generators.
- c. Natural Circulation has been stopped by the injection of Accumulator Nitrogen, start at least ONE RCP.
- d. Pressurized Thermal Shock is imminent, stop ECCS pumps.

QUESTION 094

The intent of the major action steps performed in 1BwFR-P.1 is to . . .

- a. INCREASE the RCS cooldown and DECREASE RCS pressure.
- b. INCREASE the RCS cooldown and STABILIZE RCS pressure.
- c. STOP the RCS cooldown and STABILIZE RCS pressure.
- d. STOP the RCS cooldown and DECREASE RCS pressure.

QUESTION 095

A loss of power occurred forcing a Natural Circulation Cooldown to be performed per 1BwEP ES-0.2, "NATURAL CIRCULATION COOLDOWN". An RCP has been started. The following indications are observed 1 minute after starting the RCP:

- RCS Loop Flow has INCREASED.
- Seal DP 250 psig on the running RCP.
- 850 amps for the running RCP.
- RCP vibrations 2 mils on the running RCP.

What should the operator do next?

- a. Start an additional RCP.
- b. Verify Seal Leakoff Isolation valve OPEN.
- c. Contact System Engineering to monitor vibrations.
- d. Trip the RCP.

QUESTION 096

A Reactor Trip from 100% power and a Loss of Offsite Power occurred 1 hour ago. The following conditions exist:

- 1BwEP-ES-0.3, NATURAL CIRCULATION COOLDOWN WITH STEAM VOID IN VESSEL (WITH RVLIS) is in progress.
- All NON-ESF buses are still DE-ENERGIZED.
- PZR Level is stable at 50%.
- Letdown is established.
- Charging is in MANUAL Control.
- Pressurizer Pressure indicates 800 psig.
- Pressure control is via the Aux Spray Valve.
- CETCs indicate 520°F.
- RVLIS indicates 81% Plenum level.

The Aux spray valve inadvertently sticks OPEN causing a DECREASE in RCS pressure. RVLIS indication ____ (1) ____ and Pressurizer Level indication ____ (2) ____.

____ (1) ____ ____ (2) ____

- a. DECREASES DECREASES.
- b. DECREASES INCREASES.
- c. INCREASES DECREASES.
- d. INCREASES INCREASES.

QUESTION 097

The following conditions exist on Unit 1:

- A loss of coolant accident has occurred.
- RWST Level is 35% and DECREASING.
- 1BwCA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION is in progress.
- 1B RH pump has TRIPPED on overcurrent.
- Attempts are being made to establish Cold Leg Recirculation capability.
- SI has been RESET.
- The NSO is questioning the ECCS valve alignment.

Which ONE of the following is PREVENTING 1SI8811A, Train A SI Recirc Sump Isolation valve from being MANUALLY OPENED?

- a. 1SI8812A, Train A RWST to RH Suction valve is OPEN.
- b. 1SI8812A, Train A RWST to RH Suction valve is CLOSED.
- c. 1CS001A, Train A RWST to CS Suction valve is CLOSED.
- d. 1CS009A, Train A Containment Recirc Sump to CS Suction valve is OPEN.

QUESTION 098

Given the following information concerning Unit 1:

- An unisolable steam break inside of containment has occurred and All MSIVs are OPEN.
- 1BwCA-2.1, UNCONTROLLED DEPRESSURIZATION OF ALL SGs, is in progress.
- Containment pressure is 8 psig and DECREASING slowly after peaking at 37 psig.
- ALL wide range SG levels are <10% and DECREASING.
- Feed Flow to each SG has been REDUCED to 45 gpm by operator action.
- RCS Pressure is 1800 psig and INCREASING.

The STA has just updated the crew and a decision is about to be made concerning which procedure to perform. The Unit Supervisor needs recommendations and reasons. The crew should . . .

- a. Transition to 1BwFR-H.1, LOSS OF HEAT SINK, and perform the Bleed and Feed Steps to transfer the heat sink to the PZR Porvs and prevent over heating the core.
- b. Transition to 1BwFR-H.1, LOSS OF HEAT SINK, and INCREASE feed flow to GREATER THAN 500 gpm until at least ONE SG narrow range level is GREATER THAN 31%.
- c. Continue in 1BwCA-2.1, UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS, and INCREASE feed flow to GREATER THAN 500 gpm, until at least ONE SG narrow range level is GREATER THAN 31%.
- d. Continue in 1BwCA-2.1, UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS, and control feed flow to maintain SGs in a wet condition.

QUESTION 099

The following conditions exist of Unit 1:

- The Reactor Cavity is being filled for a refueling outage.
- An inspection of the RCS Loop Nozzle Covers indicates a severe leakage problem.
- Heavy radio traffic is limiting access to a channel to report the leakage.
- Cavity level is decreasing.

To report this leakage the operator should . . .

- a. Use the orange emergency call button on the top of his portable radio to call the control room.
- b. Wait until the radio traffic is less heavy, then transmit the details over OPS channel 1.
- c. Remove the microphone from the radio and use the "Push to Talk" pushbutton on the side of the radio.
- d. Place the "Transmit/Disable" switch in the Disable position, and transmit the information normally.

QUESTION 100

Unit 1 has undergone a Small Break LOCA Accident and the operators are carrying out the appropriate actions of the emergency procedures. The following conditions exist:

- 1BwEP ES-1.2 Post LOCA Cooldown and Depressurization is in progress.
- Containment Area Rad Monitors 1RT-AR020 and 1RT-AR021 are at their ALERT Levels.

The applicable Functional Restoration procedure will consider using which ONE of the following pairs of systems?

- a. Containment Charcoal Filter Fan and Post-LOCA Purge Exhaust Fan.
- b. Post-LOCA Purge Exhaust Fan and Mini-flow Purge Supply Fan.
- c. Hydrogen Recombiner and Post-LOCA Purge Exhaust Fan.
- d. Mini-flow Purge Supply Fan and Mini-flow Exhaust Fan.

ANSWER: 001 (1.00)
 c
 REFERENCE:
 Improved Tech Specs 3.1.1.
 Action A
 Bases for ITS B.3.1.1.
 New
 Memory
 2.1.11 ..(KA's)

ANSWER: 002 (1.00)
 a
 REFERENCE:
 Horse Notes- Remote
 shutdown Panel PN-1 RSP
 1PL06J
 Remote Shutdown Panel
 I1-RS-XL-01 II.A.1.b.2
 Control Room Inaccessability,
 1BOA PRI-5 Step 23, Step 3
 Att. A
 Bank
 Memory
 2.1.30 ..(KA's)

ANSWER: 003 (1.00)
 a
 REFERENCE:
 COLR 2.12.2
 New
 Memory
 2.1.33 ..(KA's)

ANSWER: 004 (1.00)
 a
 REFERENCE:
 CVCS lesson plan ch 15a
 I1-CV-XL-01 II.A.1.h.5)
 Mixed Bed Demin Ops BwOP
 CV-8, BOP CV-8 D.1, D.1
 New
 Comprehension
 2.2.1 ..(KA's)

ANSWER: 005 (1.00)
 b
 REFERENCE:
 Tech Specs Safety Limits
 2.1.2
 Intro to Tech spec lesson
 plan ch 3 I1-MC-XL-13
 New
 Memory
 2.2.22 ..(KA's)

ANSWER: 006 (1.00)
 c
 REFERENCE:
 Filling the Rx Cavity for
 Refueling BwOP RH-8 E.7,
 and F.1 Note
 Filling the Rx cavity for
 Refueling BOP RH-8 F.1.k
 note
 New
 Memory
 2.2.27 ..(KA's)

ANSWER: 007 (1.00)
 d
 REFERENCE:
 Exposure Review and
 Authorization RP-AA-203
 4.5.3
 Selected Rp procedures
 I1-AM-XL-46 III.F.7
 Exposure Review
 /Authorization
 BwRP-5300-2 G.7
 Modified
 Application
 2.3.1 ..(KA's)

ANSWER: 008 (1.00)
 a
 REFERENCE:
 Containment Mini-Purge
 System Operation BwOP
 VQ-6 E.5
 Containment Min-Purge
 System Operation BOP
 VQ-6 E.2
 Cnmt Vent lesson plan ch 42
 I1-VP-XL-01
 New
 Memory
 2.3.9 ..(KA's)

ANSWER: 009 (1.00)
 b
 REFERENCE:
 VC Filtration System B
 3.7.10
 Control Room HVAC ch 43B
 I1-VC-XL-01
 Modified
 Memory
 2.3.10 ..(KA's)

ANSWER: 010 (1.00)
 d
 REFERENCE:
 Component Cooling
 malfunction 1BwOA PRI-6,
 Symptoms and Att. B
 New
 Memory
 2.3.11 ..(KA's)

ANSWER: 011 (1.00)
 a
 REFERENCE:
 Fire Dept Response,
 Notification, and Mutual Aid
 Agreements
 and Expected Chain of
 Events During a Fire BwAP
 1100-5, C.5.f, h
 Response Procedure for Fire
 BAP 1100-10 C.3.a.1), 4)
 Admin procedures
 I1-QB-XL-03
 New
 Application
 2.4.26 ..(KA's)

ANSWER: 012 (1.00)
 a
 REFERENCE:
 Reactor Trip Response
 1BwEP ES 0.1 step 3.d 5
 General Arrangements Dwgs
 Local Emerg Control of Safe
 S/D Equip 1BOA ELEC-5
 Att. D
 New
 Memory
 2.4.34 ..(KA's)

ANSWER: 013 (1.00)
 d
 REFERENCE:
 Notifications EP-AA-114,
 4.1.1.1
 New
 Application
 2.4.39 ..(KA's)

ANSWER: 014 (1.00)
 a
 REFERENCE:
 Alarm Response Procedures
 BwAR 1-19-A1, BAR
 1-19-A1
 Alarm Response Procedures
 BwAR 1-19-E2, BAR
 1-19-A1
 New
 Application
 001A207 ..(KA's)

ANSWER: 015 (1.00)
 d
 REFERENCE:
 Power Distribution Power
 Distribution 2 equations
 Abnormal Proc Dropped Rod
 1BwOA ROD-3 B
 Abnormal Proc Dropped Rod
 OA-XL-34 1,6
 New
 Comprehension
 001A304 ..(KA's)

ANSWER: 016 (1.00)
 b
 REFERENCE:
 Steam Tables
 Thermo lesson plan ch 2
 I1-TH-xl-02
 New
 Memory
 002K509 ..(KA's)

ANSWER: 017 (1.00)
 d
 REFERENCE:
 Component Cooling
 malfunction 1BwOA PRI-6
 Att A. step 1
 Component Cooling
 malfunction 1BOA PRI-6
 Att. A step 1.e
 New
 Memory
 003K202 ..(KA's)

ANSWER: 018 (1.00)
 a
 REFERENCE:
 High RCS Activity 1BwOA
 PRI-4 Step 3
 Abnormal Primary chemistry
 1BOA PRI-4 Step 4
 Modified
 Memory
 004 2.3.10 ..(KA's)

ANSWER: 019 (1.00)
 a
 REFERENCE:
 Recircing a Boric Acid Tank.
 BwOP AB-10, BOP AB-6
 Step F.3,
 Fundamental pump concepts
 P and ID M-65 sheet 5a
 New
 Application
 004K610 ..(KA's)

ANSWER: 020 (1.00)
 d
 REFERENCE:
 RHR sys desc, Ch 18
 Horse Notes Ch 18 RH-1
 RHR Cooldown
 RHR System Ch 18,
 I1-RH-XL-01, II.A.5 and 9
 New
 Comprehension
 005A202 ..(KA's)

ANSWER: 021 (1.00)
 d
 REFERENCE:
 Horse Notes ch 58 ECCS
 ECCS-1 ECCS System,
 Pumps
 Pump theory Fluid Flow ch 2
 I1-FF-XL-02
 ECCs lessonplan ch 58
 I1-CE-XL-01
 New
 Application
 006A109 ..(KA's)

ANSWER: 022 (1.00)
 b
 REFERENCE:
 Horse Notes ECCS,
 ECCS-3, Design Basis
 ECCs lesson plan ch 58
 I1-CE-XL-01, I.D
 New
 Application
 006K613 ..(KA's)

ANSWER: 023 (1.00)
 b
 REFERENCE:
 P and ID M-64 sheet 5
 New
 Memory
 007A301 ..(KA's)

ANSWER: 024 (1.00)
 b & d
 REFERENCE:
 Drawing a Pzr Bubble, BwOP
 RY-5
 Plant Heatup, 1BwGP 100-1,
 Step F. 26.
 Plant Heatup, 1BGP 100-1,
 F.24
 Modified
 Memory
 007K502 ..(KA's)

ANSWER: 025 (1.00)
 a
 REFERENCE:
 Memory
 CC Surge Tank Auto Makeup
 On BwAR 1-2-E4, B.1, B.2 1
 CC Surge Tank Auto Makeup
 On BAR 1-2-E4, B.1, B.2,
 B.3
 New
 Memory
 008K402 ..(KA's)

ANSWER: 026 (1.00)
 a
 REFERENCE:
 RTS Instrumentation Tech
 Spec Bases Bases Table
 3.3.1-1
 PZR ch 14, I1-RY-XL-01
 Modified
 Application
 010K302 ..(KA's)

ANSWER: 027 (1.00)
 c
 REFERENCE:
 CV System Limitation and
 Action, 1BwGP 100-1, Plant
 Heatup, E.6.b
 Plant Heatup, 1BGP 100-1
 Plant Heatup, E.6.e
 New
 Comprehension
 011A201 ..(KA's)

ANSWER: 028 (1.00)
 b
 REFERENCE:
 Horse Notes- Ch 14
 Pressurizer, RY-2 PZR
 Pressure Control, Setpoints
 Alarm Response Procedure,
 BwAR 1-12-A4, B.1
 Alarm Response Procedure,
 BAR 1-12-A4, B.1
 New
 Memory
 011K401 ..(KA's)

ANSWER: 029 (1.00)
 a
 REFERENCE:
 Re-establishing CV Letdown
 During Abnormal Conditions,
 BwOA ESP-2,
 Step 4
 New
 Comprehension
 011K601 ..(KA's)

ANSWER: 030 (1.00)
 c
 REFERENCE:
 Operation with a Failed
 Pressure Channel, 1BwOA
 INST-2 Att. B,
 1 BOA Inst-2, Step 5
 Pressurizer ch 14 lesson
 plan, I1-RY-XL-01
 New
 Application
 012A404 ..(KA's)

ANSWER: 031 (1.00)
 c
 REFERENCE:
 Loss of Instrument Bus,
 1BwOA ELEC-2, Tables B
 and D
 Horse Notes - SSPS
 SSPS-2, SSPS NOTES,
 General Warning
 Alarm Response Proc BAR
 1-4-B3, D.2.c
 Modified
 Memory
 012K201 ..(KA's)

ANSWER: 032 (1.00)
 c
 REFERENCE:
 Horse Notes, CVCS CV-1,
 CVCS
 SI Termination, 1BwEP
 ES-1.1, Steps 1-6
 New
 Application
 013K402 ..(KA's)

ANSWER: 033 (1.00)
 b
 REFERENCE:
 Horse Notes - ESF Setpoints,
 EF-2 Isolation signals
 Instrument Failure, 1BwOA
 INST-2, Att. J
 New
 Comprehension
 013K601 ..(KA's)

ANSWER: 034 (1.00)
 a
 REFERENCE:
 Horse Notes- Reactor Control
 Unit, RD-2 Reactor Control
 Unit,
 Rod Speed
 Horse Notes- Digital Rod
 Position Ind, RD-6 Digital
 Rod Position,
 Bezel
 New
 Memory
 014A402 ..(KA's)

ANSWER: 035 (1.00)
 d
 REFERENCE:
 Generic Reactor Control
 Guidance, 1BwGP 100-8,
 F.8.c
 Modified
 Comprehension
 015A103 ..(KA's)

ANSWER: 036 (1.00)
 c
 REFERENCE:
 Horse Notes- Intermediate
 Range, NI-3 Intermediate
 Range, SSPS
 Horse Notes- Source Range,
 NI-4 Source Range Detector,
 Chart
 New
 Comprehension
 015K102 ..(KA's)

ANSWER: 037 (1.00)
 a
 REFERENCE:
 Placing CETC in Service,
 BwOP RC-12, F.4 2
 Placing CETC in service,
 BOP RC-12, F.4
 New
 Memory
 017A401 ..(KA's)

ANSWER: 038 (1.00)
 deleted
 REFERENCE:
 Horse Notes- Inadequate
 Core Cooling, CORE-2, Core
 Exit Thermocouples
 Reactor Trip Response,
 1BwEP ES-0.1, Attachment B
 New
 Comprehension
 017K301 ..(KA's)

ANSWER: 039 (1.00)
 c
 REFERENCE:
 Horse Notes Containment
 Cooling, VP-3, Containment
 Cooling,
 SI Actuation Signal
 Cnmt Vent, Ch 42, C
 New
 Comprehension
 022A301 ..(KA's)

ANSWER: 040 (1.00)
 d
 REFERENCE:
 CRDM Vent System Startup,
 BwOP VP-9, E.3
 Horse Notes, Containment
 Vent VP-1, Containment
 Vent,
 CRDM Booster Fan Trip
 CRDM Vent System Startup,
 BOP VP-9, E.3, note prior to
 step 3.b
 New
 Memory
 022K404 ..(KA's)

ANSWER: 041 (1.00)
 d
 REFERENCE:
 Startup of a Hydrogen
 Recombiner, BwOP OG-10,
 C. 2. & E.3.
 Startup of a Hydrogen
 Recombiner, BOP OG-10,
 C.2, E.2
 New
 Memory
 028K101 ..(KA's)

ANSWER: 042 (1.00)
 b
 REFERENCE:
 E lineup for Off Gas system,
 BwOP OG-E4
 E Lineup for Off Gas system,
 BOP OG-E1
 New
 Memory
 028K201 ..(KA's)

ANSWER: 043 (1.00)
 b
 REFERENCE:
 Containment Mini-Purge
 System Operation, BwOP
 VQ-6 F.6 Note
 Containment Mini Purge
 System Operation, BOP
 VQ-6 F.6 Note
 New
 Memory
 029A201 ..(KA's)

ANSWER: 044 (1.00)
 a
 REFERENCE:
 ARP, BwAR 4-1AR012J/11J,
 B.2
 BwOP AR/PR-11T1
 Horse Notes- Containment
 Purge, VP-2 Cnmt Purge
 Modified
 Memory
 029K102 ..(KA's)

ANSWER: 045 (1.00)
 d
 REFERENCE:
 Horse Notes- Fuel Pool
 Cooling, FC-1 Fuel Pool
 Cooling,
 Dewatering prevention
 SFP Ch 51 Sys Desc
 New
 Comprehension
 033K303 ..(KA's)

ANSWER: 046 (1.00)
 b
 REFERENCE:
 Reactor Theory, Chapter 7,
 Pg 20
 New
 Comprehension
 039K508 ..(KA's)

ANSWER: 047 (1.00)
 a & d
 REFERENCE:
 Horse Notes Steam Dumps
 Ch 24, MS-4 Main Steam
 Dumps
 Horse Notes Rod Control Ch
 28, RD-2 Reactor Control
 Unit
 New
 Application
 045K301 ..(KA's)

ANSWER: 048 (1.00)
 b
 REFERENCE:
 Secondary Pump Trip,
 1BwOA SEC-1, Attachment
 B, Step 5.a
 Modified
 Application
 056A204 ..(KA's)

ANSWER: 049 (1.00)
 c
 REFERENCE:
 Horse Notes, FW-3,
 Feedwater Notes, Program
 DP
 SGWLC System, Ch. 27,
 I1-FW-XL-01, I.B.2; I.C.2.a
 Bank
 Comprehension
 059A107 ..(KA's)

ANSWER: 050 (1.00)
 d
 REFERENCE:
 SGWLC Ch 27,
 I1-FW-XL-01, II.C.2
 Feed Pump speed Control Ch
 37B, Figure 37b-2
 Modified
 Application
 059K304 ..(KA's)

ANSWER: 051 (1.00)
 d
 REFERENCE:
 Horse Notes, AF-1 Auxiliary
 Feedwater System, Diesel AF
 AFW Ch 26 Sys Desc, Ch 26,
 II Engine
 New
 Memory
 061K203 ..(KA's)

ANSWER: 052 (1.00)
 c
 REFERENCE:
 Horse Notes, I&C-2, AC Bus
 112 and 113, 112
 AC Distribution Ch 4 System
 Desc, Fig 10a, 10b, 11
 Bank
 Memory
 062K201 ..(KA's)

ANSWER: 053 (1.00)
 a
 REFERENCE:
 Horse Notes- D/G Relaying,
 DG-2 D/G Relaying,
 Sequencing Order
 SI Termination, 1BwEP
 ES-1.1, Caution
 New
 Memory
 064A307 ..(KA's)

ANSWER: 054 (1.00)
 d
 REFERENCE:
 Horse Notes- Liquid
 Radwaste, RW-2 Liquid
 Radwaste, Notes and Drwg
 Horse Notes- Gaseous
 Radwaste, RW-1 Gaseous
 Radwaste,
 Inputs and Drwg
 New
 Memory
 068K102 ..(KA's)

ANSWER: 055 (1.00)
 a
 REFERENCE:
 Horse Notes Liquid
 Radwaste, RW-2 RW
 Release Tank
 Bank
 Memory
 068K401 ..(KA's)

ANSWER: 056 (1.00)
 c
 REFERENCE:
 Gas Decay Tank Operations,
 BwOP-GW-1, E.3
 Gas Decay Tank Operations,
 BOP GW-1, E.2
 Horse Notes - Gaseous
 Radwaste, RW-1 Gas Decay
 Tanks
 Modified
 Memory
 071 2.1.22 ..(KA's)

ANSWER: 057 (1.00)
 d
 REFERENCE:
 TRM, Appendix L, Explosive
 Gas and Storage
 Tank Monitoring Program
 Modified
 Memory
 071K504 ..(KA's)

ANSWER: 058 (1.00)
 d
 REFERENCE:
 Horse Notes Aux Bldg Vent,
 VA-2, FHB Interlocks
 System LP Ch 43A
 New
 Memory
 072A301 ..(KA's)

ANSWER: 059 (1.00)
 b
 REFERENCE:
 Horse Notes - Rad
 Monitoring, AR-1 Rad monitor
 notes, ARMs
 Alarm Response Procedures,
 BwOP AR/PR-11A14, B
 Alarm Response Procedures,
 BAR RM11-4-0AR55J
 New
 Application
 072A401 ..(KA's)

ANSWER: 060 (1.00)
 a
 REFERENCE:
 Horse Notes. Rad Monitors,
 AR-1, Rad Monitors PRMs
 RM-11 Alarm Response,
 BwAR 1-0PR09J, B
 Radiation Monitors Ch 49,
 I1-AR-XL-01 Ch 49, II.C.2.e
 Modified
 Comprehension
 073A101 ..(KA's)

ANSWER: 061 (1.00)
 d
 REFERENCE:
 Radmonitor Interlock
 Function Table, BwOP
 AR/PR-11T1
 Modified
 Memory
 073A401 ..(KA's)

ANSWER: 062 (1.00)
 b
 REFERENCE:
 Loss of Instrument Air,
 0BwOA SEC-4, Step 2, and
 Note
 New
 Memory
 079K101 ..(KA's)

ANSWER: 063 (1.00)
 d
 REFERENCE:
 Interpretation of Fire
 Protection Panel Alarms,
 BwOP FP-49, F.1
 Horse Note Fire Protection
 FP-1
 New
 Memory
 086K403 ..(KA's)

ANSWER: 064 (1.00)
 b
 REFERENCE:
 Horse Notes, SA/IA-2 SA/IA
 Notes
 Lesson Plan for Recovery
 from Inadvertent Phase A
 Containment
 Isolation, I1-OA-XL-23
 New
 Comprehension
 103A301 ..(KA's)

ANSWER: 065 (1.00)
 a
 REFERENCE:
 Alarm Response Procedure,
 BwAR 1-14-E2, A.1
 Modified
 Comprehension
 001AK106 ..(KA's)

ANSWER: 066 (1.00)
 d
 REFERENCE:
 DEHC System Description,
 Ch 37A
 Dropped Rod, 1BwOA
 ROD-3, B
 New
 Comprehension
 003AK101 ..(KA's)

ANSWER: 067 (1.00)
 c
 REFERENCE:
 Horse Notes- Rod Control Ch
 28, RD-2 Reactor Control
 Unit, Rod Speed
 Rod Control System
 Description, Ch 28
 New
 Comprehension
 005AA101 ..(KA's)

ANSWER: 068 (1.00)
 b
 REFERENCE:
 ERG Background doc E-1
 Bank
 Memory
 009EK203 ..(KA's)

ANSWER: 069 (1.00)
 d
 REFERENCE:
 RCP Ch 13 lesson plan,
 I1-RC-XL-02
 Bank
 Comprehension
 015AK210 ..(KA's)

ANSWER: 070 (1.00)
 c
 REFERENCE:
 RCP Ch 13 lesson plan,
 I1-RC-XL-02
 Bank
 Comprehension
 017AA112 ..(KA's)

ANSWER: 071 (1.00)
 d
 REFERENCE:
 Horse Notes CVCS Ch 15a,
 CV-1, CVCS
 Inadvertent Phase A, 1BwOA
 PRI-13
 New
 Comprehension
 017AK207 ..(KA's)

ANSWER: 072 (1.00)
 a
 REFERENCE:
 TRM Borated Water Sources
 Operating, TRM 3.1.f, TSR
 3.1.f
 New
 Memory
 022A2.2.12 ..(KA's)

ANSWER: 073 (1.00)
 b
 REFERENCE:
 Placing the RH System in
 Shutdown Cooling, BwOP
 RH-6, E. 8,9,10
 Loss of RH Cooling, 1BwOA
 PRI-10, B.2
 New
 Comprehension
 025AA110 ..(KA's)

ANSWER: 074 (1.00)
 d
 REFERENCE:
 Loss of RH Cooling Unit 1,
 1BwOA PRI-10, Fig 10-3 and
 10-4
 Loss of RH Cooling, OA
 PRI-10, I1-OA-XL-20, II.B.Fig
 Modified
 Application
 025AK101 ..(KA's)

ANSWER: 075 (1.00)
 b
 REFERENCE:
 Pressurizer (RY) Ch. 14,
 I1-RY-XL-01, I.D.2 and 3
 Horse Notes, RY-1,
 Pressurizer, RY-2, PZR
 Pressure Control
 and RY-3, PZR Level Control,
 Sections I.D.2 and 3
 Modified
 Application
 027AK102 ..(KA's)

ANSWER: 076 (1.00)
 a
 REFERENCE:
 Pressurizer Ch 14,
 I1-RY-XI-01
 Horse Notes, RY-2, PZR
 Pressure Control
 Modified
 Application
 027AK203 ..(KA's)

ANSWER: 077 (1.00)
 c
 REFERENCE:
 Horse Notes, RY-3 PZR
 Level Control, Instrument
 Failures
 Pressurizer, Ch 14 system
 desc
 New
 Comprehension
 028AK202 ..(KA's)

ANSWER: 078 (1.00)
 c
 REFERENCE:
 Refueling Operations- crane
 travel TRM 3.9.d
 Bank
 Memory
 036AA203 ..(KA's)

ANSWER: 079 (1.00)
 b
 REFERENCE:
 Horse Note- Steam Dumps,
 MS-4 Main Steam Dumps,
 Purpose
 New
 Memory
 037AK309 ..(KA's)

ANSWER: 080 (1.00)
 c & d
 REFERENCE:
 Horse Notes- SPDS Display,
 CX-1, Subcooling
 Plant Computer lesson plan
 ch 56
 New
 Memory
 038EA145 ..(KA's)

ANSWER: 081 (1.00)
 b
 REFERENCE:
 Horse notes, RY-1,
 Pressurizer
 New
 Application
 038EA213 ..(KA's)

ANSWER: 082 (1.00)
 c
 REFERENCE:
 Intro to EP lesson plan, Major
 Accident ID Chart
 Bank
 Comprehension
 040AK103 ..(KA's)

ANSWER: 083 (1.00)
 d
 REFERENCE:
 Loss of Condenser Vacuum,
 1BwOA SEC-3, Note
 Figure 1BwOA SEC 3-1
 New
 Application
 051AA202 ..(KA's)

ANSWER: 084 (1.00)
 deleted
 REFERENCE:
 NGET - Types of Radiation
 (NGET)
 New
 Memory
 059AK102 ..(KA's)

ANSWER: 085 (1.00)
 b
 REFERENCE:
 Horse Notes- Rad monitoring,
 AR-1 Color Codes
 Using the RM-11 AR
 Guidelines, BwOP AR/PR-11
 F
 New
 Memory
 060AK201 ..(KA's)

ANSWER: 086 (1.00)
 a
 REFERENCE:
 Alarm Response procedure,
 BwAR 1-2AR022J, D.2
 Faulted SG Isolation
 procedure, 1BwEP-2, Note
 prior to step 6
 New
 Memory
 061AK302 ..(KA's)

ANSWER: 087 (1.00)
 c
 REFERENCE:
 1BwCA-0.0 Loss of All Ac
 Power, Att. B, Step 1.b &
 Caution
 Modified
 Memory
 062AK303 ..(KA's)

ANSWER: 088 (1.00)
 b
 REFERENCE:
 SGTR with LOCA Subcooled
 Recovery Desired,
 1BwCA-3.1
 Cnmt floor water level vs
 RWSt level, Fig 1BwCA-3.1-3
 New
 Application
 069A2.1.25 ..(KA's)

ANSWER: 089 (1.00)
 b
 REFERENCE:
 Horse Notes Inadequate
 Core Cooling
 Inadequate Core Cooling
 lesson plan
 New
 Memory
 074EA112 ..(KA's)

ANSWER: 090 (1.00)
 d
 REFERENCE:
 Loss of Instrument Bus,
 1BwOA ELEC-2, Table D
 Rediagnosis, 1BwEP ES-0.0,
 Purpose
 New
 Comprehension
 E01EK22 ..(KA's)

ANSWER: 091 (1.00)
 c
 REFERENCE:
 Rediagnosis, 1BwEP ES-0.0,
 Step 1, 2,3
 Rediagnosis, 1BEP ES-0.0,
 Steps 1,2,3
 New
 Memory
 E01EK31 ..(KA's)

ANSWER: 092 (1.00)
 b
 REFERENCE:
 SI Termination, ES-1.1
 SI Termination LP, EP-XL-02
 Bank
 Comprehension
 E02EA22 ..(KA's)

ANSWER: 093 (1.00)
 d
 REFERENCE:
 Status Trees, 1BwST-4
 Integrity
 Response to Imminent PTS,
 1BwFR-P.1, Step 9.
 Modified
 Application
 E08EK13 ..(KA's)

ANSWER: 094 (1.00)
 d
 REFERENCE:
 Memory
 Response to Imminent PTS
 Conditon, 1BwFR-P.1, steps
 2,13, and 15
 Bank
 Memory
 E08EK33 ..(KA's)

ANSWER: 095 (1.00)
 d
 REFERENCE:
 RCP Startup During
 Abnormal Conditions, 1BwOA
 ESP-1, Steps 6, 7
 Startup of an RCP, BOP
 RC-1
 New
 Application
 E09EA11 ..(KA's)

ANSWER: 096 (1.00)
 b
 REFERENCE:
 Background Document for
 Natural Circ C/D.
 New
 Comprehension
 E10EK22 ..(KA's)

ANSWER: 097 (1.00)
 a
 REFERENCE:
 Transfer to CLR, 1BwEP
 ES-1.3, Att. A, Step
 MCB Valve Interlocks,
 1BwGP 100-1A3
 New
 Memory
 E11EA11 ..(KA's)

ANSWER: 098 (1.00)
 d
 REFERENCE:
 Loss of Heat Sink,
 1BwFR-H.1 Caution prior to
 step 1
 Uncontrolled
 Depressurization of all SGs,
 1BwCA-2.1 Caution
 Modified
 Application
 E12EK34 ..(KA's)

REACTOR OPERATOR

Page 64

ANSWER: 099 (1.00)
deleted

REFERENCE:
900 Mhz Portable Radio
Program, BwAP 100-19
New
Application
E15 2.1.16 ..(KA's)

ANSWER: 100 (1.00)

a
REFERENCE:
High Containment Radiation,
1BwFR Z.3, Step 3
New
Memory
E16EK13

(***** END OF EXAMINATION *****)

Answer Key

001	c	021	d	041	d	061	d	081	b
002	a	022	b	042	b	062	b	082	c
003	a	023	b	043	b	063	d	083	d
004	a	024	b & d	044	a	064	b	084	deleted
005	b	025	a	045	d	065	a	085	b
006	c	026	a	046	b	066	d	086	a
007	d	027	c	047	a & d	067	c	087	c
008	a	028	b	048	b	068	b	088	b
009	b	029	a	049	c	069	d	089	b
010	d	030	c	050	d	070	c	090	d
011	a	031	c	051	d	071	d	091	c
012	a	032	c	052	c	072	a	092	b
013	d	033	b	053	a	073	b	093	d
014	a	034	a	054	d	074	d	094	d
015	d	035	d	055	a	075	b	095	d
016	b	036	c	056	c	076	a	096	b
017	d	037	a	057	d	077	c	097	a
018	a	038	deleted	058	d	078	c	098	d
019	a	039	c	059	b	079	b	099	deleted
020	d	040	d	060	a	080	c & d	100	a