

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

**Applicant Information**

Name: MASTER SRO

Date: February 5, 2004

Facility/Unit: KEWAUNEE / U1

Region: III

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. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with a 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require an 80.00 percent to pass. You have eight hours to complete the combined examination, and three hours if you are only taking the SRO portion.

*A NUREG 1021, Revision 9, SRO Examination Cover Sheet was mistakenly placed on the SRO Examination instead of a Revision 8 cover sheet. The correct grading scale was explained to the applicant by the licensee after the examination was over.*

**Applicant Certification**

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

\_\_\_\_\_  
Applicant's Signature

**Results**

RO / SRO-Only / Total Examination Values      75 / 25 / 100 98 Points

Applicant's Scores      \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Points

Applicant's Grade      \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Percent

APPENDIX E  
POLICIES AND GUIDELINES FOR TAKING NRC EXAMINATIONS

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Each examinee shall be briefed on the policies and guidelines applicable to the examination category (written and/or operating test) being administered. The applicants may be briefed individually or as a group. Facility licensees are encouraged to distribute a copy of this appendix to every examinee before the examinations begin. All items apply to both initial and requalification examinations, except as noted.

PART A - GENERAL GUIDELINES

1. **[Read Verbatim]** Cheating on any part of the examination will result in a denial of your application and/or action against your license.
2. If you have any questions concerning the administration of any part of the examination, do not hesitate asking them before starting that part of the test.
3. SRO applicants will be tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor, or whatever the title of the position may be).
4. You must pass every part of the examination to receive a license or to continue performing license duties. Applicants for an SRO-upgrade license may require remedial training in order to continue their RO duties if the examination reveals deficiencies in the required knowledge and abilities.
5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all the examinations are complete.

PART B - WRITTEN EXAMINATION GUIDELINES

1. **[Read Verbatim]** After you complete the examination, sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination.
2. To pass the examination, you must achieve an overall grade of 80.00 percent or greater, with a 70.00 percent or better on the SRO-only items, if applicable. If you only take the SRO portion of the exam (as a retake or with an upgrade waiver of the RO exam), you must achieve an 80.00 percent or better to pass. SRO-upgrade applicants who do take the RO portion of the exam and score below 80.00 percent on that part of the exam can still pass overall but may require remediation. Grades will not be rounded up to achieve a passing score. Every question is worth one point.
3. For an initial examination, the nominal time limit for completing the RO examination is six hours, the 25-question, SRO-only exam is three hours, the combined RO/SRO exam is eight hours, and SRO exam limited to fuel handling is four hours; extensions will be considered under extenuating circumstances.
4. You may bring pens, pencils, and calculators into the examination room; programable memories must be erased. Use black ink to ensure legible copies; dark pencil should be used only if necessary to facilitate machine grading.

5. Print your name in the blank provided on the examination cover sheet and the answer sheet. You may be asked to provide the examiner with some form of positive identification.
6. Mark your answers on the answer sheet provided and do not leave any question blank. Use only the paper provided and do not write on the back side of the pages. If you are using ink and decide to change your original answer, draw a single line through the error, enter the desired answer, and initial the change.
7. If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate asking them before answering the question. Ask questions of the NRC examiner or the designated facility instructor *only*. When answering a question, do *not* make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question. For example, you should not assume that any alarm has activated unless the question so states or the alarm is expected to activate as a result of the conditions that are stated in the question. Finally, answer all questions based on actual plant operation, procedures, and references. If you believe that the answer would be different based on simulator operation or training references, you should answer the question based on the *actual plant*.
8. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.
9. When you complete the examination, assemble a package including the examination questions, examination aids, answer sheets, and scrap paper and give it to the NRC examiner or proctor. Remember to sign the statement on the examination cover sheet indicating that the work is your own and that you have neither given nor received assistance in completing the examination. The scrap paper will be disposed of immediately after the examination.
10. After you have turned in your examination, leave the examination area as defined by the proctor or NRC examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.
11. Do you have any questions?

## A N S W E R   S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

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

QUESTION: 001 (1.00)

Given the following CRDM coil rod motion sequence:

- 1. Stationary Gripper Energized at Low Voltage
- 2. Stationary Gripper Energizes at High Voltage
- 3. Movable Gripper Energizes
- 4. Stationary Gripper De-energizes

The next step in the sequence is \_\_\_\_\_ and the rod is being moved \_\_\_\_\_

- a. Lift Coil De-energizes, Inward
- b. Lift Coil Energizes, Outward
- c. Stationary Gripper Energizes at Low Voltage, Inward
- d. Stationary Gripper Energizes at High Voltage, Outward

## QUESTION: 002 (1.00)

With the plant in the operating mode, the reactor operator receives ROD CONTROL SYSTEM ABNORMAL annunciator and SER point 1692, "Rod Control System Non-Urgent Failure." Instrument and Control technicians narrow the problem to the Rod Control Logic Cabinet. What may have caused this condition to occur?

- a. Slave cyclor cycles without a GO pulse
- b. A redundant power supply has been lost
- c. Oscillator fails to generate signals when called for
- d. There is a loose printed circuit card in the logic circuitry

QUESTION: 003 (1.00)

Which of the following conditions results in a Main Steam Isolation?

- a. Containment pressure of 15 psig.
- b. Steamline flow of  $4 \times 10^6$  lb/hr AND an "SI" signal.
- c. Steamline flow of  $5 \times 10^6$  lb/hr AND Tavg of 530°F.
- d. Steamline flow of  $0.8 \times 10^6$  lb/hr, Tavg of 530°F, AND an "SI" signal.

## QUESTION: 004 (1.00)

The unit is at 100% power with Charging pump A operating in automatic. Charging Line Flow Control valve, CVC-7, is throttled to 70%. CVC-7 then fails open. Charging pump A's speed will . . . .

- a. NOT change during this event
- b. decrease at first, then returns to its initial speed
- c. increases at first, then remains above its initial speed
- d. decreases at first, then remains below its initial speed



## QUESTION: 005 (1.00)

A plant startup is in progress with power at 8 percent. Intermediate Range drawer N-36 Level Trip switch is in the BYPASS position. What is the plant response to removal of N-36 control power fuses and the reason for the plant response?

- a. A trip will occur because the Level Trip Switch bypass function will be removed.
- b. A trip will not occur because the Level Trip Switch is in the bypass position and the bypass function is not affected at any power level.
- c. A trip will not occur because the Level Trip Switch is in the bypass position and power is less than P-10.
- d. A trip will occur because the Level Trip Switch bypass function is operable only above P-10.

QUESTION: 006 (1.00)

While operating at 100% power, Graphics Display 4 on PPCS shows the B7 CET temperature to be 592°F.

Which of the following sequence of actions identifies how the operator would display the B7 CET temperature value (Channel 20 on Train B) at the ICCMS panels?

Depress the CET ID/CET TEMP pushbutton to illuminate the...

- a. CET TEMP lamp, then depress the AVG/HOT pushbutton to display the B7 CET temperature.
- b. CET TEMP lamp, then depress the REF1/REF2 pushbutton to display the B7 CET temperature.
- c. CET ID lamp, then depress the REF1/REF2 pushbutton until "B7" is displayed, then depress the CET ID/CET TEMP again to display the B7 CET temperature.
- d. CET ID lamp, then depress the AVG/HOT pushbutton until "20" is displayed, then depress the CET ID/CET TEMP again to display the B7 CET temperature.

QUESTION: 007 (1.00)

Given the following conditions:

- Four CFCUs were running prior to the event
- A Safety Injection signal was just received
- Containment Pressure has increased to 3.5 psig and is currently stable

What condition would you expect the CFCUs to be in at this time?

- a. All CFCUs would be running with SW return isolation valves throttled to maintain temperature
- b. All CFCUs would be running with CFCU Emergency Discharge dampers open and SW return isolation valves throttled to maintain temperature
- c. All CFCUs would be running with SW return isolation valves fully open
- d. All CFCUs would be running with CFCU Emergency Discharge dampers and SW return isolation valves fully open

QUESTION: 008 (1.00)

Given the following conditions:

- The plant has tripped and a Safety Injection signal has been generated.
- Engineered Safeguard Features Actuation System Train A relays have failed to operate ONLY the Service Water System valves.
- Train B relays have operated properly.

At the completion of the SI sequence, what is the status of Service Water flow to Component Cooling Water (CCW) Heat Exchanger 'A', if NO operator action is taken?

- a. There will be NO Service Water flow through the CCW heat exchanger.
- b. SW flow will be at a set constant value lower than its post-accident expected value.
- c. SW flow through the CCW heat exchanger will be at its post-accident expected value.
- d. SW flow will be lower than its post-accident expected value and controlled by the CCW outlet header temperature.

QUESTION: 009 (1.00)

Given the following conditions:

- The plant is at 55% power and steady.
- The "A" Main FW pump is in pullout.
- The "B" Main FW pump is running with two condensate pumps.
- Annunciator 47062-A, "S/G A Program Level Deviation" is LIT.
- All 3 S/G A level indicators are 38% and steady.

Which of the following describes actions to be taken by the operator based on these conditions?

- a. START "A" Main FW pump per N-FW-05B, Feedwater System Normal Operation AND MONITOR "A" S/G level automatic control for proper operation.
- b. REDUCE load to < 50% AND MONITOR "A" S/G level automatic control for proper operation.
- c. Place Feedwater Flow Control Valve FW-7A to MANUAL AND GO to A-MI-87, Bistable Tripping for Failed Reactor Protection or Safeguards Instrumentation.
- d. GO to A-FW-05A, Abnormal Feedwater System Operation, AND DETERMINE if manual feedwater control is required.

QUESTION: 010 (1.00)

Given the following plant conditions:

- The reactor is at 100% power
- All systems are in a normal lineup

Based on these conditions, which one of the following correctly states the power supply to the Reactor Coolant Pumps?

	RXCP A	RXCP B
a.	MAT	MAT
b.	RAT	MAT
c.	MAT	RAT
d.	RAT	RAT

QUESTION: 011 (1.00)

In procedure FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, the step to check if SI can be terminated is based on which of the following parameter(s):

- a. RCS Subcooling ONLY.
- b. RCS Subcooling and RCS Cold Leg Temperatures.
- c. RCS Pressure ONLY.
- d. RCS Pressure and RCS Cold Leg Temperatures.

QUESTION: 012 (1.00)

ECA-2.1, Uncontrolled Depressurization of Both Steam Generators, has been entered from E-2, Faulted Steam Generator Isolation. Containment pressure is 1.0 psig. Each steam generator is being fed at 100 gpm producing an RCS cooldown rate of 120°F/hr. Steam generator water levels are as follows:

- Steam Generator A narrow range levels - 2%
- Steam Generator B narrow range levels - 8%

Based on the conditions above, what is the appropriate initial operator action?

- a. Decrease feed flow to each steam generator to 60 gpm.
- b. Decrease feed flow to "A" steam generator ONLY to 60 gpm.
- c. Increase feed flow as required to maintain "A" steam generator narrow range level greater than or equal to 4%.
- d. Control feed flow as required to maintain RCS hot leg temperatures stable or decreasing.



## QUESTION: 013 (1.00)

The following plant conditions exist:

- A safety injection has actuated
- A transition has been made to ES-1.1, SI Termination
- No charging pump is running
- CC flow to the RXCP thermal barrier HX has been lost since the SI actuation

What action is initially taken associated with RXCP seal cooling and what is the reason for the action?

- a. RXCP seal injection is isolated before starting a charging pump, to avoid taking time to reestablish seal cooling since RXCP seals are already heated up.
- b. A charging pump is started and then CC flow is established to the RXCP thermal barriers, to prevent steam binding of the CC system.
- c. CC flow is established to the RXCP thermal barriers and then a charging pump is started, to prevent RXCP shaft warping.
- d. CC flow is established to the RXCP thermal barriers, to prevent thermal shock to the RXCP seals.

## QUESTION: 014 (1.00)

Given the following plant conditions:

- Reactor trip occurred with subsequent loss of RXCPs.
- RCS Pressure is 800 psig
- Operators have implemented ES-0.2, "Natural Circulation Cooldown" to go to Cold Shutdown.
- A cooldown rate of 25°F/hour has been established.
- RCS depressurization has been initiated
- PZR level - Unexpected large variations are occurring
- RVLIS RXCPs OFF Indication - 90%

The Shift Manager has determined that cooldown and depressurization shall proceed as quickly as possible. Which one of the following describes the appropriate actions?

- a. Pressurize the RCS to collapse the voids, continue the cooldown and remain in ES-0.2, Natural Circulation Cooldown.
- b. Raise the cooldown rate to collapse the voids and remain in ES-0.2, Natural Circulation Cooldown.
- c. Pressurize the RCS to collapse the voids, continue the cooldown and transition to ES-0.3, "Natural Circulation Cooldown With Steam Voids in Vessel."
- d. Raise the cooldown rate to collapse the voids and transition to ES-0.3, "Natural Circulation Cooldown With Steam Voids in Vessel."

QUESTION: 015 (1.00)

Given the following plant conditions:

- The unit is at 80% power.
- Control Bank D rod K7 is stuck at 220 steps (not the most reactive rod).
- All other Control Bank "D" rods are at 220 steps.
- $T_{avg} = 567^{\circ}\text{F}$ .

How would the shutdown margin calculation performed prior to the condition discovered above be affected?

- a. No effect on shutdown margin.
- b. Shutdown margin would be more conservative.
- c. Shutdown margin would be less conservative.
- d. The effect on shutdown margin can not be determined.

QUESTION: 016 (1.00)

Which of the following indications will be inaccurate during the performance of ES-0.2, "Natural Circulation Cooldown," with RXCPs secured?

- a. RCS core exit TCs.
- b. RCS wide range hot leg temperature.
- c. RCS T-average indication.
- d. RCS wide range cold leg temperature.

QUESTION: 017 (1.00)

The following plant conditions exist:

- Reactor power is 80%
- Rod Control is in MANUAL
- All other controls are in AUTO

An inadvertent Emergency Boration was performed for two minutes. Considering steady-state to steady-state conditions, which of the following parameters will NOT change?

- a. Reactor Power
- b. RCS Tavg
- c. Przr Level
- d. S/G Pressure

## QUESTION: 018 (1.00)

Given the following conditions:

- The plant is at 50% power
- Condensate pump A is in pullout
- Condensate pump B is running

If condenser hot well level subsequently decreases to 10%, which one of the actions below is now required?

- a. Startup condensate pump A per N-CD-03, Condensate System.
- b. Address abnormal condensate conditions per A-CD-03, Condensate System Abnormal Operation.
- c. OPEN MU-3B, Condenser Emergency Make-up valve per N-CD-03, Condensate System.
- d. Respond to the reactor trip per E-0, Reactor Trip or Safety Injection

## QUESTION: 019 (1.00)

Due to decreasing condenser vacuum, the operator performs the actions of E-AR-09, Loss of Condenser Vacuum. At one point, condenser pressure increases to 5 inches Hg absolute, and the operator must locally place the hogging jet in service.

In addition to opening MS-400, Steam Supply to Hogging Jet, and throttling MS-401, Steam to Hogging Jet, to maintain between 105-115 psig on PI-11323, four additional valves, listed below, must be aligned to place the hogging jet in service:

- AR-302, Gland Steam Cdsr Exhaust to Outside
- AR-305, Gland Steam Cdsr Exhaust to Vent
- AR-100, Hogging Jet Air Inlet
- AR-2A, First Stage Ejector Inlet

Which of the following is the correct valve alignment?

	AR-302	AR-305	AR-100	AR-2A
a.	CLOSED	OPEN	CLOSED	OPEN
b.	OPEN	CLOSED	OPEN	CLOSED
c.	CLOSED	OPEN	OPEN	CLOSED
d.	OPEN	CLOSED	CLOSED	OPEN

QUESTION: 020 (1.00)

The Gaseous Radioactive Waste System (WG) vent header pressure has just increased to 2 psig. Per A-GWP-32B, the AUTOMATIC ACTIONS the operator must now verify are:

- a. The start of the Waste Gas Compressors.
- b. The closure of Gas Decay Tank inlet isolation valves for the tank selected for fill.
- c. The closure of Gas Decay Tanks to Holdup Tanks valve.
- d. The opening of Gas Decay Tank inlet isolation valve for the tank selected for standby.



QUESTION: 021 (1.00)

The contents of a Gas Decay Tank is being released in accordance with the appropriate administrative controls when Gas Decay Tanks to Plant Vent, WG-36/CV-31215, closed. Which of the following monitors could have caused this to occur?

- a. BOTH R-13 and R-14 (Aux Building Vent Monitors)
- b. BOTH Aux. Area Monitors 03-06 and 03-08 (Beta Air Monitors Aux. Building)
- c. ONLY R-13 (Aux Building Vent Monitor)
- d. ONLY R-14 (Aux Building Vent Monitor)

QUESTION: 022 (1.00)

Which of the following describes the detector types used in Area Radiation Monitors at Kewaunee?

- a. ONLY GM tubes and ion chambers
- b. ONLY ion chambers
- c. ONLY GM tubes
- d. Ion chambers, GM tubes AND scintillation detectors

## QUESTION: 023 (1.00)

Procedure A-RM-45, Abnormal Radiation Monitoring, requires the operator to determine if Post Accident Recirc must be started due to a failure of R-23, Control Room Vent Monitor, by monitoring specific process and area monitors for increasing radiation levels.

Besides R-1, Control Room Area Monitor, what additional AREA Radiation monitor(s), if any, must be monitored and Post Accident Recirc manually started on increasing levels of radiation?

- a. BOTH R-10, New Fuel Pit Area Monitor AND R-5, Fuel Handling Area Monitor.
- b. NO additional Area Radiation Monitors.
- c. ONLY R-10, New Fuel Pit Area Monitor.
- d. ONLY R-5, Fuel Handling Area Monitor.

QUESTION: 024 (1.00)

ES-0.2, Natural Circulation Cooldown, is being implemented. The following conditions exist:

- RCS cold leg Temp is at 380°F.
- RCS Pressure is at 1450 psig.
- All CRDM fans are off and CANNOT be started.
- 18 hour waiting period has begun.

What is the basis for the 18 hour waiting period?

- a. Prevent damage to the CRDM coils due to overheating.
- b. Ensure heat is being removed from the Steam Generator to prevent void formation in the U-tubes.
- c. Minimize void formations in the Reactor Vessel head during subsequent RCS depressurization to place RHR in service.
- d. Allow sufficient flow to the upper head region to make the upper head fluid temperature equal to the cold leg fluid temperature.

QUESTION: 025 (1.00)

The following plant conditions exist:

- PZR pressure control channel selector switch is in the 4-3 position
- PZR pressure yellow channel (PT-449 IV) has just failed low

What is the effect of these conditions on the RCS?

- a. All PZR heaters will come ON; PZR PORVs PR-2A and PR-2B would not be available to open on a subsequent high RCS pressure condition.
- b. PZR heaters are unaffected; ONLY PZR PORV PR-2A would not be available to open on a subsequent high RCS pressure condition.
- c. All PZR heaters will come ON; PZR PORV PR-2A would not be available to open on a subsequent high RCS pressure condition.
- d. PZR heaters are unaffected; PZR PORVs PR-2A and PR-2B would not be available to open on a subsequent high RCS pressure condition.

## QUESTION: 026 (1.00)

Following an ATWS and an SI actuation from 100% power, the Reactor Trip Breakers remain closed. What effect will this have on the plant?

- a. Automatic Turbine Trip will not occur.
- b. Automatic steam line isolation will be blocked.
- c. Automatic SI re-actuation CANNOT be blocked.
- d. Feedwater isolation due to SI actuation will be blocked.

QUESTION: 027 (1.00)

Which of the following parameters is monitored to determine the need to minimize DC loads while performing ECA-0.0, LOSS OF ALL AC POWER?

- a. Battery amps
- b. Battery amp-hours
- c. Battery volts
- d. Battery specific gravity

QUESTION: 028 (1.00)

Given the following:

- The unit is stable at 15% power.
- A failure of Instrument Bus I, BRA-113, occurs.
- All systems and control loops are in their NORMAL position.

Which of the following action(s) are required, if any, to restore pressurizer (PRZR) pressure and level conditions resulting from this failure?

- a. Place PRZR spray valves in MANUAL,  
Position PRZR Pressure Control Switch to another position, AND  
Then place PRZR spray valves back in AUTO.
- b. Place Charging Pump Speed control to MANUAL,  
Position PRZR Level Control Switch to another position, AND  
Then place Charging Pump Speed control back to AUTO.
- c. Position PRZR Level Control Switch to another position, AND  
Then restore normal letdown and PRZR heaters.
- d. No actions are required to restore PRZR pressure and level.



QUESTION: 029 (1.00)

Which one of the following would cause annunciator 47041-P, ROD BOTTOM ROD DROP, to alarm?

- a. Control Bank B demand is 38 and a Control Bank B IRPI reads 18.
- b. Control Bank A demand is 18 and a Control Bank A IRPI reads 32.
- c. Shutdown Bank B demand is 32 and a Shutdown Bank B IRPI reads 18.
- d. Shutdown Bank A demand is 18 and a Shutdown Bank A IRPI reads 32.

QUESTION: 030 (1.00)

Given the following:

- There has been a fire necessitating the evacuation of the control room.
- E-0-06, Fire in Alternate Fire Zone has been entered from E-FP-08, Emergency Operating Procedure - Fire.

Which of the following indications is available at the Dedicated Shutdown Panel?

- a. S/G 1A Narrow Range Level
- b. Charging Flow
- c. RWST Level
- d. Reactor Coolant Loop B Hot Leg Temp

QUESTION: 031 (1.00)

Given the following conditions:

- A large break LOCA occurs.
- Containment pressure is observed to be 25 psig.
- Containment Spray has NOT initiated.
- Manual actuation of Containment Spray has been unsuccessful.
- All other ESF actuations and components have functioned normally.

What actions need to be taken to manually initiate Containment Spray for Train A?

Manual start of ICS Pump A and ...

- (1) ICS-5A/MV-32066 and ICS-6A/MV32067, Ctmt Spray Pump A Discharge Isolation valves
  - (2) ICS-201/CV-31272 and ICS-202/CV31273, ICS Recirculation RWST valves
  - (3) CI-1001A/CV31393 and CI-1001B/CV-31394, Caustic Additive to Ctmt Spray valves
- 
- a. (1) check auto open (2) check closed (3) check auto open
  - b. (1) manual open (2) check closed (3) check auto open
  - c. (1) manual open (2) check closed (3) manual open
  - d. (1) manual open (2) manual close (3) manual open

QUESTION: 032 (1.00)

Given the following conditions:

- Radiation Monitor R-11, Containment Atmosphere, is in HIGH alarm.
- All other plant conditions are normal

Which of the following lists valves in the Reactor Building Ventilation System to be verified automatically CLOSED by the operator?

- a. ONLY the following valves:
  - TAV-12, Cntmt Purge/Vent Supply
  - RBV-2, Cntmt Purge/Vent Supply B
  - RBV-5, Cntmt Purge/Vent Exhaust
  - RBV-3, Cntmt Purge/Vent Exhaust B
  - SA-7003B, Hydrogen Dilution to Cnmt
  - LOCA-2B, Post LOCA H2 Cntmt Vent Isol B.
- b. ONLY the following valves:
  - TAV-12, Cntmt Purge/Vent Supply
  - RBV-5, Cntmt Purge/Vent Exhaust
  - SA-7003B, Hydrogen Dilution to Cnmt
  - LOCA-2B, Post LOCA H2 Cntmt Vent Isol B.
- c. ONLY the following valves:
  - TAV-12, Cntmt Purge/Vent Supply
  - RBV-2, Cntmt Purge/Vent Supply B
  - RBV-5, Cntmt Purge/Vent Exhaust
  - RBV-3, Cntmt Purge/Vent Exhaust B.
- d. ONLY the following valves:
  - RBV-2, Cntmt Purge/Vent Supply B
  - RBV-3, Cntmt Purge/Vent Exhaust B
  - SA-7003B, Hydrogen Dilution to Cnmt
  - LOCA-2B, Post LOCA H2 Cntmt Vent Isol B.

QUESTION: 033 (1.00)

ECA-1.1, Loss of Emergency Coolant Recirculation, determines the required number of operating ICS pumps based on which of the following?

- a. Containment pressure, containment temperature, and sump level.
- b. Containment pressure, operating CFCUs, and sump level.
- c. Containment temperature, operating CFCUs, and RWST level.
- d. Containment pressure, operating CFCUs, and RWST level.

## QUESTION: 034 (1.00)

The plant is at 100% power when control room operators receive SPENT FUEL POOL ABNORMAL Annunciator. The SFP level is decreasing AND is lower than the SFP canal level. The CRS instructs you to initiate makeup to the SFP. Per procedure A-SFP-21, Abnormal SFP Cooling and Cleanup System Operation, you would use. . .

- a. the RWST
- b. Service Water
- c. the Reactor Makeup Control System
- d. Reactor Makeup Water through manual makeup valve

## QUESTION: 035 (1.00)

The Unit is at 40% power in a power ascension to full power. All systems are aligned in their normal lineups for the current power level except Turbine EHC control is in MANUAL-IMP OUT. The operator depresses the CV raise pushbutton for 2 seconds to continue the load ascension. Which of the following is the response of the main feedwater regulating valves to this action?

The Main Feedwater Regulating Valves will initially throttle...

- a. CLOSED due to swell, and then throttle OPEN when level drops below 44%.
- b. OPEN due to the steam flow/feed flow mismatch, and then regulate to control level at 44%.
- c. CLOSED due to the steam flow/feed flow mismatch, and then throttle OPEN when level drops below 44%.
- d. OPEN due to shrink, and then regulate to control level at 44%.

QUESTION: 036 (1.00)

SP-05B-284, "Turbine Driven AFW Pump Full Flow Test - IST," was in progress. The turbine driven auxiliary feedwater pump (TDAFP) was started and had been running for 2 minutes.

Alarm window 47062-N, "T/D AFW Pump Abnormal" then annunciates and the NAO reports the TDAFP auxiliary lube oil pump is continuously stopping and starting with lube oil pressure fluctuating between 8 and 17 psig.

Which ONE of the following correctly explains the above conditions?

- a. Conditions are normal, no operator action is required, the test should continue.
- b. Conditions are normal, the NAO should be directed to locally shutdown the auxiliary lube oil pump, the test should continue.
- c. The shaft driven pump has malfunctioned, the test should be terminated.
- d. The Auxiliary Lube Oil Pump has malfunctioned, the test should be terminated.



## QUESTION: 037 (1.00)

Given the following conditions:

- The plant is at 100% power
- S/G blowdown is in service in Mode II
- Condenser air removal is aligned for normal operation
- The NCO positions the R-19 keyswitch to the OFF position

Which of the following describes the effect of the operator actions?

- a. Blowdown flowpath switches to Mode I alignment.
- b. Blowdown flowpath switches to the Primary Sampling System.
- c. Condenser Air Ejector discharge AR-6 (CV-31168) remains in the duct position.
- d. Condenser Air Ejector discharge AR-6 (CV-31168) switches to its ATM position.

## QUESTION: 038 (1.00)

During a liquid radwaste discharge from the Waste Condensate Tanks to the Auxiliary building standpipe, control room operators receive a Waste Disposal Panel Trouble Alarm and dispatch an operator. The operator reports from the Waste Disposal Panel (53702) that "LIQUID WASTE MONITOR R-18 HIGH RADIATION" has alarmed. Radiation Monitor R-18 is verified to be alarming, but automatic action(s) do NOT occur. What automatic operation of A-RM-45, Abnormal Radiation Monitoring System must now be performed manually?

- a. Manually close WD-19, Waste Liquid Discharge Isolation Valve .
- b. Manually close WD-17, Waste Condensate Pumps Discharge Valve.
- c. Manually close WD-22, Waste Condensate Pumps to Auxiliary Building Standpipe.
- d. Stop Waste Condensate Pump 1A.

QUESTION: 039 (1.00)

When the RHR system is placed in the shutdown cooling mode of operation, component cooling is \_\_ (1) \_\_ aligned to the associated RHR heat exchanger prior to RHR pump start AND component cooling flows through the \_\_ (2) \_\_ side of the RHR heat exchanger.

- |    | (1)           | (2)   |
|----|---------------|-------|
| a. | Automatically | Tube  |
| b. | Manually      | Tube  |
| c. | Automatically | Shell |
| d. | Manually      | Shell |

QUESTION: 040 (1.00)

A LOCA has occurred. Post-LOCA containment hydrogen concentration is 7%. What method is available to address hydrogen control in the containment?

- a. dilute the containment atmosphere.
- b. place the Hydrogen Recombiner in service.
- c. vent containment through the Shield Building Ventilation System.
- d. spray containment using the containment spray pumps.

## QUESTION: 041 (1.00)

During refueling operations, an irradiated fuel assembly is dropped in the reactor vessel. A fuel handler reports to the control room that gas bubbles are emanating from the dropped assembly. Shortly afterwards, R-11 alarms on high radiation. The control room operator enters E-FH-53A, "Dropped or Damaged Fuel Assembly" procedure and \_\_\_\_ (1) \_\_\_\_\_. Controls for the R11 alarm \_\_\_\_ (2) \_\_\_\_\_.

- a. (1) verifies that the Auxiliary Building Special Vent system starts  
(2) automatically stops upward movement of the manipulator hoist
- b. (1) verifies that the Containment Vent Isolation occurred  
(2) do NOT affect the fuel handling system
- c. (1) actuates the containment evacuation alarm  
(2) automatically stops movement of the manipulator trolley and bridge
- d. (1) orders the affected area evacuated  
(2) automatically stops upward movement of the manipulator hoist

## QUESTION: 042 (1.00)

In the event that access to an area with radiation levels in excess of 1000 mrem/hour CANNOT be prevented using a locked door, Technical Specification 6.13 requires the area to be roped off and conspicuously posted.

Which one of the following lists the additional measure that fulfills the requirements of Technical Specifications for the entrance to this area?

- a. Install an audible alarm.
- b. Setup a control point.
- c. Install a flashing light.
- d. Setup a dose rate indicating device.

QUESTION: 043 (1.00)

Air Compressor A is operating when cooling water to the compressor is inadvertently isolated. The air compressor will trip...

- a. due to low jacket water pressure.
- b. when the limit for oil temperature is exceeded.
- c. when the limit for air outlet temperature is exceeded.
- d. due to seal leakage resulting in low air discharge pressure.

QUESTION: 044 (1.00)

Given the following:

- RCS Average Temperature = 547°F.
- The reactor is critical at approximately 3% power.
- The "B" Diesel Generator is inoperable.
- The NORMAL power supply for pressurizer heater control group "A" was taken out of service to repair a breaker fault.

Which of the following describes the Technical Specification operability and required actions for the pressurizer heaters, if any?

- a. Technical Specifications requirements are MET and no action is required.
- b. Technical Specifications requirements are NOT met, and within 1 hour action is required to go to at least HOT STANDBY within the next 6 hours.
- c. Technical Specifications requirements are NOT met, and within 1 hour action is required to go to at least HOT SHUTDOWN within the next 6 hours.
- d. Technical Specifications requirements are NOT met, and within 1 hour action is required to go to at least COLD SHUTDOWN within the next 36 hours.



QUESTION: 045 (1.00)

Which of the following uses Safeguard 125 VDC power as the NORMAL power supply?

- a. Bus 4 Circuit Breaker Control
- b. 7.5 KVA Inverter BRA-111
- c. Reactor Trip Breaker shunt trip coil
- d. Non-interruptible Bus BRD-115

QUESTION: 046 (1.00)

Power is lost to BRB-104. Which component(s) associated with the 1B EDG will be affected by this condition?

- A. Field flash circuit AND jacket water pumps ONLY
- B. Field flash circuit AND fuel oil priming pump ONLY
- C. Jacket water pumps AND immersion heaters ONLY
- D. Fuel oil priming pump AND starting air compressors ONLY

QUESTION: 047 (1.00)

Which of the following correctly describes the effect of a failure (HIGH) of R-15, Air Ejector Exhaust Monitor during a release?

- (1) Air Ejector Discharge Vent. AR-6/CV-31168 positions to DUCT
- (2) S/G Blowdown Isolation valves CLOSE
- (3) S/G Sample Isolation valves CLOSE
- (4) Humidification Steam Inlet CV HS-17-1/CV31770 CLOSES

- a. ONLY (1), (2) AND (3) occur
- b. ONLY (2) AND (3) occur
- c. (1), (2), (3) AND (4) occur
- d. ONLY (2), (3) AND (4) occur

QUESTION: 048 (1.00)

Which of the following describes the CW condition(s) that would provide an interlock to PREVENT starting a CW pump?

- (I) Seal Water Flow < 2 gpm
  - (II) "Forebay Level Low Low" (566' or 42%)
  - (III) Thrust Bearing Cooler Flow < 4 gpm
- 
- a. ONLY (II)
  - b. ONLY (I) and (III)
  - c. ONLY (II) and (III)
  - d. (I), (II) and (III)

## QUESTION: 049 (1.00)

A malfunction of ONE of the "A" Diesel Generator Room CO<sub>2</sub> temperature switches occurs, causing it to fail HIGH. Which of the following describes the response of the CO<sub>2</sub> system to the "A" Diesel Generator Room?

- a. The CO<sub>2</sub> actuation sequence will not begin until a second switch actuation occurs.
- b. The CO<sub>2</sub> actuation sequence will sound a local horn, but will not discharge.
- c. The CO<sub>2</sub> actuation sequence will sound a local horn and then discharge.
- d. The CO<sub>2</sub> actuation sequence will start a local, flashing red light, sound a local horn and then discharge.

QUESTION: 050 (1.00)

Given the following conditions:

- The plant is at 100% power.
- All lineups/switch positions are in their NORMAL position.
- Pressurizer Level Channel LT-426 (Channel I) fails LOW

What is the status of the following BEFORE any operator actions are taken?

	Letdown Flow Indication	"Pressurizer Level Low" Annunciator
a.	Normal	LIT
b.	Normal	Not LIT
c.	Zero	LIT
d.	Zero	Not Lit

QUESTION: 051 (1.00)

Given the following conditions:

- Steam Generator NR Levels are 88%
- MSIVs are CLOSED

Per Procedure FR-H.2, "Response to Steam Generator Overpressure", which of the methods given below has PRIORITY for decreasing S/G pressure?

- a. Dump steam using SG PORVs
- b. Isolate AFW to the S/Gs
- c. Dump steam using Steam Supply to Turbine-Driven AFW Pump
- d. Dump steam using Main Steam Isolation Bypass Valves

QUESTION: 052 (1.00)

In addressing a PRZR relief valve (PORV) that is stuck open, the associated block valve must be closed. Which of the following indication(s) can be used to identify which PORV is stuck open?

- (I) PR-2A(B) indicating lights on the Mechanical Console C
  - (II) Acoustic monitor indicating lights on the Mechanical Console C
  - (III) Outlet temperatures for each PORV
- 
- a. ONLY (I)
  - b. ONLY (I) OR (III)
  - c. ONLY (II) OR (III)
  - d. (I), (II) OR (III)



QUESTION: 053 (1.00)

A LOCA has occurred and a controlled RCS cooldown and depressurization per ES-1.2, "Post LOCA Cooldown and Depressurization" is in progress. ALL ECCS equipment is OPERABLE. RCS Pressure and Temperature is 1500 psig / 480°F. After SI pump A is secured as part of the RCS cooldown and depressurization, the following alarms occur:

- 47022-D, "CONTAINMENT HIGH PRESSURE SI"
- 47024-A, "ACCUMULATOR A PRESSURE HIGH/LOW"
- 47024-B, "ACCUMULATOR A LEVEL HIGH/LOW"

What action(s) must be taken, if any, based on these conditions:

- a. Trip both RCPs.
- b. Restart SI pump A.
- c. Trip both RCPs AND Restart SI pump A.
- d. No action required.

QUESTION: 054 (1.00)

Which of the following systems is considered to be the most likely location for a rupture or break outside containment, and therefore is the system of primary concern during ECA-1.2, "LOCA Outside Containment"?

- a. Safety Injection
- b. Residual Heat Removal
- c. Component Cooling
- d. Chemical and Volume Control

QUESTION: 055 (1.00)

Given the following conditions:

- A loss of normal feedwater flow has occurred.
- The actions of FR-S.1 "Response to Nuclear Power Generation/ATWS" must be performed due to a failure of the plant to trip

Which of the following describes the proper sequence of steps to be taken with a failure of the reactor to trip, AFTER beginning to manually insert the Control Rods?

- (I) - Locally Open Reactor Trip Breakers
  - (II) - Open Bus 33 and Bus 43 supply breakers
  - (III) - TRIP Rod Drive MG Set Motor & Generator Circuit Breaker Control Switches
- 
- a. (I), (II), and THEN (III).
  - b. (II), (I), and THEN (III).
  - c. (II), (III), and THEN (I).
  - d. (III), (II), and THEN (I).

QUESTION: 056 (1.00)

Given the following conditions:

- Reactor power is 100%
- VCT level transmitter LT-112 (24015) fails high (100%)

Which of the following describes what occurs if NO operator action is taken?

VCT level decreases \_\_\_\_\_.

- a. because auto makeup capacity is not able to maintain VCT level with letdown diverted
- b. with NO auto makeup capability causing charging suction to shift to the RWST
- c. until charging pumps lose suction and start to cavitate
- d. until auto makeup starts and maintains VCT level

QUESTION: 057 (1.00)

Given the following conditions:

- The plant is at 255°F, cooling down to Cold Shutdown with RHR Train A.
- RHR Train B is out of service for testing.
- Annunciator 47024-H, CC SURGE TANK LEVEL HIGH/LOW is LIT.
- CC Surge Tank Level is 53% and INCREASING.
- R-17, Component Cooling Liquid Rad Monitor, is in HIGH ALARM.
- VCT level is DECREASING.
- All other indications are NORMAL.

Which of the following is the location of the leak?

- a. RHR system.
- b. SFP heat exchanger.
- c. Seal Water heat exchanger.
- d. SW system.

QUESTION: 058 (1.00)

Complete the following statement:

Source Range neutron detectors operate in the \_\_\_\_ (1) \_\_\_\_ region, so decreasing the detector voltage beyond calibration limits would result in a \_\_\_\_ (2) \_\_\_\_ indicated power level.

- a. (1) Ionization, (2) higher
- b. (1) Proportional, (2) higher
- c. (1) Ionization, (2) lower
- d. (1) Proportional, (2) lower

QUESTION: 059 (1.00)

The following conditions exist:

- A reactor startup has been completed per N-CRD-49B, "Reactor Startup".
- The Source Range trip is blocked.
- The N35 Intermediate Range channel is failed LOW with the level trip bypassed.
- The N36 Intermediate Range channel is reading ERRATICALLY.
- Source Range counts have just reached  $10^6$  CPS

What is the expected indication on the intermediate range nuclear instruments for this condition?

- a.  $10^{-3}$  % Power (IR)
- b.  $10^{-2}$  % Power (IR)
- c.  $10^{-1}$  % Power (IR)
- d.  $10^0$  or 1% Power (IR)

QUESTION: 060 (1.00)

The plant is at 100% power. TLA-15, RMS ABOVE NORMAL is in alarm due to increasing radiation level on R-19, S/G Blowdown Liquid Monitor. What action(s) must be taken based on these conditions?

- a. IF the radiation level on R-19, S/G Blowdown Liquid Monitor increases to HIGH alarm, THEN go to E-0-14, "Steam Generator Tube Leak."
- b. Go to E-0-14, "Steam Generator Tube Leak" and perform Operator immediate actions.
- c. Go to A-RM-45, "Abnormal Radiation Monitoring System" and verify the automatic actions occur as listed for R-19, S/G Blowdown Liquid Monitor.
- d. Per A-RM-45, "Abnormal Radiation Monitoring System" determine primary-to-secondary leak rate using "R-19 to Leakage Rate Conversion Graph."



QUESTION: 061 (1.00)

Which of the following describes the reason for tripping both RXCPs, if required, per step 1 of E-3, "Steam Generator Tube Rupture?"

- a. To minimize the potential for RCP damage when an RCS depressurization is initiated.
- b. To minimize the heat input when a controlled RCS cooldown is initiated.
- c. To prevent the automatic opening of a pressurizer PORV.
- d. To prevent unnecessary RCS water depletion.

QUESTION: 062 (1.00)

The following plant conditions exist:

- FR-H.1, Response to Loss of Secondary Heat Sink is in progress.
- The CST is unavailable.
- Yarway wide range S/G levels are at 20%.
- RCS pressure is at 2200 psig.
- Containment pressure is 1 psig.

Which of the following heat removal methods is available, if any, before RCS bleed and feed is required AND what is the preferred sequence for establishing flow to at least one S/G?

- (1) Depressurize SG and establish Condensate flow
- (2) Establish AFW flow using Service Water
- (3) Establish Main Feedwater flow

- a. (2), (3), (1)
- b. (3), (2), (1)
- c. (3), (1), (2)
- d. No S/G heat removal method is available; RCS bleed and feed is required immediately.

QUESTION: 063 (1.00)

Which of the following places the plant in a 1 hour Limiting Condition of Operation per Technical Specifications?

- a. BRA-101, Station Battery A, fuse blows.
- b. BRA-108, Battery Charger A, damaged due to fire.
- c. BRA-102, DC Distribution Train A, damaged bus bar.
- d. BRA-111, Instrument Bus 1 Inverter, damaged rectifier.

QUESTION: 064 (1.00)

The following plant conditions exist:

- An accidental gaseous release has occurred.
- The derived air concentration (DAC) of this release is 4 DAC.

Which of the following is the expected exposure to the whole body of a worker breathing air in this area for 30 minutes?

- a. 2 mrem
- b. 5 mrem
- c. 8 mrem
- d. 10 mrem

## QUESTION: 065 (1.00)

The plant is operating at 100% power. Annunciator 47033-35, TLA-15, RMS ABOVE NORMAL, alarms due to rising count rate on R-42, S/G A N16 Monitor.

Plant conditions:

- Pressurizer level: 47%, stable.
- Pressurizer pressure: 2235 psig.

Which of the following describes the action or actions required for this situation?

- a. Enter E-0-14, Steam Generator Tube Leak.
- b. Manually trip the reactor and enter E-0, Reactor Trip or Safety Injection.
- c. Contact Health Physics to assist in identifying the radiation source.
- d. Evacuate the reactor building.

QUESTION: 066 (1.00)

Given the following conditions:

- A LOCA has occurred
- The crew is performing a cooldown per ES-1.2 "Post LOCA Cooldown and Depressurization"
- Two Containment Cooling Fan Coil Units are running
- Containment pressure is stable at 2.2 psig
- A transition to FR-Z.3 "Response to High Containment Radiation Level" is made on a YELLOW path condition

Why does FR-Z.3 start idle Containment Cooling Fan Coil Units?

- a. To remove radioactive particulates during condensation of water vapor.
- b. To remove radioactive gases during condensation of water vapor.
- c. To support Containment Purge and Vent Subsystem Exhaust filtration.
- d. To support Containment Purge and Vent Subsystem Purge filtration.

QUESTION: 067 (1.00)

Given the following conditions:

- A fire has occurred on site.
- E-0-06, "Fire in Alternate Fire Zone" is being implemented.

Complete the following statement:

During implementation of E-0-06, only \_\_\_\_ (1) \_\_\_\_ equipment is being controlled from the Dedicated Shutdown Panel and offsite power is considered to be \_\_\_\_ (2) \_\_\_\_.

\_\_\_\_ (1) \_\_\_\_

\_\_\_\_ (2) \_\_\_\_

- |    |         |               |
|----|---------|---------------|
| a. | Train A | available     |
| b. | Train A | NOT available |
| c. | Train B | available     |
| d. | Train B | NOT available |

QUESTION: 068 (1.00)

The plant was operating at 100% power when the following events occurred:

- 0100: RC-413, Pressurizer Liquid Sampling Isolation valve is determined to be INOPERABLE.
- 0200: RC-412, Pressurizer Liquid Sampling Isolation valve is determined to be INOPERABLE.

What log entry or entries need to be made to track these inoperable valves?

- a. An entry for each valve in the Shift Manager's Log AND in the Shift Manager's LCO Tracking Log at the time they became INOPERABLE.
- b. An entry for each valve in the Control Room Log AND in the Shift Manager's LCO Tracking Log at the time the valves were discovered to be INOPERABLE.
- c. An entry in the Shift Manager's Log AND the Control Room Log for each valve at the time they became INOPERABLE, AND an entry in the Control Room Shift Turnover Checklist at shift turnover.
- d. One log entry for both valves in the Control Room Shift Turnover Checklist at shift turnover AND an entry for each valve in the Periodic Daily Log at the time each valve became INOPERABLE.



QUESTION: 069 (1.00)

Given the following:

- A LOCA has occurred.
- Containment Pressure is 6 psig.
- Core Exit Thermocouples are at 600°F.
- RCS pressure is 200 psig.
- RHR is in its at-power lineup.
- FR-C.3, Response to Saturated Core Cooling, is being implemented.

What flows to the RCS must be verified per FR-C.3, Response to Saturated Core Cooling?

- a. Charging pump flow ONLY.
- b. RHR and SI pump flows ONLY.
- c. SI pump flow ONLY.
- d. Charging and SI pump flows ONLY.

QUESTION: 070 (1.00)

The following conditions exist:

- A runback from 80% to 60% power occurred 2 hours ago.
- Chemistry samples of the RCS indicate high dose-equivalent I-131.

Why is it desirable to increase letdown flow through the CVC mixed bed demineralizers to 80 gpm under these conditions?

- a. To reduce RCS activity.
- b. To control RCS pH.
- c. To reduce RCS corrosion products.
- d. To control RCS boron concentration.

QUESTION: 071 (1.00)

While performing ECA-1.1, Loss of Emergency Coolant Recirculation, the "RHR Pump A Supply to ICS Pump A", valve RHR-400A could not be operated from the control room. The step's contingency action states "Locally open valve". On which elevation of the auxiliary building is this valve located?

- a. 572'
- b. 586'
- c. 606'
- d. 626'

QUESTION: 072 (1.00)

In order to establish a Containment Purge in HOT SHUTDOWN, which of the following is required?

1. Notify NRC prior to opening 36" RBV valves.
  2. Obtain a Gaseous Waste Discharge Permit.
  3. Verify Annunciator 47051-B, "Containment Vent High Radiation Disabled" is CLEAR.
- 
- a. ONLY 1 and 2.
  - b. ONLY 1 and 3.
  - c. ONLY 2 and 3.
  - d. 1, 2 and 3.

QUESTION: 073 (1.00)

For a Steam Line Break of a given size and location, which of the following initial conditions results in the smallest reactivity rate of change immediately after the break?

	CORE BURNUP (MWD/MTU)	RCS Tavg
a.	9000	450°F
b.	9000	547°F
c.	5000	450°F
d.	5000	547°F

QUESTION: 074 (1.00)

Given the following:

- Reactor power is stabilized at the eight-fold power level.
- The Eight-Fold Critical Rod Position is determined to be 65 steps on Control Bank C.

Which action is required in this situation?

- a. Emergency Borate 300 gallons.
- b. SHUT DOWN the reactor per N-CRD-49C, "Reactor Shutdown"
- c. Get permission from Station Nuclear Engineer to continue with the startup.
- d. Verify the Eight-fold Critical Rod Position is within +400pcm of ECP

QUESTION: 075 (1.00)

Given the following:

- The plant is in normal 100% power operations.
- Containment Fan Coil Units Emergency Discharge Dampers RBV-150 A and B both fail OPEN.

What is the major concern at this time?

- a. Damage to the Nuclear Instrumentation.
- b. Damage to the Reactor Vessel Gap.
- c. RXCP A motor stator overheating.
- d. RXCP B motor stator overheating.

QUESTION: 076 (1.00)

Given the following:

- Reactor Power is 80%.
- An unexplained rod withdrawal occurred.
- Rods were placed in manual per A-CRD-49, "Abnormal Rod Control Operations"
- Tech Spec 3.10.e, Rod Misalignment Limitations, evaluation is being performed

Which of the following identifies the alignment limit and what is the reason for the limit?

- a. +12 steps from bank demand to limit core peaking factors.
- b. +12 steps from bank demand to assure symmetric power distribution.
- c. +24 steps from bank demand to limit the effects of a rod ejection accident.
- d. +24 steps from bank demand to assure adequate shutdown margin.



QUESTION: 077 (1.00)

Given the following:

- Reactor Power is 90%.
- An unexpected rod motion is being addressed per A-CRD-49, "Abnormal Rod Control Operations." Which of the following properly describes the initial actions to be taken in the sequence listed?

- (1) Check for turbine runback.
- (2) Check for dropped rod.
- (3) Position Bank Selector to MANUAL.
- (4) Dispatch Auxiliary Operator to CRD Equipment Room.

- a. (2), (1), (3)
- b. (1), (3), (2)
- c. (3), (1), (2), (4)
- d. (4), (2), (1), (3)

## QUESTION: 078 (1.00)

The plant is operating at 95% power due to rod G7 in control bank C dropping (ratcheting) inwards to position 170 steps. Reactor Engineering just informed you that:

- FQN(Z) exceeds COLR limits by 5%
- F HN exceeds COLR limits in the vicinity of the dropped rod.
- Axial Flux remains within the limits of COLR Figure 7, Axial Flux Difference.

In order to comply with the most stringent Technical Specifications power distribution limits, you order power reduced to below ....?

- a. 90% within 15 minutes.
- b. 50% within 1 hour.
- c. 90% within 1 hour.
- d. 50% within 4 hours.

QUESTION: 079 (1.00)

Given the following:

- A LOCA has occurred from full power operations.
- Reactor Coolant System pressure is 140 psig.
- Residual Heat Removal injection flow is 0 gpm.
- E-1, Loss of Reactor or Secondary Coolant, is in progress at step 18, "Check If RCS Cooldown and Depressurization is Required."

Which procedure is appropriate for this plant condition and what is the reason?

- a. Stay in E-1, Loss of Reactor or Secondary Coolant, Reactor Coolant System pressure is too low to go to ES-1.2.
- b. Stay in E-1, Loss of Reactor or Secondary Coolant, Residual Heat Removal flow will be established in E-1.
- c. Go to ES-1.2, Post LOCA Cooldown & Depressurize, Residual Heat Removal flow has NOT been verified in E-1.
- d. Go to ES-1.2, Post LOCA Cooldown & Depressurize, Reactor Coolant System pressure is too high to cooldown to stay in E-1.

QUESTION: 080 (1.00)

A LOCA occurred and ECA-1.1, "Loss of Emergency Coolant Recirculation" has been entered. Containment pressure peaked at 20 psig. The final step in ECA-1.1 directs the operator to consult with the Emergency Director (ED). Which of the following shall be addressed by the ED at this time?

- a. the adjustment of containment sump pH
- b. locating the source of the break
- c. minimizing the loss of RCS inventory
- d. verifying the break is isolated

## QUESTION: 081 (1.00)

The reactor has just tripped from 100% power. Both Pressurizer PORVs have excessive seat leakage. Both PORV block valves are closed and remain energized. ONE block valve then becomes inoperable.

Which of the following provides the minimum capacity for adequate protection against RCS over pressurization assuming residual heat is not removed by any other means?

- a. ONE Safety Valve only
- b. ONE Safety Valve and ONE PORV only
- c. TWO Safety Valves only
- d. TWO Safety Valves and ONE PORV only

QUESTION: 082 (1.00)

Given the following:

- Refueling operations are in progress
- Irradiated fuel is being moved in the Manipulator Crane from the core to the reactor building upender for transfer to the spent fuel pool.
- Decreasing Spent Fuel Pool water level has been reported.
- Operator immediate actions of E-FH-53B, "Loss of Reactor Cavity Inventory During Fuel Movement," have been performed.

Identify the responsibility of the SRO in containment assigned to the fuel shuffle during this event.

- a. Locate the Manipulator Crane to the south end of the Reactor Cavity.
- b. Store the irradiated fuel assembly in the Manipulator Crane Mast by lowering the assembly into the transfer system sump and unlatch.
- c. Store the irradiated fuel assembly in the Manipulator Crane Mast by lowering the assembly to any available lower core support plate location and unlatch.
- d. Ensure at least one door in each personnel air lock is closed.

## QUESTION: 083 (1.00)

The following conditions are observed after a liquid radwaste spill in the Aux. Building:

- Aux. Building normal vent & supply exhaust fans have automatically shut down.
- Train B Zone SV Exhaust Fan and Train B Safeguards Fan Coil Units have started.
- SFP Ventilation has repositioned to charcoal filtration mode.
- R-11 and R-12 Sample Valves remain aligned to Aux. Building Vent.

Based on the above, which of the following radiation monitors have gone into high alarm?

- a. Aux. Building Vent. Monitor R-13
- b. Aux. Building Vent. Monitor R-14
- c. Fan Coil Unit Monitor R-16
- d. Waste Disposal System Effluent Monitor R-18

## QUESTION: 084 (1.00)

The plant is at 25% power with Service Water pumps A1, A2, and B1 in service. Then:

- Annunciator 47051-N, "Forebay Level Low" is LIT.
- Forebay Level is 40% and decreasing per LI-41551.
- Service Water Pump amps are fluctuating.
- Circulating Water Pump A is running.

Based on the conditions above, what actions must be taken and which procedure requires these actions?

- a. Stop Service Water pumps in alternating trains ONLY until cavitation stops per A-SW-02, "Abnormal Service Water System Operation."
- b. Trip the reactor, THEN immediately trip ALL Circulating Water Pumps per E-CW-04, "Loss Of Circulating Water."
- c. Trip the reactor, THEN stop Service Water pumps in alternating trains ONLY until cavitation stops per A-SW-02, "Abnormal Service Water System Operation."
- d. Immediately trip ALL Circulating Water Pumps, THEN Trip the reactor, per E-CW-04, "Loss Of Circulating Water."



QUESTION: 085 (1.00)

A plant startup is in progress at 6% power. The main turbine is being rolled to 1800 rpm. Then:

- Instrument Air Header pressure subsequently decreases to 50 psig.
- The green and red lamps for MS-1B, Main Steam Isolation Valve, are lit.

What action is required to be performed FIRST?

- a. Start air compressors as required and go to E-AS-01, Loss of Instrument Air.
- b. Trip the main turbine and go to A-MS-06, Abnormal Main Steam and Steam Dump System Operation.
- c. Start the AFW pump(s) and trip the running main FW pump per N-0-2, Plant Startup from Hot Shutdown to 35% Power.
- d. Trip the reactor and go to E-0, Reactor Trip or Safety Injection.

QUESTION: 086 (1.00)

Given the following:

- The reactor is at 10% power
- Containment pressure is 6 psig.
- E-0, Reactor Trip or Safety Injection, Step 1 Operator AND Contingency Actions were unsuccessful.
- An operator has been dispatched to open reactor trip breakers.
- The Turbine has been tripped.
- AFW pumps A and B are running.
- SG narrow range levels: both 6%.

What actions should be taken with respect to AFW in this situation?

- a. Place TD AFW pump to pullout and control AFW flow rate to maintain greater than 4% narrow range SG level.
- b. Manually start the TD AFW pump and maintain AFW flow rate greater than 200 gpm.
- c. Manually start the TD AFW pump and maintain AFW flow rate greater than 400 gpm.
- d. Place the TD AFW pump to pullout and maintain AFW flow rate greater than 200 gpm.

QUESTION: 087 (1.00)

Given the following conditions:

- Reactor Power is initially 1%, with a reactor startup in progress.
- Annunciator 47021-I, "RXCP CC Flow Low" is LIT.
- A-CC-31, Abnormal Component Cooling System Operation, step 5, "Check CC Flow to RXCPs Motor Bearing Oil Coolers" is in progress.

Complete the following statement:

If component cooling is lost to any RXCP for \_\_\_\_ (1) \_\_\_\_, immediately  
\_\_\_\_ (2) \_\_\_\_.

\_\_\_\_ (1) \_\_\_\_                      \_\_\_\_ (2) \_\_\_\_

- |    |            |   |
|----|------------|---|
| a. | >2 Minutes | stop the affected RXCP and then shutdown the reactor per N-0-4, 35% power to Hot Shutdown     |
| b. | >2 Minutes | trip the reactor, go to E-0, Reactor Trip or Safety Injection and then stop the affected RXCP |
| c. | >5 Minutes | stop the affected RXCP and then shutdown the reactor per N-0-4, 35% power to Hot Shutdown     |
| d. | >5 Minutes | trip the reactor, go to E-0, Reactor Trip or Safety Injection and then stop the affected RXCP |

QUESTION: 088 (1.00)

Given the following:

- A Safety Injection has occurred on high containment pressure.
- Containment pressure is 10 psig and stable.
- RCS pressure is 500 psig and stable.
- "A" Steam Generator narrow range level is 40% and stable.
- "B" Steam Generator narrow range level is 60% and stable.
- Both Steam Generator pressures are 500 psig and stable.
- Numerous radiation monitors are in high alarm including:

R-2, Containment Air Monitor,  
R-12, Containment Gas Monitor,  
R-33, SG 'B' Steam Line Radiation Monitor.

What is the correct procedure to transition to from ES-0.0, Rediagnosis.

- a. E-3 or ECA-3 Series Procedure
- b. ECA-2.1
- c. E-2
- d. E-1 or ECA-1 Series Procedure

QUESTION: 089 (1.00)

Given the following:

- A Safety Injection has occurred.
- The crew is in E-0, "Reactor Trip or Safety Injection," at step 24, "Check if SI Should Be Terminated."

Which of the following would prevent transition to ES-1.1, "SI Termination?"

- a. Total feedwater flow at 195 gallons AND S/G narrow range levels at 5%.
- b. RCS subcooling based on core exit thermocouples at 33°F.
- c. Pressurizer level at 7%.
- d. RCS pressure at 2100 psig and stable.

QUESTION: 090 (1.00)

Given the following conditions:

- The plant is at HOT SHUTDOWN
- A cooldown to COLD SHUTDOWN has been initiated.

What change(s) in staffing requirements occur(s) for the minimum on-duty shift complement per NAD-03.17, "Conduct of Operations" when COLD SHUTDOWN is achieved?

- a. Only ONE Licensed Operator is required AND the STA is NOT required.
- b. The fire response team can be reduced to TWO fire brigade members and ONE assistant fire brigade member.
- c. The Control Room Supervisor AND the STA are NOT required.
- d. Only ONE Nuclear Auxiliary Operator is required.

QUESTION: 091 (1.00)

The following conditions exist:

- A loss of off-site power occurred; EDGs started and energized buses 5 and 6.
- Procedure E-3, Steam Generator Tube Rupture, is in effect for S/G "A".
- During RCS depressurization, a PZR PORV stuck open and its block valve could not be closed.
- Radiation Monitor R-2 is reading 9 R/hr.
- While controlling RCS temperature, a safety valve on S/G "B" failed open

What is the emergency classification based on these conditions per EPIP-AD-02, Emergency Class Determination (ATTACHED)?

- a. UNUSUAL EVENT
- b. ALERT
- c. SITE EMERGENCY
- d. GENERAL EMERGENCY

QUESTION: 092 (1.00)

Given the following:

- The reactor is critical at 1% power.
- SI Accumulator pressure "A" was just found to be 680 psig.
- SI Accumulator "B" boron concentration was just found to be 1850 ppm.

What is the action required by Technical Specifications due to these conditions, if any?

- a. No action is needed due to these conditions.
- b. SI Accumulator "A" pressure must be restored to limits within 72 hours.
- c. SI Accumulator "B" boron concentration must be restored to limits within 72 hours.
- d. Action must be initiated within 1 hour to go to HOT SHUTDOWN.



QUESTION: 093 (1.00)

Given the following conditions:

- Reactor Vessel Head AND Upper Internals have been removed.
- BOTH doors of the containment personnel airlocks are OPEN.
- Residual Heat Removal Pump "A" is OPERABLE.
- Residual Heat Removal Pump "B" is inoperable.
- The reactor has been shutdown for 7 days.
- Spent Fuel Pool Pump "A" is operating per N-SFP-21, Spent Fuel Pool Cooling and Cleanup System. Spent Fuel Pool Pump "B" is inoperable.
- Refueling Cavity level is greater than 23 feet above the vessel flange.

Based on the plant status given, determine what condition(s) must be resolved to meet requirements for a full core offload.

- a. Containment integrity must be established.
- b. Residual Heat Removal Pump "B" is required.
- c. The reactor has not been shutdown long enough.
- d. Spent Fuel Pool Cooling Pump "B" is required.

QUESTION: 094 (1.00)

Which of the following refueling activities must be performed by a licensed Senior Reactor Operator (SRO)?

- (I) Directing flushing of the Reactor Cavity with DI water.
  - (II) Directing fuel movement from the Control Room.
  - (III) Preparing Temporary Changes to the refueling procedure.
- 
- a. ONLY I.
  - b. ONLY I and II.
  - c. ONLY II and III.
  - d. I, II and III.

QUESTION: 095 (1.00)

Complete the following regarding current procedure change requirements:

An active SRO is responsible for \_\_\_\_ (1) \_\_\_\_ safety related, Change of Intent Temporary Changes and \_\_\_\_ (2) \_\_\_\_ safety related, NON-Change of Intent Temporary Changes to KNPP Procedures.

\_\_\_\_ (1) \_\_\_\_

\_\_\_\_ (2) \_\_\_\_

- |    |           |           |
|----|-----------|-----------|
| a. | approving | approving |
| b. | approving | reviewing |
| c. | reviewing | approving |
| d. | reviewing | reviewing |

QUESTION: 096 (1.00)

Complete the following regarding ALARA reviews:

ALARA Plans are required to be reviewed by the Radiological Performance Committee for \_\_\_\_\_(1)\_\_\_\_\_ and a Pre-job Planning Checklist shall be prepared for \_\_\_\_\_(2)\_\_\_\_\_.

- |    | _____ (1) _____     | _____ (2) _____     |
|----|---------------------|---------------------|
| a. | all jobs            | all jobs            |
| b. | jobs > 1 Person-rem | all jobs            |
| c. | jobs > 3 Person-rem | jobs > 1 Person-rem |
| d. | jobs > 5 Person-rem | jobs > 1 Person-rem |

QUESTION: 097 (1.00)

Which of the following describes the PRIMARY responsibilities of both the Shift Manager and the Radiation Protection Manager for radiological gaseous waste discharges?

	<u>Shift Manager</u>	<u>Radiation Protection Manager</u>
a.	Maintaining releases ALARA	Performing discharge calculations
b.	Ensuring no unplanned release	Maintaining releases ALARA
c.	Logging the discharge data	Ensuring no unplanned release
d.	Performing discharge calculations	Logging the discharge data

QUESTION: 098 (1.00)

While at the diagnostic steps of E-0, Reactor Trip or Safety Injection, the following plant conditions exist:

- Steam Generator A has been identified as ruptured.
- Steam Generator B has been identified as faulted.
- A LOCA has been identified outside containment.

Which procedure would the crew transition to when exiting E-0?

- a. E-1, Loss of Reactor or Secondary Coolant
- b. ECA-1.2, LOCA Outside Containment
- c. E-2, Faulted Steam Generator Isolation
- d. E-3, Steam Generator Tube Rupture

QUESTION: 099 (1.00)

A Priority Entry is being planned for an emergency search and rescue operation that will likely involve emergency worker doses of 20 rem TEDE. Which of the following states the dose requirements for this entry?

- a. Exposures to this level can ONLY be made with volunteers fully aware of the risks because emergency rescue exposure limits would be exceeded.
- b. Exposures to this level can ONLY be made with volunteers fully aware of the risks because 10CFR20 limits would be exceeded.
- c. Exposures to this level can ONLY be made with Emergency Director approval because emergency rescue exposure limits would be exceeded.
- d. Exposures to this level can ONLY be made with Emergency Director approval because 10CFR20 limits would be exceeded.

QUESTION: 100 (1.00)

Given the following conditions:

- A cooldown and depressurization of the RCS is in progress as directed by ES-0.3, "Natural Circulation Cooldown with Steam Void in Vessel"
- A Yellow path is noted for Inventory that directs the crew to FR-I.3, "Response to Voids in Reactor Vessel"
- The decision is made to continue with the actions of ES-0.3 and NOT transition to FR-I.3, "Response to Voids in Reactor Vessel"

Why would a transition to FR-I.3 NOT be made?

- a. FR-I.3 addresses voids resulting from non-condensable gas evolution, NOT from steam void formation.
- b. Upper head steam voiding is expected in these conditions and accounted for in ES-0.3.
- c. FR-I.3 would only be entered prior to performing a cooldown and depressurization.
- d. The Status Trees are monitored "for information only" in these conditions.

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



ANSWER KEY  
MULTIPLE CHOICE

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

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 001 B REFERENCE: LP RO2-05-LP 049, Rod Control and RPI; SD-49, Section 3.3.2.</p> <p>New Higher 001000K103 ..(KA's)</p>	<p>ANSWER: 034 B REFERENCE: KNPP Exam 02/24/1997</p> <p>Modified Memory 033000A203 ..(KA's)</p>	<p>ANSWER: 067 B REFERENCE: E-0-06, Fire in Alternate Fire Zone; Byron Exam 06/29/2000</p> <p>New Higher 000067A217 ..(KA's)</p>
<p>ANSWER: 002 B REFERENCE: RO2-05-LP 049, Rod Control and RPI, pg 43 and 44; ARP 47043-R, Rod Control System Abnormal</p> <p>New Memory 001000K611 ..(KA's)</p>	<p>ANSWER: 035 B REFERENCE: Beaver Valley 2 Exam 03/17/1997;</p> <p>Modified Higher 035000A301 ..(KA's)</p>	<p>ANSWER: 068 C REFERENCE: LO R02-04-LP056.007; Tech Spec 3.6.b.3.B, Containment System</p> <p>New Memory 000069 2.2.23 ..(KA's)</p>
<p>ANSWER: 003 D REFERENCE: KNPP SD 55, ESF</p> <p>Bank Memory 013000K403 ..(KA's)</p>	<p>ANSWER: 036 C REFERENCE: KNPP SD 05B, AFW System; ARP 47062-N</p> <p>Bank Higher 039000A404 ..(KA's)</p>	<p>ANSWER: 069 C REFERENCE: FR-C.3, Response to Saturated Core Cooling;</p> <p>New Higher E07EK13 ..(KA's)</p>
<p>ANSWER: 004 A REFERENCE: LP RO2-05-035, CVCS; SD 35, CVCS.</p> <p>New Higher 004000K305 ..(KA's)</p>	<p>ANSWER: 037 C REFERENCE: KNPP 12/11/00 NRC Exam; SD 09, Air Removal System</p> <p>Bank Higher 055000K106 ..(KA's)</p>	<p>ANSWER: 070 A REFERENCE: A-RC-36A, High Reactor Coolant Activity; KNPP NRC Exam 12/18/1997</p> <p>Bank Higher 000076K305 ..(KA's)</p>

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 005 A REFERENCE: LP RO2-05-048, NIS; SD 48, NIS; 11/13/1990 Millstone 3 Exam.</p> <p>Bank Higher 015000K603 ..(KA's)</p>	<p>ANSWER: 038 A REFERENCE: A-RM-45, Abnormal Radiation Monitoring System; LP Obj RO2-01-LP045.004; Dwg XK-100-131; FD Waste Disposal System.</p> <p>New Memory 068000A204 ..(KA's)</p>	<p>ANSWER: 071 B REFERENCE: SD 23, ICS System; Dwg A-204, A-210, OPERXK-100-18; Dwg OPERM-217;</p> <p>New Memory 026000 2.4.34 ..(KA's)</p>
<p>ANSWER: 006 D REFERENCE: SD 50, Incore Instrumentation; Inadequate Core Cooling Monitor, Sect. 1.4, CET Operation, and 3.4.3, CET Instrumentation.</p> <p>New Memory 017000A401 ..(KA's)</p>	<p>ANSWER: 039 D REFERENCE: SD RHR pg 16; Dwgs OPERXK-100-18, -19.</p> <p>New Memory 005000K101 ..(KA's)</p>	<p>ANSWER: 072 C REFERENCE: SD 18, Reactor Building Ventilation; ARP 47051-B, Containment Vent High Radiation Disabled; N-RBV-18B, Reactor Bldg Vent System Cold Operation and Releases</p> <p>New Higher 029000 2.3.9 ..(KA's)</p>
<p>ANSWER: 007 C REFERENCE: SD 18, RBV; Hydrogen Control; LP RO2-04-LP 18, RBV System.</p> <p>New Higher 022000A301 ..(KA's)</p>	<p>ANSWER: 040 A REFERENCE: N-RBV-18C, POST-LOCA Hydrogen Control.</p> <p>New Memory 028000K502 ..(KA's)</p>	<p>ANSWER: 073 C REFERENCE: KNPP Exam 12/18/97; Reactor Data Manual</p> <p>Bank Higher 000040 2.2.34 ..(KA's)</p>

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 008 D REFERENCE: SD 2, Service Water; KNPP EQB.</p> <p>Bank Higher 076000K307 ..(KA's)</p>	<p>ANSWER: 041 B REFERENCE: E-RH-53A, "Dropped or Damaged FA,8/17/2001; SD Rad Mon, pgs 12-13; SD FH, pgs 13,16, 28.</p> <p>New Higher 034000A201 ..(KA's)</p>	<p>ANSWER: 074 B REFERENCE: N-CRD-49B, Reactor Startup; N-CRD-49C, Reactor Shutdown;</p> <p>New Higher 2.2.1 ..(KA's)</p>
<p>ANSWER: 009 D REFERENCE: A-FW-05A, Abnormal FW Operation, step 4.4.</p> <p>New Higher 059000 2.2.2 ..(KA's)</p>	<p>ANSWER: 042 C REFERENCE: LO R01-01-LPTS4.010; Tech Spec 6.1; KNPP EQB</p> <p>Bank Memory 2.1.10 ..(KA's)</p>	<p>ANSWER: 075 D REFERENCE: KNPP Exam 12/11/2000; SD 18, Reactor Building Vent</p> <p>Bank Higher 2.1.32 ..(KA's)</p>
<p>ANSWER: 010 A REFERENCE: SD 39, 4160 V System; SD 36, RCS</p> <p>New Memory 003000K201 ..(KA's)</p>	<p>ANSWER: 043 C REFERENCE: OP A-AS-1, Abnormal Station/ Instrument Air System Operation; SD #1, Station/Instrument Air, Pg 9.</p> <p>Bank Memory 078000K403 ..(KA's)</p>	<p>ANSWER: 076 D REFERENCE: Tech Spec 3.10.e and basis; A-CRD-49, Abnormal Rod Control Operations</p> <p>New Higher 000001K302 ..(KA's)</p>

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 011 A REFERENCE: IPEOP Background Document for FR-P.1; LP RO4-04-LP-016, Response to Imminent Pressurized Thermal Shock Condition</p> <p>New Memory E08EA202 ..(KA's)</p>	<p>ANSWER: 044 B REFERENCE: LP RO2-01-LP-36B, PZR and PRT; Tech Spec 3.1.a.6 and its basis; SD 38, DC and Emergency AC Power</p> <p>New Higher 062000 2.1.12 ..(KA's)</p>	<p>ANSWER: 077 A REFERENCE: A-CRD-49, Abnormal Rod Control Operations;</p> <p>New Higher 000001A203 ..(KA's)</p>
<p>ANSWER: 012 A REFERENCE: ECA-2.1, Uncontrolled Depressurization of Both S/Gs</p> <p>New Higher E12EA13 ..(KA's)</p>	<p>ANSWER: 045 C REFERENCE: SD 38, DC and Emergency AC Electrical Distribution.</p> <p>New Memory 063000K201 ..(KA's)</p>	<p>ANSWER: 078 A REFERENCE: Tech Spec 3.10;</p> <p>New Higher 000003 2.1.6 ..(KA's)</p>
<p>ANSWER: 013 A REFERENCE: ES-1.1, SI Termination and Background Document; LP RO4-04-LP-005</p> <p>New Memory 000026K303 ..(KA's)</p>	<p>ANSWER: 046 B REFERENCE: SD 38, DC and Emergency AC Power; LP RO2-03-LP-042A, D/Gs</p> <p>New Memory 064000K202 ..(KA's)</p>	<p>ANSWER: 079 C REFERENCE: E-1, Loss of Reactor or Secondary Coolant; IPEOP Background Document; ES-1.2, Post LOCA Cooldown and Depressurization</p> <p>New Higher 000011K312 ..(KA's)</p>

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 014 C REFERENCE: ES-0.2, Natural Circulation Cooldown Modified Higher 2.4.4      ..(KA's)</p>	<p>ANSWER: 047 C REFERENCE: SD 45, Radiation Monitors; A-RM-45, Abnormal Radiation Monitoring; E-3748, PRM Integrated Logic Diagram  New Memory 073000K301    ..(KA's)</p>	<p>ANSWER: 080 A REFERENCE: ECA-1.1, Loss of Emergency Coolant Recirculation; IPEOP Background Document; LP RO4-04-LP-020, LOCA Outside Containment;  New Memory E11EK34    ..(KA's)</p>
<p>ANSWER: 015 C REFERENCE: SD 49 Rod Control and RPI; Tech Specs  New Higher 000005K105    ..(KA's)</p>	<p>ANSWER: 048 C REFERENCE: SD 4, CW System; ARP 47051-N, Forebay Level Low; LP RO2-02-LP-004, CW  New Memory 075000K401    ..(KA's)</p>	<p>ANSWER: 081 A REFERENCE: Tech Spec 3.1.a.3 and Basis;  New Higher 000027 2.2.25    ..(KA's)</p>
<p>ANSWER: 016 C REFERENCE: ES-0.2, Rev 0, Caution before step 1, p 2.; NRC EQB; Point Beach 04/29/1991.  Bank Memory 000015A109    ..(KA's)</p>	<p>ANSWER: 049 C REFERENCE: SD 8, Fire Protection System; RO2-02-LP-008, Fire Protection System;  New Memory 086000K604    ..(KA's)</p>	<p>ANSWER: 082 D REFERENCE: NAD-02.07, Refueling Operations; E-FH-53B, Loss of Reactor Cavity Inventory During Fuel Movement; EPIP-AD-02, Emergency Class Determination  New Higher 000036 2.3.3    ..(KA's)</p>

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 017 A REFERENCE: PWR Fundamentals; Braidwood 4/1/1996 Exam</p> <p>Bank Memory 000024K102   ..(KA's)</p>	<p>ANSWER: 050 A REFERENCE: SD 36, Reactor Coolant System; ARP 47043-F, PRZR Level Low; A-MI-87, B/S Tripping for Failed RP or Safeguards Inst.</p> <p>New Memory 000028A206   ..(KA's)</p>	<p>ANSWER: 083 B REFERENCE: SD 45, Radiation Monitoring System; A-RM-45, Abnormal Radiation Monitoring System;</p> <p>New Higher 000059K202   ..(KA's)</p>
<p>ANSWER: 018 D REFERENCE: LP RO2-02-LP-003, Condensate and Air Removal System;</p> <p>New Higher 056000A204   ..(KA's)</p>	<p>ANSWER: 051 A REFERENCE: LP RO4-04-LP-036; FR-H.2, Response to S/G Overpressure; IPEOP Background Document</p> <p>New Memory E13EK11   ..(KA's)</p>	<p>ANSWER: 084 D REFERENCE: ARP 47051-N, Forebay Level Low E-CW-04, Loss of CW; A-SW-02, Abnormal SW System Operation;</p> <p>New Higher 000062A102   ..(KA's)</p>
<p>ANSWER: 019 B REFERENCE: RO2-02-LP-003.004; O-AOP-LP-D8; E-AR-09, Loss of Condenser Vacuum</p> <p>New Higher 000051 2.1.30   ..(KA's)</p>	<p>ANSWER: 052 A REFERENCE: LP RO4-04-LP-36B ARP 47042-A, PZR PORV Open; ARP 47042-B, PZR PORV Discharge Temperature High;</p> <p>New Higher 000008A203   ..(KA's)</p>	<p>ANSWER: 085 D REFERENCE: E-AS-01, Loss of Instrument Air; A-MS-06, Abnormal Main Steam and Steam Dump System Operation; E-0, Reactor Trip or Safety Injection;</p> <p>New Higher 000065A105   ..(KA's)</p>

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 020 A REFERENCE: SD 32B, Gaseous Radioactive Waste Disposal;  New Memory 071000A302 ..(KA's)</p>	<p>ANSWER: 053 B REFERENCE: ES-1.2, Post LOCA Cooldown and Depressurization, Step 16a (Contingency Actions)  New Higher 000009 2.4.45 ..(KA's)</p>	<p>ANSWER: 086 C REFERENCE: FR-S.1, Response to Nuclear Power Generation/ATWS New Higher 061000A101 ..(KA's)</p>
<p>ANSWER: 021 A REFERENCE: SD 32B, Gaseous Radioactive Waste Disposal; SD 45, Radiation Monitoring  New Memory 071000A409 ..(KA's)</p>	<p>ANSWER: 054 B REFERENCE: ECA-1.2, LOCA Outside Containment; IPEOP Background Document; Prairie Island 05/15/2000 Exam; LP RO4-04-LP-020, LOCA Outside Containment  Modified Memory E04EK22 ..(KA's)</p>	<p>ANSWER: 087 B REFERENCE: A-CC-31, Abnormal CCW Operation; SD 31, CCW System; ARP 47021-I, RXCP CC Flow Low;  New Higher 008000A401 ..(KA's)</p>
<p>ANSWER: 022 A REFERENCE: SD 45, Radiation Monitoring; RO2-01-LP045, Radiation Monitoring  New Memory 072000K501 ..(KA's)</p>	<p>ANSWER: 055 B REFERENCE: FR-S.1, Response to Nuclear Power Generation/ATWS; IPEOP Background Document;  New Memory 000029 2.4.49 ..(KA's)</p>	<p>ANSWER: 088 A REFERENCE: A-RM-45, Abnormal Radiation Monitoring System; ES-0.0, Rediagnosis;  New Higher E01EA11 ..(KA's)</p>



SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 023 D REFERENCE: SD 45, Radiation Monitoring; A-RM-45, Abnormal Radiation Monitoring</p> <p>New Memory 072000 2.3.10      ..(KA's)</p>	<p>ANSWER: 056 C REFERENCE: KNPP NRC Exam 10/24/2000 ARP 47043-L, VCT Level High/Low SD 35, CVCS</p> <p>Bank Memory 000022A108      ..(KA's)</p>	<p>ANSWER: 089 D REFERENCE: Indian Point 2 10/28/1996 Exam; E-0, Reactor Trip or Safety Injection;</p> <p>Bank Higher E02EA21      ..(KA's)</p>
<p>ANSWER: 024 C REFERENCE: ES-0.2, Natural Circulation Cooldown; ES-0.2 Background Document;</p> <p>Bank Memory 002000A203      ..(KA's)</p>	<p>ANSWER: 057 A REFERENCE: A-CC-31, Abnormal CCW Operations; ARP 47024-H, CC Surge Tank Level High/Low; A-RHR-34, Abnormal RHR Operations; A-RM-45, Abnormal Rad Monitoring</p> <p>New Higher 000025A202      ..(KA's)</p>	<p>ANSWER: 090 C REFERENCE: KNPP 12/11/2000 Exam; NAD-03.17, Conduct of Operations;</p> <p>Bank Higher 2.1.4      ..(KA's)</p>
<p>ANSWER: 025 D REFERENCE: RO2-05-LP-36C, Pressurizer Pressure Control</p> <p>New Higher 010000K103      ..(KA's)</p>	<p>ANSWER: 058 C REFERENCE: LP RO2-05-LP048, Excore Nuclear Instrumentation System; SD 48, Excore Nuclear Instrumentation</p> <p>New Memory 000032K101      ..(KA's)</p>	<p>ANSWER: 091 C REFERENCE: EPIP-AD-02, Emergency Class Determination;</p> <p>New Higher 2.1.25      ..(KA's)</p>

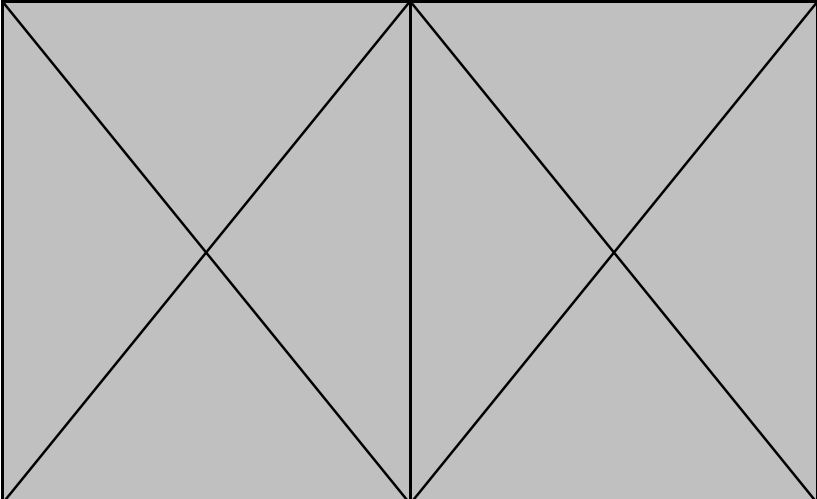
SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 026 C REFERENCE: RO2-05-LP472, Reactor Protection</p> <p>New Higher 012000K304 ..(KA's)</p>	<p>ANSWER: 059 A REFERENCE: LP RO2-05-LP048, Excore Nuclear Instrumentation System; SD 48, Excore Nuclear Instrumentation</p> <p>New Memory 000033A201 ..(KA's)</p>	<p>ANSWER: 092 D REFERENCE: TS 3.2.a. Accumulators;</p> <p>New Higher 2.1.11 ..(KA's)</p>
<p>ANSWER: 027 C REFERENCE: LP RO4-04-LP040, Loss of all AC Power; Comanche Peak 11/26/90; ECA-0.0, Loss of all AC Power</p> <p>Bank Memory 000055K101 ..(KA's)</p>	<p>ANSWER: 060 B REFERENCE: A-RM-45, Abnormal Radiation Monitoring System; E-0-14, Steam Generator Tube Leak</p> <p>New Memory 000037A113 ..(KA's)</p>	<p>ANSWER: 093 D REFERENCE: N-FH-53-CLC, Pre-Refueling Checklist; RF-01.00, KNPP Refueling Procedure;</p> <p>New Higher 2.2.27 ..(KA's)</p>
<p>ANSWER: 028 D REFERENCE: LP RO2-05-36C, Pzr Pressure Control; SD 36, RCS; A-MI-87, Bistable Tripping for Failed RP or Safeguards Inst.</p> <p>New Higher 000057A102 ..(KA's)</p>	<p>ANSWER: 061 D REFERENCE: BKG E-3, Steam Generator Tube Rupture; IPEOP Background Document; E-3, Steam Generator Tube Rupture</p> <p>New Memory 000038K308 ..(KA's)</p>	<p>ANSWER: 094 A REFERENCE: NAD-02.07, Kewaunee Refueling Operations; RF-01.00, KNPP Refueling Procedure;</p> <p>New Higher 2.2.26 ..(KA's)</p>

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 029 C REFERENCE: KNPP SD 49, Rod Control and RPI; KNPP EQB RO2-05-LP049.004 010; LP RO2-05-LP049, Rod Control and RPI.</p> <p>Bank Higher 014000K502 ..(KA's)</p>	<p>ANSWER: 062 C REFERENCE: A-FW-05B, Abnormal AFW System Operation; FR-H.1, Response to Loss of Secondary Heat Sink; BKG FR-H.1, Loss of Secondary Heat Sink; IPEOP Background Document</p> <p>New Higher E05EK22 ..(KA's)</p>	<p>ANSWER: 095 C REFERENCE: NAD-03.01, Directive, Implementing Document and Procedure Control; GNP-03.01.01, Directive, Implementing Document and Procedure Admin. Control; GNP-03.01.03, Procedure Use and Adherence;</p> <p>New Higher 2.2.6 ..(KA's)</p>
<p>ANSWER: 030 C REFERENCE: Fire Protection Program Plan, Appendix D; E-0-06, Fire in Alternate Fire Zone; E-FP-08, EOP - Fire.</p> <p>New Memory 016000K401 ..(KA's)</p>	<p>ANSWER: 063 C REFERENCE: Tech Spec and Bases; A-EDC-38, Abnormal DC Supply and Distribution System; SD 38, "DC and Emergency AC Distribution; LP RO2-03-LP 038, DC and Emergency AC Distribution</p> <p>New Memory 000058 2.2.22 ..(KA's)</p>	<p>ANSWER: 096 D REFERENCE: NAD-01.01, ALARA Program; HP-04.001, ALARA Plan;</p> <p>New Higher 2.3.2 ..(KA's)</p>
<p>ANSWER: 031 C REFERENCE: FR-Z.1, Response to High Ctnmt Pressure, Step 3, pgs 3-4; CS Integrated Logic Diag E-1604; System Integrated Logic Diagram ICS E-2012.</p> <p>Bank Memory 026000A301 ..(KA's)</p>	<p>ANSWER: 064 B REFERENCE: 10CFR20, definitions and part 1204; SD 32B, Gaseous Radioactive Waste Disposal;</p> <p>New Higher 000060K102 ..(KA's)</p>	<p>ANSWER: 097 B REFERENCE: NAD-01.12, Radiological Gaseous Waste Discharge;</p> <p>New Memory 2.3.8 ..(KA's)</p>

SENIOR REACTOR OPERATOR REFERENCES:

<p>ANSWER: 032 A REFERENCE: A-RM-45, Abnormal Radiation Monitoring System.</p> <p>New Memory 029000A102 ..(KA's)</p>	<p>ANSWER: 065 A REFERENCE: ARP 47033-35, TLA-15, RMS ABOVE NORMAL;</p> <p>New Memory 000061AK30 ..(KA's)</p>	<p>ANSWER: 098 C REFERENCE: E-0, Reactor Trip or Safety Injection;</p> <p>New Higher 2.4.1 ..(KA's)</p>
<p>ANSWER: 033 D REFERENCE: Byron Exam 06/29/2000.</p> <p>Bank Memory 103000A101 ..(KA's)</p>	<p>ANSWER: 066 A REFERENCE: FR-Z.3, Response to High Containment Radiation Level; BKG FR-Z.3, Response to High Containment Radiation Level; IPEOP Background Document; KNPP NRC Exam 12/11/2000 Modified Higher E16EK33 ..(KA's)</p>	<p>ANSWER: 099 D REFERENCE: EPIP-AD-11, Emergency Radiation Controls; EPIP-RET-02D, Emergency Radiation Entry Controls and Implementation;</p> <p>New Higher 2.4.40 ..(KA's)</p>
		<p>ANSWER: 100 B REFERENCE: KNPP Exam 12/11/2000; ES-0.3, Natural Circulation Cooldown with Steam Void in Vessel; FR-I.3, Response to Voids in Reactor Vessel;</p> <p>Bank Higher 2.4.7 ..(KA's)</p>