

FORT CALHOUN STATION

DRAFT EXAM

(To be conducted June, 2001)

This draft written exam was prepared in accordance with the revised outline. No changes were made to any of the K/A items listed in that outline.

Questions for the Audit exam, to be given in May, were selected prior to beginning development of the Outline.

A total of 126 questions, along with supporting references, are contained in this submittal. When there is a Fort Calhoun learning objective that is closely related to the sampled K/A item for a question, it is included in the review form.

The Statistics for the RO and SRO exam are:

|                             | Required    | RO Exam | SRO Exam |
|-----------------------------|-------------|---------|----------|
| Bank Questions              | 50 or less  | 34      | 31       |
| New Questions               |             | 53      | 55       |
| Modified Questions          |             | 13      | 14       |
| Higher Order Questions      | 50-60       | 53      | 56       |
| New, Higher Order Questions | At least 10 | 33      | 33       |

Please withhold these materials from public disclosure until after the examinations are complete.

## exam data entry form

question number:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Stem:

Description:

Question:

What are the minimum requirements for personnel within the "at the controls" area whenever fuel is in the reactor?

- A. One licensed individual (RO or SRO)
- B. One SRO
- C. One RO and one SRO
- D. Two licensed individuals (RO or SRO)

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

Who must give permission for a temporary level of use downgrade for a procedure that is repeatedly performed by the same person on the same day?

- A. The Operations Manager or an Operations Supervisor.
- B. The Shift Manager.
- C. The Control Room Supervisor.
- D. The Shift Manager or the Control Room Supervisor.

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description: Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.

Question:

The reactor has tripped one hour ago due to a combination steam line break and tube rupture event. The operators completed EOP-00 and are now in EOP-20. The TSC and EOF have been manned. DG1 is carrying 2430KW and 395 amps and is the only available AC power source. Outside temperature is 100°F. FW-10 is running and capable of providing 260 gpm. The TSC has recommended that FW-6 be used instead of FW-10 to minimize offsite release.

Do you concur with the TSC recommendation?

- A. No, because the current draw for FW-6 would overload DG-1 by exceeding the DG-1 loading curve.
- B. No, because the starting current will exceed the 2500 KW rating on the diesel generator
- C. No, because FW-6 does not have adequate capacity to remove decay heat
- D. Yes. FW-6 is the better choice for this situation

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

Objective: Given TDB Figure III.26.A, be able to predict if diesel loading limits will be exceeded when loads are restarted following a loss of off-site power.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Stem:

Description:

Question:

In which one of the following situations, could a technical specification required system still be considered operable?

- A. A required pump has a failed seal.
- B. A required pump is in a room that is hotter than its qualification temperature.
- C. A required instrument channel was tested using a voltmeter that was out of calibration.
- D. A required instrument channel's surveillance test was not conducted before the drop dead date

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

Which one of the following plant operations may be performed by the RO without permission of the Shift Manager or the Control Room Supervisor?

- A. Emergency boration
- B. Inserting group "N" rods
- C. Adding water to maintain 100% power
- D. Rinsing in an ion exchanger

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Stem:

Description:

Question:

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

- A. Any test not described in the USAR.
- B. Any test that makes tech spec required equipment inoperable during the test
- C. Any test which may increase the probability of an event analyzed in the USAR.
- D. Any test conducted by non-licensed personnel

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Stem:

Description:

Question:

According to standing Order M-101, who has the responsibility for performing a risk assessment for emergent maintenance activities when the Work Week Manager is unavailable?

- A. The Maintenance Rule Coordinator
- B. The Shift Manager
- C. The System Reliability Group Supervisor
- D. The Shift Technical Advisor

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

Description:

KA item:

Question:

Which one of the following is a "Safety Limit" as described in the Fort Calhoun Station Technical Specifications?

- A. T-cold must not exceed 542F
- B. Peak Linear Heat Generation rate must not exceed 15.5 kw/ft
- C. RCS Pressure must not exceed 2750 psia
- D. Containment pressure must not exceed 60 psig

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

Which one of the following situations involving equipment required by technical specifications does NOT require that the equipment be logged as inoperable?

- A. The control room switch for a pump is placed in the Pull-To-Lock position but its breaker remains operable.
- B. An RPS channel is placed in bypass for less than 1 hour and restored to service during the same shift
- C. A fan is made inoperable as part of a planned surveillance test
- D. Instrument air is isolated to a fail closed air operated containment isolation valve during a calibration

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Stem:

Description:

Question:

What is the minimum level of testing required following electrical breaker preventive maintenance?

- A. The breaker must be visually inspected.
- B. The breaker must be operated in the electrical shop.
- C. The breaker must be operated in the test position.
- D. The breaker must be operated to power its load.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

The RWP Surveillance and ALARA coordinator has determined that an ALARA job briefing is required for performance of a job in the RCA. Which one of the following restrictions apply until all affected workers attend an ALARA job briefing?

- A. The affected workers will not be issued TLDs
- B. The affected workers will not be allowed to sign the RWP
- C. The affected workers will not be allowed enter the RCA
- D. Work on the job may not begin.

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Stem:

Description: Knowledge of SRO responsibilities for auxiliary systems that are outside the control room (e.g., waste disposal and handling systems).

Question:

What is the Shift Managers responsibility for pre-planned work in the switchyard per NOD-QP-36, "Control of Switchyard Activities at Fort Calhoun Station"?

- A. Determine if proposed work can be accomplished without adversely affecting plant operation.
- B. Inform the Security Shift Supervisor to provide an escort for the EOD personnel while they are in the switchyard
- C. Have the EOD personnel contact the Plant Manager for permission to enter the switchyard
- D. Provide an Operator to assist in switchyard activities

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective: Given a copy of the procedure NOD-QP-36, Control of SWYD Activities at FCS, the student will be able to perform the following: Describe how access to the switchyard is obtained for scheduled and non-scheduled activities.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

During the later part of cycle 19, condenser evacuation was routed to the auxiliary building stack, Why was that done?

- A. To provide filtering of radioactive noble gasses in case of a primary to secondary leak.
- B. To prevent an unmonitored release if RM-057 went offscale.
- C. To allow for modification of the normal condenser evacuation ducting
- D. To improve condenser vacuum due to air in-leakage

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

You have entered EOP-06 due to a plant event. In EOP-06, there is a note that tells you to go to EOP-20, HR-4 if plant parameters reach certain values. It is your judgment that these plant parameters will reach these values. How do you handle this situation procedurally?

- A. Go to the section of EOP-20, HR-4 immediately to ensure the transition is not missed.
- B. Transition to EOP-20, HR-4 once plant parameters reach the specified values. Stay in EOP-20 after performing the steps of section HR-4
- C. Transition to EOP-20, HR-4 once plant parameters reach the specified values. Return to EOP-06 after the actions in EOP-20, HR-4 are complete.
- D. Ensure that all safety functions are satisfied in EOP-06 prior to transitioning to EOP-20, HR-4.

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description: Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.

Question:

To avoid RCS pressurization on a loss of Shutdown Cooling, an opening at least as large as \_\_\_\_\_ must be available prior to removing the steam generators from service.

- A. PORV nozzle
- B. Both pressurizer safety valves
- C. Pressurizer manway
- D. Reactor vessel head

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

How are the Annunciator Response Procedures (ARPs) classified for level of use at FCS:

- A. Continuous use procedures
- B. Reference use procedures
- C. Information use procedures
- D. They are not classified for level of use

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Stem:

Description:

Question:

Which one of the following statements is true concerning the use of FCS Severe Accident Management Guideline's (SAMGs)?

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

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

What is the Shift Managers responsibility in regards to Standing Order G-58, Control of Fire Protection System Impairments?

- A. He has overall responsibility for control of fire protection limiting conditions for operation.
- B. He is responsible for ensuring compensatory measures are established in accordance with Standing Order G-103.
- C. He is responsible for tracking and documenting fire protection LCOs.
- D. He is responsible for providing personnel to perform firewatch duties.

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Generic Knowledges and Abilities

KA item:

Description:

Question:

A General Emergency has been declared at Fort Calhoun Station. The TSC and EOF are both fully staffed and operational. The Shift Manager is in the Command and Control Position at this time. Which one of the following duties can the Shift Manager delegate to his CRS?

- A. Ensuring that the event is classified properly.
- B. Ensuring appropriate Protective Action Recommendations are provided to offsite officials
- C. Authorizing the issuance of Potassium Iodide to OPPD emergency workers
- D. Authorizing deviations from Technical Specifications needed to mitigate the event.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Knowledge of the operational implications of the following concepts as they apply to Continuous Rod Withdrawal:

Description:

Question:

The reactor is operating at 50% power at BOC when a rod withdrawal accident occurs. Rod banks move with designed overlap. The RO takes manual action to stop the rod withdrawal after the rods have moved 20 inches. Which one of the following rod position changes will produce the largest rate of power rise?

- A. Group four from 30 inches to 50 inches withdrawn
- B. Group four from 50 inches to 70 inches withdrawn
- C. Group four from 70 inches to 90 inches withdrawn
- D. Group four from 90 to 110 inches withdrawn.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Question:

Stem: Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod:

Description: Differential rod worth

Fort Calhoun Station is operating at 100% power with rods all out and a burnup of 5000 MWD/MTU, when a group 4 CEA drops into the core. The secondary operator lowers turbine load and stabilizes the plant at 91% power with T-cold at its programmed value. What is the approximate average differential rod worth of the dropped CEA?

- A. 0.001% delta rho/inch
- B. 0.002% delta rho/inch
- C. 0.01% delta rho/inch
- D. 0.02% delta rho/inch

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

- One of the regulating CEAs dropped due to a clutch power failure. How will the SCEAPIS respond to this event?
- A. The SCEAPIS will block withdrawal of all regulating rods if power is above 10-4% power.
  - B. The SCEAPIS will block withdrawal of all regulating rods if power is below 10-4% power.
  - C. The SCEAPIS will block withdrawal of all other rods in the dropped rod's group if power is above 10-4% power
  - D. The SCEAPIS will block withdrawal of all other rods in the dropped rod's group if power is below 10-4% power

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Reactor Trip

KA item:

Stem:

Description:

Question:

Which one of the following wide range nuclear instrumentation indications would be consistent with a reactor trip due to a loss of offsite power followed by core uncover?

- A. A -1.0 dpm startup rate, followed by a -0.3 dpm startup rate, followed by a 0 startup rate.
- B. A -0.3 dpm startup rate, followed by a -.1 dpm startup rate, followed by a 0 startup rate.
- C. A +0.2 dpm startup rate, followed by a 0 dpm startup rate, followed by a -0.3 dpm startup rate
- D. A -1.0 dpm startup rate, followed by a -0.3 dpm startup rate, followed by a +0.2 dpm startup rate

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Reactor Trip

KA item:

Question:

Stem: Ability to determine or interpret the following as they apply to a reactor trip:

Description: Proper actions to be taken if the automatic safety functions have not taken place

The reactor has been tripped following a sudden loss of instrument air pressure. Which one of the following actions should be taken to prevent overfilling the steam generators?

- A. Close FCV-1101 and FCV-1102 using the SPEC-200 controllers.
- B. Close FCV-1101 and FCV-1102 using the Auxiliary controllers.
- C. Close HCV-1103 and HCV-1104
- D. Close HCV-1105 and HCV-1106

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

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

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Which one of the instruments listed below is the most reliable for determining which PORV is leaking?

- A. Downstream temperature
- B. Downstream pressure
- C. Downstream flow
- D. Downstream noise

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Question:

Stem:

Description:

Which one of the following signals directly causes the face dampers to open and the bypass dampers to close on the cooling and filtering units?

- A. VIAS
- B. CPHS
- C. SIAS
- D. CIAS

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

If the primary system pressure drops below the secondary pressure during a loss of coolant accident, it indicates that:

- A. The ECCS flow is inadequate to remove decay heat
- B. The Main steam isolation valves have been closed
- C. Reflux boiling is taking place
- D. The break flow is adequate to remove decay heat

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

Which one of the following conditions will cause a "HPSI Pump Off Normal" alarm?

- A. SI pump control switch in after close
- B. 69 permissive switch in after-close
- C. Corresponding Breaker in Operate
- D. SI pump control switch in pull-stop

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

What is the minimum number of charging pumps that would be required to provide adequate makeup flow to remove heat 24 hours after a large LOCA that occurred from full power?

- A. One charging pump
- B. Two charging pumps
- C. Three charging pumps
- D. More than the flow from three charging pumps is required

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

What actions occur as a result of placing the zero power mode bypass switch on an RPS channel in "bypass" when the reactor power is less than 1 x 10-4% power?

- A. High power, TM/LP and low S/G pressure trips are bypassed.
- B. High power and TM/LP trips are bypassed and delta-T power is blocked to the NI/delta-T power auctioneer.
- C. Low flow, TM/LP and low S/G pressure trips are bypassed.
- D. Low flow and TM/LP trips are bypassed and delta-T power is blocked to the NI/delta-T power auctioneer.

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Reactor Coolant Pump Malfunctions (Loss of RC Flow)

KA item:

Stem: Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):

Description: When to secure RCPs on loss of cooling or seal injection

Question:

The following plant conditions exist:

The reactor is at 100% power  
RCS pressure is 2100 psia  
RCP seal leakoff flow is 1 gpm per pump  
RCP seal leakoff backpressure is 50 psia.

Which one of the following is correct concerning the pressure drop across the operable seals and the seal leakoff if two of the RCP seals fail?

- A. 1050 psid and 1.2 gpm
- B. 1050 psid and 1.73 gpm
- C. 2050 psid and 1.2 gpm
- D. 2050 psid and 1.73 gpm

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

Objective: EXPLAIN the operation of the RCP seal package.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

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

Question:

As per AOP-03, Emergency Boration should continue until:

- A. Adequate shutdown margin has been established PER OP-ST-RX-0002 "Shutdown Margin Verification During Hot Shutdown, Cold Shutdown or Refueling."
- B. Both "CONC BORIC ACID TANK CH-11 A/R LEVEL LO-LO" alarms on (CB-1,2,3;A2) have been received.
- C. The VCT level reaches the high level alarm setpoint of 91.2%.
- D. Two or more Wide Range Nuclear Instrumentation channels indicate less than 10-4% power.

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Following a CCW system leak, LCV-2801, CCW surge tank make-up valve will be \_\_\_\_\_.

- A. Automatically opened on low CCW surge tank pressure
- B. Automatically opened on low CCW surge tank level
- C. Automatically opened on low CCW system flow
- D. Manually opened by the EONA

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Question:

Stem: Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water:

Description: The length of time after the loss of CCW flow to a component before that component may be damaged

Thirty minutes into a small break LOCA, CCW cooling is lost to the HPSI pumps. CCW remains available to all other required components. Which one of the following actions should be taken?

- A. The HPSI pumps should be allowed to continue operating
- B. The HPSI pumps should be shutdown until CCW can be restored
- C. The HPSI pumps should be shutdown until either CCW can be restored or Raw Water backup can be established
- D. The HPSI pumps should be shutdown until they can be inspected. They are no longer needed for this event.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

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

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

A PORV opened as a result of a pressurizer control system malfunction. The breaker for the PORV block valve tripped while trying to isolate the PORV. As a result of the failures a PPLS signal was received, RCS subcooling was lost and pressure fell to 900 psia. Which one of the following describes the expected RCS pressure response when the PORV block valve is reenergized and closed. All plant equipment operates as designed.

- A. The RCS pressure will stabilize at 900 psia.
- B. The RCS pressure will rise and stabilize at approximately 1000 psia.
- C. The RCS pressure will rise and stabilize at approximately 1400 psia
- D. The RCS pressure will continue to rise above 1500 psia

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

To allow steam generators to be drained during an outage, OI-RC-4 installs jumpers across the interposing relay contacts to keep the M coils energized. What affect do these jumpers have on RPS operation.

- A. All automatic trips except for diverse scram will be bypassed. The reactor can still be tripped manually from the RPS cabinets.
- B. All automatic trips including diverse scram will be bypassed. The reactor can still be tripped manually from CB-4.
- C. All automatic and manual trips will be bypassed, including diverse scram.
- D. Only the low steam generator level trips will be bypassed. All other automatic, diverse and manual tips will be operational.

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Which one of the following reactivity mechanisms adds positive reactivity during a loss of feedwater ATWS?

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

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

With the plant at 100% power, an I&C technician discovers that the results of his recently completed surveillance test administratively renders A, B and C wide range channels inoperable. Select the one statement that describes the best course of action.

- A. Trip the reactor, GO TO EOP-00, Standard post Trip Actions
- B. Place the Reactor in a hot shutdown condition within 12 hours
- C. Place the #2 trip unit on one channel in bypass and one channel in trip within one hour
- D. Log the surveillance test result in the control room log and continue steady state operation

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

The NI source range indicators provides indication at flux levels approximately 2 decades below that of the wide range indicators, even though they share detectors. What design feature provides this additional range?

- A. The "Source Range" meter uses an extra detector per channel and a "Campbell" (MSV) Circuit
- B. The "Source Range" meter uses an extra detector per channel and a more sensitive discriminator setting.
- C. The "Source Range" uses an extra detector per channel and a higher detector voltage.
- D. The "Source Range" uses an extra detector per channel with no other differences.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

According to AOP-08, which one of the following would be an indication of a fuel handling accident in containment requiring evacuation of non-essential personnel?

- A. High Containment Temperature
- B. Auto start of containment cooling and filtering units, VA-3A and VA-3B
- C. VA-66 transferring to "filter" mode
- D. A Ventilation Isolation Actuation Signal (VIAS)

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Steam Generator Tube Rupture

KA item:

Stem: Ability to operate and monitor the following as they apply to a SGTR:

Description: AFW pump control and flow indicators

Question:

A steam generator tube rupture has occurred in RC-2B. The Turbine Driven AFW Pump, FW-10, is being used to provide feedwater flow. What action is taken to prevent a radioactive release via the FW-10 steam exhaust?

- A. RCV-978 is opened to transfer FW-10 supply steam to the Auxiliary Steam System
- B. YCV-1045B is closed to isolate steam from RC-2B
- C. FW-1121A is opened to divert FW-10 exhaust to the stack.
- D. FW-10 can not be used during a steam generator tube rupture

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Question:

Stem:

Description:

The plant has been shutdown due to failed fuel and primary to secondary leaks in both steam generators. Which one of the following steaming paths should be used for the cooldown to monitor offsite radiation releases.

- A. MS-291 and MS-292
- B. HCV-1040
- C. PCV-910 and TCV-909's with Condenser Evacuation in normal alignment
- D. PCV-910 and TCV-909's with Condenser Evacuation aligned to the AB stack

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Steam Line Rupture

KA item:

Question:

Stem: Ability to operate and / or monitor the following as they apply to the Steam Line Rupture:

Description: Load sequencer status lights

Following a steam line break in containment, which one of the following loads retains its autostart feature during load sequencing?

- A. AC-3A
- B. AC-10B
- C. FW-4C
- D. FW-6

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective: EXPLAIN the functions performed by each Engineered Safeguards Control Signal.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Steam Line Rupture

KA item:

Question:

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

Description: Containment temperature and pressure considerations

Which one of the following will cause the peak containment pressure to be higher during a steam line break in containment?

- A. Providing AFW flow to the ruptured steam generator
- B. Providing AFW flow to the good steam generator
- C. Opening the MSIV bypass valve from the ruptured steam generator
- D. Opening the MSIV bypass valve from the good steam generator

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

Objective: EXPLAIN the response of containment parameters.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Loss of Main Feedwater

KA item:

Stem:

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

Question:

What is the basis for the technical specification requirement that the Emergency Feedwater Storage Tank have at least 55,000 gallons of water in it?

- A. This is the amount of water required to remove decay heat for eight hours
- B. This is the amount of water required to remove decay heat for 24 hours
- C. This is the amount of water required to cooldown the RCS to Shutdown cooling entry conditions
- D. The is the amount of water required to ensure adequate NPSH for operation of the Aux. Feedwater pumps.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Loss of Main Feedwater

KA item:

Stem: Ability to operate and / or monitor the following as they apply to the Loss of Main Feedwater (MFW):

Description: Manual startup of electric and steam-driven AFW pumps

Question:

A DC powered oil pump is provided on FW-10, Turbine-Driven Auxiliary Feedwater Pump.

Choose the statement below that correctly describes the functions] of this pump.

- A. The DC pump will provide bearing lubrication for the turbine in the event that the main oil pump trips
- B. The DC pump provides oil to operate the governor system until the main oil pump develops pressure
- C. The DC pump will provide bearing lubrication until the main oil pump develops pressure
- D. The DC pump will provide oil to BOTH the bearing and the governor system until the main oil pump develops pressure

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective: EXPLAIN the operation of the Control Oil System for the steam driven AFW pump (FW-10).

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Station Blackout

KA item:

Description:

Question:

The following plant conditions exist:  
ALL offsite and onsite power was lost at 0600 hours  
At 0800 hours the new operating crew realized the failure of the previous crew to minimize DC bus loads as per steps 15.1b and 22 of EOP-07, "Station Blackout."  
ALL other steps had been performed  
Estimates are that onsite power will be restored between 1600 and 2000 hours.  
No estimate is available for return of offsite power.

Which ONE of the following will be the consequence of a failure of either crew to perform step 15.1b (minimize DC bus loads) of EOP-07, "Station Blackout?"

A. 120 VAC could be lost prior to 1400 hours.  
B. Loss of DC control power to all 4.16 KV switchgear could be lost prior to 0900 hours.  
C. 125 VDC could be lost prior to 0900 hours.  
D. No adverse affects should be seen prior to onsite power being available.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Loss of Off-Site Power

KA item:

Description:

Question:

Which of the following group of lockout relays must be reset prior to establishing 345 KV backfeed per Attachment 21, Energizing Buses 1A1 and 1A2 from Off-Site Power.

- A. 86-1/T1A-4, 86-2/T1A-4, 86-1/T1A-3, 86-2/T1A-3
- B. 86-2/SVG1, 86-1/SVG1, 86/2-BF4, 86/2-BF5
- C. 86/161 and 86X/FT161
- D. 86/1A22, 86/1A42, 86/1A21 and 86/1A41

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

All offsite power was lost one hour ago, causing a trip from extended full power operations, and has not been regained.

Which ONE of the following is an indication of inadequate core cooling in this condition?

- A. Core delta-T is 65°F
- B. RCS subcooling is 28°F
- C. RCS hot and cold leg temperatures are decreasing
- D. CETs indicate 545°F and RCS hot leg temperature indicates 539°F

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Loss of Vital AC Electrical Instrument Bus

KA item:

Question:

Stem: Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus:

Description: RWST and VCT valves

The plant was operating at 100% steady state power when the reactor tripped due to a loss of power to bus 1A3. All control room actions for Emergency Boration were taken. Assuming bus 1A3 remains deenergized, which one of the following local operations would result in emergency boration flow?

- A. Opening HCV-258
- B. Opening HCV-265
- C. Opening HCV-268
- D. Opening LCV-218-3

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

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

reference:

attachment:

question source:

comments: VCT pressure will prevent gravity feed with no power to close LCV-218-2

## exam data entry form

question number:

Sys/Mode:

Loss of Vital AC Electrical Instrument Bus

KA item:

Stem: Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus:

Description: Normal and abnormal PZR level for various modes of plant operation

Question:

AOP-16 states that Pressurizer Level Controller "Y" becomes inoperable when Instrument bus "B" is lost.

Assume that the plant is operating at 100% power with LT-101X failed and channel "Y" selected as the control channel when a loss of Instrument Bus "B" occurred. How could you direct the Reactor Operator to maintain pressurizer level in that situation?

- A. Keep the selector switch on channel "Y" and control level using the "Y" controller in manual. Use LI-106 with the TDB correction curves to maintain level at 60%
- B. Place the selector switch to channel "X" and control level using the "X" controller in manual. Use LI-106 with the TDB correction curves to maintain level at 60%
- C. Keep the selector switch on channel "Y" and control level using the "Y" controller in manual. Use LI-106 with the TDB correction curves to maintain level at 48%
- D. Place the selector switch to channel "X" and control level using the "X" controller in manual. Use LI-106 with the TDB correction curves to maintain level at 48%

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

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

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Loss of DC Power

KA item:

Question:

Stem: Ability to determine and interpret the following as they apply to the Loss of DC Power:

Description: That a loss of dc power has occurred; verification that substitute power sources have come on line

An EOP-20 event has occurred involving a loss of DC bus# 1. DC bus #2 is being powered by a battery charger. What other condition must be met before the MVA-DC safety function is satisfied?

- A. DC bus #1 must be reenergized
- B. DC loads must be minimized
- C. Instrument buses associated with DC bus #1 must be powered
- D. Switchgear DC control power must be supplied by DC bus #2

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective: EXPLAIN how the Resource Assessment Trees are used in terms of Safety Function priority and success path priority within each tree.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Loss of DC Power

KA item:

Question:

Stem: Knowledge of the reasons for the following responses as they apply to the Loss of DC Power:

Description: Use of dc control power by D/Gs

The reactor tripped due to a loss of offsite power. A fault occurred on DC bus#1. What DC control power Emergency MTS buttons must be operated before FW-6 can be used to supply water to the steam generators?

- A. The 1A1-1A3 and the D1 Emergency Source pushbuttons
- B. The 1A1-1A3 and the D2 Emergency Source pushbuttons
- C. The 1A2-1A4 and the D1 Emergency Source pushbuttons
- D. The 1A2-1A4 and the D2 Emergency Source pushbuttons

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Accidental Liquid Radwaste Release

KA item:

Stem: Knowledge of the operational implications of the following concepts as they apply to Accidental Liquid Radwaste Release:

Description: Types of radiation, their units of intensity and the location of the sources of radiation in a nuclear power plant

Question:

Which one of the following operations may cause significant changes in radiation levels outside the RCA when operating with damaged fuel at FCS?

- A. Recirculating a monitor tank
- B. Transferring water between Waste Holdup Tanks
- C. Placing a gas decay tank in service
- D. Transferring a High Integrity Container into a shipping cask

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective: When given specific plant conditions, apply operating principles to predict response of the Waste Disposal Liquid System (WDLS).

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

How will the area radiation monitors at Fort Calhoun Station respond to a small drop in detector voltage?

- A. The detector output will remain steady
- B. The detector output will be lower
- C. The detector output will be higher
- D. The detector output will spike than return to normal

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

The plant is operating at 80% power when a fire breaks out in the turbine building in the vicinity of the main Generator. Attempts to extinguish the fire are unsuccessful. What actions should be taken according to AOP-06?

- A. Initiate an AOP-05 shutdown, isolate hydrogen to the generator and supply CO2 to the generator.
- B. Initiate an AOP-05 shutdown, isolate hydrogen to the generator and vent the generator to the turbine building roof.
- C. Trip the Reactor, isolate hydrogen to the generator and supply CO2 to the generator.
- D. Trip the Reactor, isolate hydrogen to the generator and vent the generator to the turbine building roof.

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

A fire in the Upper Electrical Penetration Room poses a dual threat to safe plant shutdown due to the fact that Alternate Shutdown Panels are located in this area and \_\_\_\_\_.

- A. A fire in this area could easily spread into the Diesel Generator Rooms.
- B. A fire in this area could be potentially hazardous to extinguish due to high voltage equipment in the room.
- C. A fire in this area could cause control problems, as most of the Instrument and Control Loops for Containment pass through this room.
- D. A fire in this area could easily spread into the Containment through Containment Penetrations in the room.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

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

Question:

The following conditions exist:  
The control room has been evacuated.  
A plant cooldown must be conducted from the Alternate Shutdown Panel.  
Which one of the following describes the actions necessary to avoid PPLS during this cooldown?

- A. PPLS must be blocked as part of the process of evacuating the control room.
- B. PPLS will not auto initiate with control at the Alternate Shutdown Panel.
- C. All affected equipment must be placed in Pull-to-Lock locally at their breaker panels.
- D. The control power fuses of all affected equipment are removed from their breakers cabinets.

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective: Describe how the plant may respond to a fire in the following locations.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Control Room Evacuation

KA item:

Stem: Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation:

Description: Maintenance of S/G level, using AFW flow control valves

Question:

Remote shutdown panel operation is taking place due to control room evacuation. Which one of the following actions will occur when the transfer switches on AI-179 are taken to local if S/G levels decrease to the AFAS low level setpoint?

- A. AFAS will open valves HCV-1107A, HCV-1107B, HCV-1108A, HCV-1108B and FW-10 will auto start
- B. AFAS will open HCV-1107A and HCV-1108A. HCV-1107B and HCV-1108B can be throttled. FW-10 will auto start
- C. AFAS signals to HCV-1107A, HCV-1107B, HCV-1108A, HCV-1108B and FW-10 are blocked
- D. AFAS will open valves HCV-1107A, HCV-1107B, HCV-1108A and HCV-1108B. FW-10 will not start automatically

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

Objective: EXPLAIN the operation of the auxiliary relays (43X/RC2A and 43X/RC-2B) and transfer switches (43/RC-2A and 43/RC-2B) on AI-179.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Loss of Containment Integrity

KA item:

Description:

Question:

When annunciator window CB-1/2/3, A4, E3, "Personnel Air Lock Door Open" is in alarm, it informs the control room operator that:

- A. The outer PAL door is open or ajar
- B. The Inner PAL door is open or ajar
- C. Both of the PAL doors are open or ajar
- D. Either of the PAL doors are open or ajar

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Ability to operate and monitor the following as they apply to a Inadequate Core Cooling:

Description: Condensate storage tank level gauge

Question:

An instrument air line blockage occurs that results in a loss of instrument air to Condensate Makeup valve, LCV-1190, and Condensate Dump valve LCV-1193. Assuming no operator actions were taken, how would Condensate Storage Tank level respond over the next six hours?

- A. Condensate Storage Tank level would steadily lower.
- B. Condensate Storage Tank level would steadily rise.
- C. Condensate Storage Tank level would steadily lower for approximately 4 hours, then begin to lower at a faster rate.
- D. Condensate Storage Tank level would steadily rise for approximately 4 hours, then begin to rise at a faster rate.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective: Explain the principles of normal operation of the Condensate System as they apply to flowpaths, major operating parameters and operation of all major control devices.

reference:

attachment:

question source:

comments: Nitrogen backup will supply LCV-1190 for approximately 4 hours, it will then open fully

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

The reactor was scheduled for restart 18 hours after a trip from an extended 100% power run. An Estimated Critical Condition calculation was performed to determine the desired boron concentration for the startup. If the reactor startup was then delayed by 8 hours, the boron concentration would have to be \_\_\_\_\_ to prevent a \_\_\_\_\_ critical rod position.

- A. Raised, lower
- B. Raised, higher
- C. Reduced, lower
- D. Reduced, higher

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

The plant is shutting down for a refueling outage following an extended full power run. Reactor power is to be held at approximately 2% to perform turbine overspeed testing. Which one of the following approaches would allow the best reactivity control during this evolution?

- A. Ensure that control rods remain as far out as possible during the shutdown. Use wide range nuclear instrumentation to monitor reactor power.
- B. Ensure that control rods are adequately inserted into the core during the shutdown. Use wide range nuclear instrumentation to monitor reactor power.
- C. Ensure that control rods remain as far out as possible during the shutdown. Use delta-T instrumentation to monitor reactor power.
- D. Ensure that control rods are adequately inserted into the core during the shutdown. Use delta-T instrumentation to monitor reactor power.

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCS controls including:

Description:

Question:

An operator was in containment during RCS venting. During this venting operation, the radioactive gas concentration in containment was estimated to be 15 times the Derived Airborne Concentration. The radiation in the area was 20 mr/hr. The operator was in containment for 2 hours with no respiratory equipment.

What contribution to his TEDE did the operator receive during this evolution.

- A. 50 mrem
- B. 70 mrem
- C. 115 mrem
- D. 600 mrem

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Knowledge of the operational implications of the following concepts as they apply to the RCS:

Description: Basic heat transfer concepts

Question:

Following a refueling outage, 3 reactor coolant pumps were used to heat the RCS up from 300F to 500F. Shutdown cooling was not in operation. Blowdown was isolated during this heatup. Which one of the following statements will be true concerning the heatup rate.

- A. The RCS heatup rate will remain constant from 300 to 500F
- B. The heatup rate will get larger as RCS temperature rises.
- C. The heatup rate will get smaller as RCS temperature rises.
- D. The heatup rate will get larger up to 385F, and will get smaller as temperatures rise to 500F

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective: EXPLAIN how the RCS is started up and shutdown, using applicable Operating Instructions as a guide for major steps, prerequisites and precautions.

reference:

attachment:

question source:

comments: Answer can be deduced from application of basic heat transfer. Heat losses become greater at higher system temperatures. With a constant heat input, heatup rate will decrease as temperature rises.

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Annunciator CB-1/2/3, A6, "Reactor Coolant Pump RC-3A Vibration HI" is in alarm. What action, if any, must be taken to reset the high vibration alarm?

- A. Once the vibration is below the alarm setpoint, the alarm will automatically reset.
- B. Once the vibration is below the alarm setpoint, the alarm can be manually reset at CB-1/2/3.
- C. Once the vibration is below the setpoint, the alarm can be reset at the AI-270 display.
- D. Once the vibration is below the setpoint, the alarm can be reset at a ERF computer terminal.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Pressurizer spray flow is provided from the discharge of Reactor Coolant Pumps \_\_\_\_\_.

- A. RC-3A & RC-3B
- B. RC-3A & RC-3C
- C. RC-3B & RC-3C
- D. RC-3B & RC-3D

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

# exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Plant controls are aligned as follows:

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

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

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

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

The plant is operating at 100% power. The following plant conditions exist:

One charging pump is operating. 40 gpm charging flow is indicated  
Indicated letdown flow is 36 gpm  
VCT level as shown on the lever recorder is lowering  
Pressurizer pressure and level and RCS temperatures are steady on all indicators  
Containment and Aux Building sump levels are steady

Which one of the following could cause these indications?

- A. There is a leak in the RCS piping
- B. There is a leak in the charging line
- C. VCT level switch, LCS-218, has failed high
- D. VCT pressure transmitter, PT-220, has failed high

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Which one of the following accidents could potentially have more severe consequences if the boron concentration in the SIRWT was below the Technical Specification Limit?

- A. A steam generator tube rupture
- B. A steam line break
- C. A loss of feedwater
- D. A loss of coolant accident

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

A loss of coolant accident has occurred. All three HPSI pumps have failed to start. All other equipment operates as designed. Which one of the following LOCA events will result in significant fuel damage (beyond the 10 CFR 50.46, ECCS acceptance criteria) without operator action?

- A. A 1-inch diameter cold leg break
- B. A 8-inch diameter hot leg break
- C. A Double-ended cold leg break
- D. A Double-ended hot leg break

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

Component cooling water to the Reactor Coolant Pumps will be isolated:

- A. Following any CIAS signal
- B. Following a CIAS with CCW pump discharge pressure less than 40 psig for 30 seconds.
- C. Following a SIAS with CCW discharge pressure less than 60 psig for 15 seconds
- D. Following any SIAS with RCP cooling flow less than 33 gpm for 15 seconds

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Which one of the following is an indication of void formation in the RCS during natural circulation cooling?

- A. Pressurizer level lowering rapidly when directing charging flow to pressurizer auxiliary spray.
- B. Pressurizer level rising rapidly when directing charging flow to pressurizer auxiliary spray.
- C. Pressurizer level lowering rapidly when directing charging flow to the RCS loops.
- D. Pressurizer level rising rapidly when directing charging flow to the RCS loops.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

How can you determine if you have lost power to the acoustic monitor for safety valve, RC-142?

- A. All of the lights on the RC-142 module behind CB-1/2/3 will be off
- B. The "RC-142 Hi Flow" alarm on CB-1/2/3, A4 will come in
- C. The "RC-142 Loss of Indication" alarm on CB-1/2/3, A4 will come in
- D. The ERF computer "Loss of RC-142 Instrument Power" alarm will come in

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

The plant is operating at steady state 100% power. Channels 101X and 103Y are selected as the controlling channels. How will the actual pressurizer parameters respond if LT-101Y fails low and no operator action is taken?

- A. Pressurizer pressure will rise
- B. Pressurizer pressure will lower
- C. Pressurizer level and pressure will rise
- D. Pressurizer level and pressure will lower

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Reactor Protection System

KA item:

Stem: Ability to predict and/or monitor Changes in parameters (to prevent exceeding design limits) associated with operating the RPS controls including:

Description: Trip setpoint adjustment

Question:

The reactor is stable at 12% power. The turbine has just tripped due to an overspeed test, when a steam dump valve fails wide open causing a power increase. Which one of the following will cause the reactor to trip?

- A. The reactor will trip when startup rate reaches 1.6 DPM
- B. The reactor will trip when power reaches 15%
- C. The reactor will trip when power reaches 19.1%
- D. The reactor will trip when power reaches 29.1%

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

Objective: STATE the NSSS parameters and points that enable, disable and/or permit the following RPS trip functions:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Reactor Protection System

KA item:

Stem: Ability to monitor automatic operation of the RPS, including:

Description: Single and multiple channel trip indicators

Question:

The bistables for channel "A" trip units 1, 9 and 12 have been placed in the "tripped" condition. None of the trips are bypassed. Which one of the following instrument failures will result in a reactor trip?

- A. "A" channel NIS power range input to the RCS fails high
- B. "B" channel pressurizer pressure input to the RCS fails high
- C. "C" channel cold leg temperature input to the RCS fails low
- D. "D" channel RCS flow input to the RCS fails low

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective: Explain the difference in the resultant coincidence if one channel in a 2 of 4 logic configuration is bypassed or de-energized.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

Which of the following switches are used by the operators during testing of the prime initiation relays to prevent safeguards initiation on the other safeguards train?

- A. The Derived cutoff switches
- B. The bypass switches
- C. The isolation override switches
- D. The test switches

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

345KV backfeed has been terminated in preparation for plant startup. Under these conditions, what points in the electrical distribution system are being monitored for initiation of OPLS?

- A. The secondary of transformers T1A-1, T1A-2, T1A-3 and T1A-4
- B. Bus 1A3, Bus 1A4, and the secondary of transformers T1A-1 and T1A-2
- C. Bus 1A3, Bus 1A4, and the secondary of transformers T1A-3 and T1A-4
- D. Bus 1A3, Bus 1A4, and the secondary of transformers T1A-1, T1A-2, T1A-3 and T1A-4

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

A xenon oscillation could best be identified and controlled by trending \_\_\_\_\_ and is most likely to diverge at the \_\_\_\_\_ of a cycle.

- A. ASI, beginning
- B. ASI, end
- C. NI-Delta T power mismatch, beginning
- D. NI-Delta T power mismatch, end

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

The plant is operating at 50% power with the channel A Power Range Safety Drawer in bypass. Which one of the following describes the effect deenergizing another power range safety drawer?

- A. The reactor will trip
- B. The Reactor will trip only if the second drawer is channel C
- C. No trip will occur and the trip logic becomes 1 of 2
- D. No trip will occur and the trip logic becomes 2 of 2

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

After a calibration check of some instrument channels, it was determined that the plant is operating with the following plant conditions:

T-cold = 552F  
Power = 105%  
PZR Pressure = 2010 psia

Which one of the following statements is true?

- A. The plant may continue to operate. The channels need to be recalibrated within eight hours.
- B. The plant must be shutdown within one hour and remain in hot shutdown until the channels are recalibrated.
- C. The plant must be shutdown within eight hours and this event reported to the SARC chairperson within 24 hours.
- D. The plant must be shutdown within one hour and this event reported to the SARC chairperson within 24 hours.

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Which one of the following failures will result in automatic closure of containment cooler inlet and outlet valves to cooling coil VA-1A, HCV-400A/C, with a CIAS signal present?

- A. CCW pump discharge pressure switches, PCS-412 and PCS-413, fail low.
- B. CCW flow from coil VA-1A, FC-416A, fails low
- C. CCW return temperature from coil VA-1A fails high
- D. Containment cooling fan, VA-3A, trips.

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Representative Core Exit Thermocouple temperature is \_\_\_\_\_ and can be read \_\_\_\_\_ when the ERF computer is not working.

- A. The highest reading CET temperature for a designated group of CETs, on CB-1/2/3
- B. The highest reading CET temperature for a designated group of CETs, on the QSPDS
- C. The average CET temperature for a designated group of CETs excluding invalid CETs, on CB-1/2/3
- D. The average CET temperature for a designated group of CETs excluding invalid CETs, on the QSPDS

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Knowledge of the operational implications of the following concepts as they apply to the ITM system:

Description:

Question:

Following a loss of coolant accident, the ECCS system has fully actuated. The RCS pressure is 50 psia, Core Exit Thermocouples are reading between 275F and 285F, hot leg temperatures are reading between 520F and 540F and RVLMS = 28%. The hot leg RTDs indicate:

- A. The hot leg RTD's are indicating subcooled temperatures because the core is covered
- B. The hot leg RTD's are indicating saturation temperature because the core is covered.
- C. The hot leg RTDs are indicating superheated temperatures because the core is uncovered.
- D. The hot leg RTDs are indicating superheated temperatures because the pipe walls are uncovered.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

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

Description:

Question:

An overcurrent condition has occurred for the motor for fan VA-3A. How will the fan respond?

- A. The fan will continue to run unless manually tripped by the operator.
- B. The fan will trip unless a PPLS or CPHS actuation signal is present
- C. The fan will trip unless a CSAS actuation signal is present
- D. The fan will trip regardless of any ESF actuation signals.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

A loss of coolant accident has occurred. Containment pressure is 25 psia. All systems are operating as designed. Which one of the following containment cooling systems will have CCW isolated to it?

- A. Containment cooling units.
- B. Containment cooling and filtering units
- C. Detector well cooling
- D. CEDM cooling.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

# exam data entry form

question number:

Sys/Mode:

Containment Spray System

KA item:

Stem: Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following:

Description: Prevention of path for escape of radioactivity from containment to the outside (interlock on RWST isolation after swapover)

Question:

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

RCS Pressure = 700 psia  
Containment Pressure = 8 psig  
RAS has occurred  
HPSI and Containment Spray pumps are operating  
LPSI pumps are not running  
HCV-385 and HCV-386 are open  
LCV-283-1 and LCV-383-2 are closed  
HCV-383-3 and HCV-383-4 are open

Which of the following statements is true:

- A. All systems are operating as designed.
- B. Action must be taken to prevent damage to the HPSI and/or Containment Spray Pumps
- C. Action must be taken to provide more ECCS flow
- D. Action must be taken to isolate a radiation release path

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

Objective: Explain overall system response to actuation of automatic engineered safeguards signals: Recirculation Actuation Signal (RAS).

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Fuel Handling Equipment System

KA item:

Stem:

Description:

Question:

During refueling operations, a new fuel assembly was inserted into the core. The following counts were recorded prior to insertion of the assembly:  
(Channels A, B & C are connected to scaler-timers

A = 262 B = 290 C = 308 D = 228

After insertion of the assembly, the following counts were observed:

A = 270 B = 0 C = 312 D = 232

Can the next fuel assembly be inserted into the core?

- A. Yes, only two channels of counts are required to proceed
- B. Yes, but only with written permission from the Reactor Engineer
- C. No, the bundle should be withdrawn to observe the affect on countrate
- D. No, since the base counts were taken on three channels, a new base count should be taken on two channels

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Fuel Handling Equipment System

KA item:

Stem: Knowledge of the effect of a loss or malfunction on the following will have on the Fuel Handling System :

Description: Radiation monitoring systems

Question:

Core reload is in progress

Which one of the following situations would require immediate suspension and not allow further fuel handling activities as per Technical Specifications until the situation is remedied.

- A. The running Low Pressure safety Injection pump is stopped for 22 minutes to allow inserting a fuel bundle near the loop 2 hot leg
- B. RM-052 and RM-062 become inoperable
- C. All of the Aux building supply fans become inoperable
- D. RM-091A and RM-091B become inoperable

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

Objective: Discuss the prerequisites and precautions associated with fuel handling equipment and the refueling machine.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Steam Generator System

KA item:

Stem: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the S/GS controls including:

Description: S/G wide and narrow range level during startup, shutdown, and normal operations

Question:

Choose the statement below that best describes the response of the Feedwater Regulating System to a High Steam Generator Level Condition (85% Narrow Range)

- A. FIC 1101/1102 controller is shifted to AUTO and the signal from the Level Control Block (FRV Demand) is interrupted by contact opening causing the FRV to close.
- B. FIC 1101/1102 controller is shifted to MANUAL and the signal from the Level Control Block (FRV Demand) is interrupted by contact opening causing the FRV to close.
- C. FIC 1101/1102 controller is shifted to AUTO and the signal from the Level Control Block (FRV Demand) is grounded causing the FRV to close.
- D. FIC 1101/1102 controller is shifted to MANUAL and the signal from the Level Control Block (FRV Demand) is grounded causing the FRV to close.

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective: EXPLAIN "tracking" as it applies to the Feedwater Control System.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Steam Generator System

KA item:

Stem: Knowledge of S/GS design feature(s) and/or interlock(s) which provide for the following:

Description: S/G level indication

Question:

As Control Room Operator you are controlling S/G Level using LIC 903Y/906Y, in MANUAL Mode, via the Feedwater Bypass Valves HCV-1105/1106. The setpoint knob was originally set for 65% as a level setpoint. On monitoring S/G Level you notice a "large" deviation indicated on the deviation meter.

CHOOSE the statement below that best describes your actions regarding LIC-903Y/906Y.

- A. Turn the setpoint knob to a higher setpoint which will bring the level back to 65%
- B. Turn the setpoint knob to a lower setpoint which will bring the level back to 65%
- C. Move the MANUAL control to the far right [open valve] for a negative deviation or the far left [close valve] for a positive deviation to quickly restore the deviation to zero
- D. Move the MANUAL control in small increments to the right [open valve] for a negative deviation or in small increments to the left [close valve] for a positive deviation and restore the deviation to zero in small steps

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective: EXPLAIN "tracking" as it applies to the Feedwater Control System.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

What would be the result if the 74 degrees open limit switch failed during opening of a Main Steam Isolation Valve?

- A. The MSIV would reclose
- B. An Asymmetric steam generator trip signal would be generated
- C. A Turbine trip signal would be generated
- D. The MSIV would take longer than usual to open

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Which one of the following steam line break locations will result in the greatest RCS cooldown if both MSIVs fail in the open position?

- A. On the "A" steam line, in containment, upstream of the flow restrictor.
- B. On the "B" steam line, in containment, just inside of the containment wall.
- C. On the "A" steam line, in room 81, just outside of the containment wall.
- D. On the "B" steam line, downstream of room 81, just outside the control room door.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

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

Question:

Which one of the following situations requires taking manual control of the condenser steam dump and bypass valves (TCV-909's and PCV-910) to maintain RCS T-cold at approximately 532 degrees F following a reactor trip?

- A. A loss of instrument air pressure.
- B. A loss of condenser vacuum
- C. A loss of all Reactor Coolant Pumps
- D. A loss of all Main Feedwater pumps

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

The Technical Specification Minimum Boltup temperature limitation of 82F is designed to prevent:

- A. Brittle fracture of the Reactor Vessel beltline welds
- B. Brittle fracture of the Reactor Vessel flange
- C. Ductile fracture of the Reactor Vessel beltline welds
- D. Ductile fracture of the Reactor Vessel flange

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

What is the best action to take if both automatic and manual Main Turbine trip fails?

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

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Main Turbine Generator System

KA item:

Stem: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MT/G system controls including:

Description: Expected response of secondary plant parameters following T/G trip

Question:

Which one of the following statements describes the response of the Feedwater Regulating System to a Turbine Trip?

- A. The FIC (SPEC 200) rampdown function generates an 8% output to the Feedwater Regulating Valve (FRV) and the FRV closes to 8% of full open which corresponds to 5% of full power flow.
- B. The FIC (SPEC 200) rampdown function generates an 5% output to the Feedwater Regulating Valve (FRV) and the FRV closes to 5% of full open which corresponds to 8% of full power flow.
- C. The FIC (SPEC 200) rampdown function interrupts the output of the Flow Control Block and the FRV closes to 8% of full open which corresponds to 5% of full power flow.
- D. The FIC (SPEC 200) rampdown function interrupts the output of the Flow Control Block and the FRV closes to 5% of full open which corresponds to 8% of full power flow.

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

The standby vacuum pump started on lowering vacuum. What action, if any, is required to stop the standby vacuum pump once proper vacuum is restored?

- A. The standby vacuum pump will shut off automatically once vacuum is restored.
- B. The standby vacuum pump can be stopped using the local pushbutton. But it will not automatically restart unless it is shutdown from the control room.
- C. The standby pump can be stopped using the control room switch, but must be locally reset before autostart capability is restored.
- D. The standby pump can be stopped using either the control room switch or the local pushbutton. It will autostart if needed.

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

What radionuclide is responsible for the high sensitivity of RM-057 in detecting primary to secondary leakage?

- A. N-16
- B. I-131
- C. Xe-133
- D. U-238

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Main Feedwater System

KA item:

Stem: Ability to monitor automatic operation of the MFW, including:

Description: Starts and stops on the main feed pumps

Question:

The plant is operating at 100% power. FW-4A and FW-4B are operating, when a LOCA occurs in containment. RCS pressure drops to 800 psia and containment pressure rises to 12 psia. During standard post-trip actions, the RO reports that all three Feedwater Pumps are tripped and that the 43-SIAS/FW4 switch was incorrectly placed in the FW-4C position. The RO requests permission to restart a main feedwater pump. What direction do you give him?

- A. Direct the RO to establish auxiliary feedwater flow because it is not possible to start a main Feedwater Pump in this condition
- B. Direct the RO to establish auxiliary feedwater flow even though it is possible to start a main Feedwater Pump in this condition
- C. Direct the RO to ensure that the 43/FW switch is the "OFF" position and start FW-4C
- D. Direct the RO to place the 43-SIAS/FW4 switch in the 'FW-4B' position and restart FW-4B

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective: EXPLAIN the automatic features and interlocks associated with the feedwater components.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

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

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

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Assuming that AFAS had been lined up for normal operation (emergency standby) and a cooldown transient resulted in the conditions listed below exist:

S/G A level = 30% WR      S/G A pressure = 580 psia

S/G B level = 38% WR      S/G B pressure = 710 psia

Which one of the following statement describes the automatic operation of the AFW system for these conditions?

- A. AFW would not be supplying either steam generator
- B. AFW would supply only S/G A
- C. AFW would supply only S/G B
- D. AFW would supply both S/G's

answer:

CFR:

higher level:

RO:

SRO:

LP number:      Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

A reactor startup is in progress. FW-54 is being used as a feedwater source. If a loss of offsite power occurs and DG-2 fails to start, how will power be supplied to MCC-4C6 to power FW-54 auxiliaries?

- A. Power will automatically be supplied from D/G-1 via MCC-4C5
- B. Power will automatically be supplied from FW-54's shaft driven generator
- C. Power will be supplied from D/G-1 via MCC-4C5 after transfer switch EE-55 is manually operated
- D. Power will be supplied from FW-54's shaft driven generator after transfer switch EE-55 is manually operated

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

With an AFAS present, throttling the AFW Control Valve HCV-1107B using the hand controller on CB-10, requires the four-position switch on AI-66A to be selected to:

- A. CLOSE
- B. RESET
- C. AUTO
- D. OPEN

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

AOP-31 covers the situation where all 4160V buses are fed from the 22KV system. The reason special operations are required under these circumstances is that:

- A. All ESF loads are being supplied by only one off-site power supply.
- B. Fault current may exceed the maximum current interrupting capability of the supply breakers.
- C. Transformer faults may overload the supply bus.
- D. Differential voltages may develop if the loads are not balanced between transformers

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

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

Description: Effects of switching power supplies on instruments and controls

Question:

With a normal electrical system lineup, which one of the following statements would be true if instrument inverter "C" failed?

- A. Power would be lost to instrument bus "C" until manually restored.
- B. The supply for instrument bus "C" would automatically switch to the bypass transformer for inverter "C".
- C. The cross tie breakers between instrument buses "A" and "C" would automatically close to supply instrument bus "C".
- D. The cross tie breakers between instrument buses "1" and "C" would automatically close to supply instrument bus "C".

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

What does the red light above the EDG Breaker Auto Close Test Switch Indicate?

- A. It indicates when the auto closure relay picks up in response to the test switch.
- B. It indicates the occurrence of a "Breaker Off AUTO" alarm
- C. It indicates the breaker is in the test position
- D. It indicates that the Breaker Protection Mode Test Switch is positioned incorrectly

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

What is the result of placing the 183 Master Emergency Switch in the Emergency Mode at AI-133 A/B?

- A. The Diesel-Generator will immediately start and go to idle speed. If associated bus voltage is low, it will go to full speed.
- B. The Diesel-Generator will start and go to full speed, even if the associated bus voltage is normal.
- C. All automatic starts will be disabled. The Diesel-Generator can be started manually locally and from the control room
- D. All automatic starts will be disabled. The Diesel-Generator can be started manually locally but not from the control room.

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Ability to (a) predict the impacts of the following malfunctions or operations on the Liquid Radwaste System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Description:

Question:

A sample was taken from the waste monitor tank prior to discharge. A release permit. Including the RM-055 setpoints, was prepared based on that sample. A few minutes after the release was initiated with the monitor tank pump selector switch in LEVEL, the running monitor tank pump tripped and HCV-691 and HCV-692 closed. Which one of the following was the most likely cause?

- A. A VIAS signal was received during the release
- B. One of the monitor tank inlet valves was not closed prior to the release
- C. The release flow rate was too low
- D. The monitor tank was not recirculated adequately

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Knowledge of the physical connections and/or cause effect relationships between the Liquid Radwaste System and the following systems:

Description: Waste gas vent header

Question:

Inside containment, water collected in the waste gas vent header can be drained to \_\_\_\_\_ via WD-199.

- A. The Containment Sump
- B. The Reactor Coolant Drain Tank (RCDT)
- C. The Pressurizer Quench tank (PQT)
- D. The Equipment Drain Header

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

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

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Waste Gas Disposal System

KA item:

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

Description: Water drainage from the WGOS decay tanks

Question:

The "Moisture Separator WD-28A HI/LO Level" alarm was received on AI-100. The EONA noted that the level in the sight glass was high and that valves LC-533A and LC-533B were both open. What action should be taken?

- A. Trip the waste gas compressor
- B. Open WD-216 to drain the moisture separator
- C. Isolate Demineralized water to the moisture separator
- D. Isolate the gas analyzer from the system

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective: EXPLAIN the operation of controls located in the Control Room associated with the Waste Disposal (Gas) System.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Waste Gas Disposal System

KA item:

Stem: Knowledge of the physical connections and/or cause-effect relationships between the Waste Gas Disposal System and the following systems:

Description: ARM and PRM systems

Question:

In accordance with the Waste Gas Release procedure (OI-WDG-2), which one of the following conditions would require immediate termination of a waste gas release?

- A. The stack radiation monitor becomes inoperable
- B. The stack radiation monitor goes into alarm
- C. The waste gas flow rate recorder fails
- D. The wind direction or stability class changes

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective: Using OI-WDG-2 and other plant references, EXPLAIN conditions that would require immediate termination of a waste gas release.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

Description:

KA item:

Question:

The EONA reports that one of the local area radiation monitors has gone into alert. This is an indication that radiation levels in the area are:

- A. Approaching the 10 CFR 20 limits
- B. Exceeding the 10 CFR 20 limits
- C. Above 5 mr/hr
- D. Above 100 mr/hr

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

A source check is being performed on Containment Noble Gas Monitor (RM-051). During this test, the digital display will indicate increasing counts.

- A. Annunciator "RM-051 CNTMT NOBLE GAS HIGH RADIATION" will alarm and CRHS will occur if the monitor is not in keypad
- B. Annunciator "RM-051 CNTMT NOBLE GAS HIGH RADIATION" will alarm but CRHS will not occur
- C. Annunciator "RM-051 CNTMT NOBLE GAS HIGH RADIATION" will not alarm but CRHS will occur if the monitor is not in keypad
- D. Annunciator "RM-051 CNTMT NOBLE GAS HIGH RADIATION" will not alarm and CRHS will not occur

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

Instrument Air Containment Isolation Valves, 1849A and 1849B, have automatically closed during a plant event which resulted in a CIAS and loss of instrument air pressure. Following the event, CIAS was reset and Instrument air pressure was raised to 75 psig. The operator attempted to open 1849A, but it would not open. What additional action must be taken before PCV-1849A will open?

- A. PCV-1849B must be opened
- B. PCV-1753 must be opened
- C. PCV-1749A & B must be opened
- D. Instrument air pressure must be raised above 80 psig

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

All off-site power has been lost. D1 and D2 have re-energized buses 1A3 and 1A4. What action must be taken to restart an air compressor?

- A. No action is needed. The standby air compressor will start when the Diesel Generator energizes the 480V buses.
- B. Start a Bearing Water Pump, then restart the air compressor using the control room switches
- C. Start a Bearing Water Pump from the control room, then send the Water Plant Operator to locally start an air compressor
- D. Send the Water Plant Operator to room 19 to establish backup cooling and locally start an air compressor

answer:

CFR:

higher level:

LP number:

Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Knowledge of the physical connections and/or cause-effect relationships between the Fire Protection System and the following systems:

Description: High-pressure service water

Question:

Following a loss of the Raw Water System, backup cooling is being provided to the CCW heat exchangers using the Fire Protection System. What should be the final position of the Raw Water inlet valves (HCV-2880A through HCV-2883A) and the outlet valves (HCV-2880B through HCV-2883B) for the selected heat exchanger?

- A. Inlet and Outlet valves should both be closed
- B. Inlet and Outlet valves should both be open
- C. The inlet valves should be open and the outlet valves closed
- D. The inlet valves should be closed and the outlet valves open

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Containment System

KA item:

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

Description: Containment evacuation (including recognition of the alarm)

Question:

According to Standing Order O-21, with fuel in the reactor vessel, the Containment Equipment Hatch should not be opened unless it can be closed prior to reaching bulk boiling in the RCS. What is the basis for this requirement?

- A. Bulk boiling in the RCS may result in the immediate release of fission products
- B. Once bulk boiling starts, containment pressure may prevent closing the equipment hatch
- C. Steam produced by the bulk boiling may render the containment charcoal filters ineffective
- D. With a positive void coefficient, bulk boiling may result in a loss of shutdown margin

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

Containment System

KA item:

Stem: Knowledge of containment system design feature(s) and/or interlock(s) which provide for the following:

Description: Containment isolation system

Question:

Which one of the following will result in a Containment Isolation Actuation Signal (CIAS)?

- A. Containment Radiation Monitor, RM-050, fails high and alarms.
- B. Pressure in both steam generators drops below 500 psia due to a steam line break downstream of the MSIVs
- C. Pressurizer pressure channel B/PIA-102Y fails low
- D. Inadvertent actuation of ESF relay, 86A/CPHS,

answer:

CFR:

higher level:

RO:

SRO:

LP number: Objective #:

RO IMP:

SRO IMP:

Objective: EXPLAIN how each prime and backup actuation signal is developed.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

What actions must be taken, according to technical specifications, if the allowable cooldown rate is exceeded?

- A. Immediately stabilize pressure and temperature. Then perform an analysis to determine the effects of the out of limits condition on the fracture toughness properties of the RCS.
- B. Immediately restore pressure and temperature to within the limits. Then perform an analysis to determine the effects of the out of limits condition on the fracture toughness properties of the RCS.
- C. Immediately stabilize pressure and temperature. Prior to restart, remove and test weld material samples from capsules for fracture toughness properties.
- D. Immediately restore pressure and temperature to within the limits. Prior to restart, remove and test weld material samples from capsules for fracture toughness properties.

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem:

Description:

Question:

What are the potential consequences of defeating the automatic rampdown feature of the main feedwater regulating valves?

- A. AFAS actuation following a reactor trip
- B. A steam generator water hammer following a reactor trip
- C. A loss of RCS heat removal following a reactor trip
- D. Overcooling of the RCS following a reactor trip

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Question:

Stem:

Description:

The plant tripped from 100% power following a transient involving the loss of forced flow from all four reactor coolant pumps. The following conditions exist:

RCS pressure is 2000 psia  
Pressurizer level is 50%  
Steam Generator Pressures are 900 psia  
Steam Generator Wide Range Levels are 40%

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

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

answer:

CFR:

higher level:

RO:

SRO:

LP number:  Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Knowledge of the operational implications of the following concepts as they apply to the (Excess RCS Leakage)

Description: Components, capacity, and function of emergency systems.

Question:

In Section III of AOP-22, Reactor Coolant Leak Within Charging Capacity, after verifying RCS pressure less than 1700 psia the operator is directed to block PPLS.

Of the following, which ONE is the reason for this direction?

- A. To allow better RCS pressure control by preventing the injection of cold SIRWT water.
- B. To enable Low Temperature Overpressure Protection circuitry.
- C. To maintain the normal boration path available during Steam Generator depressurization.
- D. To prevent initiation of safety injection with HPSI stop-and-throttle criteria already met.

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective: Describe how the plant responds to a Reactor Coolant Leak in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Sys/Mode:

KA item:

Stem: Knowledge of the interrelations between the (Excess Steam Demand) and the following:

Description: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Question:

Which one of the following statements is true regarding HPSI stop and throttle?

- A. HPSI flow should be reduced as soon as a UHE is diagnosed
- B. HPSI flow should be reduced prior to the affected steam generator drying out in an UHE.
- C. HPSI flow should not be reduced until all stop and throttle criteria are met in a UHE.
- D. HPSI flow should not be reduced during a UHE.

answer:

CFR:

higher level:

LP number:  Objective #:

RO:

SRO:

RO IMP:

SRO IMP:

Objective: GIVEN a copy of the HPSI Stop and Throttle Criteria floating step, EXPLAIN the four indications used to determine the HPSI Stop and Throttle Criteria are met.

reference:

attachment:

question source:

comments:

## exam data entry form

question number:

Stem:

Sys/Mode:

KA item:

Description:

Question:

You, as CRS, have entered EOP-20 due to multiple events. When would you notify the Shift Chemist to sample the steam generators using CH-SMP-SE-015, "Steam Generator Sampling - Room 60" ?

- A. During any entry into EOP-20
- B. During an entry into EOP-20 where secondary radiation monitors are in alarm
- C. During an entry into EOP-20 where SGIS has actuated
- D. During an entry into EOP-20 where CIAS has actuated

answer:

CFR:

higher level:

RO:

SRO:

LP number:

Objective #:

RO IMP:

SRO IMP:

Objective:

reference:

attachment:

question source:

comments: