

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

Applicant Information

Name: MASTER SRO EXAMINATION	Region: I / II / III / IV
Date:	Facility/Unit: Perry
License Level: RO / SRO	Reactor Type: W / CE / BW / GE
Start Time:	Finish Time:

Instructions

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

Applicant Certification

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

Applicant's Signature

Results

Examination Value	<u>100.00</u> Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

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QUESTION 1

The plant is operating at 100% power. The following equipment is in operation:

- CRDH Pump 'A'
- NCC Pump 'A' and 'B'

A loss of power to Bus EH11 occurs when the Preferred Source Breaker trips open.

Which one of the following describes the expected response of circuit breakers associated with Bus EH11?

- A. Bus EH11 Stub Bus Breaker opens and NCC Pump 'A' breaker opens.
- B. Bus EH11 Stub Bus Breaker opens and CRDH Pump 'A' breaker remains closed.
- C. Bus EH11 Stub Bus Breaker remains closed and CRDH Pump 'A' breaker opens.
- D. Bus EH11 Stub Bus Breaker remains closed and NCC Pump 'A' breaker remains closed.

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QUESTION 3

The plant is operating at 95% power.

- SB&PR Channel 'A' is in service
- SB&PR Channel 'B' is in TEST

The main steam pressure transmitter output signal to SB&PR Channel 'A' fails upscale.

Which one of the following describes the valve response associated with the SB&PR System?

Assume no operator actions are taken.

- A. Turbine Control Valves and Bypass Valves open.
- B. Turbine Control Valves and Bypass Valves remain 'as-is'.
- C. Turbine Control Valves remain 'as-is' and Bypass Valves open.
- D. Turbine Control Valves open and Bypass Valves remain 'as-is'.

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QUESTION 4

Which one of the following correctly lists the signal(s) which will automatically close the Containment isolation valves for the Drywell Equipment and Floor Drain Sump Systems?

- A. High Drywell pressure (1.68 psig) or low Reactor water level (L1).
- B. High Drywell pressure (1.68 psig) or low Reactor water level (L2).
- C. Drain sump high discharge temperature.
- D. Drain sump pump high discharge pressure.

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QUESTION 5

An ATWS is in progress.

PEI-B13, RPV Control (ATWS) directs the Control Room Operators to "Stabilize RPV pressure to less than 1000 psig".

Which one of the following conditions meets the intent of this PEI action step?

- A. Automatic operation of the Bypass Valves.
- B. Automatic operation of the SRVs on Low-Low Setpoint.
- C. Closing the Main Steam Isolation Valves when an SRV is stuck-open.
- D. Manual operation of SRVs when sufficient Bypass Valve capacity exists.

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QUESTION 6

During an incomplete scram, which one of the following Redundant Reactivity Control System (RRCS) control signals requires an 'APRM Not Downscale' permissive?

- A. SLC Pump trip
- B. Feedwater Runback (FWRB)
- C. Alternate Rod Insertion (ARI)
- D. Recirc Pump Transfer to LFMG

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QUESTION 7

ONI-C61, Evacuation of the Control Room, has been entered.

The reactor was not scrammed prior to leaving the Control Room.

Which one of the following is the preferred method to fully insert all control rods from outside the Control Room in accordance with ONI-C61?

- A. Open the specified scram air header drain valves.
- B. Open the specified RPS MG set output breakers.
- C. Cycle the specified RPS power distribution panel breakers.
- D. Cycle the specified ATWS UPS distribution panel breakers.

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QUESTION 8

The FHB Ventilation System is in operation in accordance with SOI-M40. During movement of irradiated fuel in the FHB, an irradiated fuel bundle is dropped.

Shortly thereafter, a HIGH radiation alarm is received on the FHB Ventilation Exhaust GAS and IODINE modules.

Which one of the following describes the current lineup of the FHB Ventilation System and the bases for this lineup?

- A. Two Exhaust Fans and one Supply Fan are running; high noble gas has been detected.
- B. Two Exhaust Fans and one Supply Fan are running; high iodine gas has been detected.
- C. Only Two Exhaust Fans are running; high noble gas has been detected.
- D. Only Two Exhaust Fans are running; high iodine gas has been detected.

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QUESTION 9

The plant has experienced a Loss of Coolant Accident due to a complete break of the Recirculation System piping.

Which one of the following describes the effects on the Drywell to Containment Horizontal Vents and Containment pressure?

Drywell pressure will rise to a maximum value, thereby _____.

- A. clearing the Drywell to Containment Horizontal Vents, releasing steam directly into the Containment and pressurizing Containment to a maximum value.
- B. clearing the Drywell to Containment Horizontal Vents and causing a rise in Containment pressure followed by a lowering of Drywell pressure and recovering of the vents.
- C. covering the Drywell to Containment Horizontal Vents and preventing a rise in Containment pressure.
- D. preventing the uncovering of the Drywell to Containment Horizontal Vents and preventing a rise in Containment pressure.

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QUESTION 10

Which one of the following conditions will require the Control Room Operators to initiate a reactor scram, including the bases for such action, in accordance with PEI-T23, Containment Control?

Assume that the reactor is operating.

- A. Containment temperature is 110°F; this action assumes that, if possible, the reactor is shutdown by control rod insertion before emergency depressurization is initiated.
- B. Containment temperature is 110°F; this action serves to terminate or reduce any further Containment temperature increase and thereby maintain equipment operability for as long as possible.
- C. Containment temperature is 185°F; this action assumes that, if possible, the reactor is shutdown by control rod insertion before emergency depressurization is initiated.
- D. Containment temperature is 185°F; this action serves to terminate or reduce any further Containment temperature increase and thereby maintain equipment operability for as long as possible.

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QUESTION 11

Why is a level of 7.25 feet in the Suppression Pool a concern to the Control Room Operators when operating in the PEIs?

- A. Operation at this level could cause air entrapment at the RCIC suction strainer.
- B. Operation at this level will uncover the Suppression Pool suction strainer.
- C. Operation at this level could result in exceeding the stress limits of the SRV tail pipe.
- D. Operation at this level will cause rapid pressurization of Containment during an SRV lift.

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QUESTION 12

The plant is operating at 50% power with both Reactor Feed Pump Turbines (RFPTs) on the Master Level Controller (MLC).

Which one of the following describes the expected response of the Feedwater System if the Narrow Range level instrument input to the MLC fails upscale?

Assume no operator actions are taken?

- A. Feedwater flow increases; both RFPTs trip directly on mechanical overspeed.
- B. Feedwater flow increases; both RFPTs trip directly on high RPV level (L8).
- C. Feedwater flow decreases; both RFPTs trip directly on low RPV level (L2).
- D. Feedwater flow decreases; both RFPTs trip directly on RCIC initiation.

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QUESTION 13

Which one of the following describes the reactor core conditions that Cold Shutdown Boron Weight is based upon in order to provide an adequate shutdown margin?

- A. 70°F fuel/moderator temperature, xenon free, and all control rods fully withdrawn.
- B. 70°F fuel/moderator temperature, xenon free, and 50% rod density.
- C. 68°F fuel/moderator temperature, xenon free, and all control rods fully withdrawn.
- D. 68°F fuel/moderator temperature, xenon free, and 50% rod density.

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QUESTION 14

PEI-D17, Radioactivity Release Control contains the following action step:

“Except for systems required to assure adequate core cooling or shutdown the reactor, isolate all primary systems that are discharging into areas outside one or more of the following: Annulus, Auxiliary Building, Intermediate Building, or Steam Tunnel.”

Which one of the following defines the term “primary system” as used in PEI-D17?

A “primary system” refers to any system _____.

- A. that can be used to reduce RPV pressure.
- B. that can be used to maintain RPV water level.
- C. connected to the RPV and contains radioactive coolant.
- D. connected to the RPV and will have a reduced leak rate if RPV pressure is lowered.

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QUESTION 15

The following plant conditions exist:

- A Loss of Coolant Accident has occurred
- Hydrogen is present in the Primary Containment
- PEI-M51/56, Hydrogen Control, has been entered
- Hydrogen Recombiners have been started

Which one of the following hydrogen concentrations will require the Hydrogen Recombiners to be secured, including the bases for this action?

The Hydrogen Recombiners are secured at _____.

- A. 4% hydrogen concentration in order to prevent their becoming an ignition source.
- B. 4% hydrogen concentration because there is insufficient oxygen available to support the recombination reaction.
- C. 6% hydrogen concentration because there is insufficient oxygen available to support the recombination reaction.
- D. 6% hydrogen concentration in order to prevent their becoming an ignition source.

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QUESTION 16

The plant is operating at 100% power. Reactor Narrow Range Level Channel 'B' is selected for input to the Master Level Controller. DC Bus D-1-A de-energizes due to a fault condition.

Which one of the following describes the plant response to a loss of DC Bus D-1-A?

Assume no operator actions are taken.

- A. RPV water level will increase causing a reactor scram but RFPT 'A' and the Main Turbine will not automatically trip on high water level.
- B. RPV water level will increase until the RFPTs trip on high water level and the reactor will scram when water level decreases to RPV Level 3.
- C. RPV water level will increase until the RFPTs trip on high water level but a reactor scram will not occur due to the loss of DC Bus D-1-A.
- D. RPV water level will increase and then stabilize at a higher level when the level error signal overcomes the flow error signal to RFPT 'A'.

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QUESTION 17

Which one of the following describes the effect on the Reactor Recirculation System for an actuation of the End of Cycle Recirculation Pump Trip (EOC-RPT) logic following a Main Turbine trip?

- A. At greater than 38% rated thermal power, only the CB5 breaker will trip, the Low Frequency Motor Generator (LFMG) will start, and the CB2 breaker will close for each Recirculation Pump.
- B. At greater than 38% rated thermal power, the CB3, CB4, and CB5 breakers will trip, the Low Frequency Motor Generator (LFMG) will start, and the CB2 breaker will close for each Recirculation Pump.
- C. At less than 38% rated thermal power, only the CB5 breaker will trip, the Low Frequency Motor Generator (LFMG) will start, and the CB2 breaker will close for each Recirculation Pump.
- D. At less than 38% rated thermal power, the CB3, CB4, and CB5 breakers will trip, the Low Frequency Motor Generator (LFMG) will start, and the CB2 breaker will close for each Recirculation Pump.

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QUESTION 18

The High RPV Water Level Trip (L8) is designed to prevent _____.

- A. RCIC Turbine damage due to water slugging.
- B. MSL hanger damage due to excessive weight.
- C. Main Turbine damage due to moisture carryover.
- D. MSIV damage due to excessive hydraulic loading.

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QUESTION 19

Which one of the following describes the bases for maximizing Containment cooling during the execution of PEI-T23, Containment Control?

- A. To prevent exceeding the Containment design temperature limit of 330°F.
- B. To prevent exceeding the Containment average air temperature LCO limit of 145°F.
- C. To prevent exceeding the environmental qualification temperature of 330°F for safety-related electrical equipment in the Containment.
- D. To prevent exceeding the environmental qualification temperature of 185°F for safety-related electrical equipment in the Containment.

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QUESTION 20

The plant is operating at 100% power.

- TBCC HX OUTLET TEMP HIGH alarm is received on panel H13-P870
- ONI-P44, Loss of Turbine Building Closed Cooling, has been entered
- TBCC Heat Exchanger Outlet Temperature Control Valve, 1P41-F003, was confirmed to have failed in the 'close' position

Which one of the following describes the plant response to the loss of TBCC?

Assume no operator actions are taken.

- A. The running Instrument Air Compressor will trip when a lube oil temperature of 135 °F is reached.
- B. The Main Turbine will trip when a Main Lube Oil Cooler outlet temperature of 125 °F is reached.
- C. The running Iso Phase Bus Cooling Fan will trip when a Iso Phase Bus Duct temperature of 185 °F is reached.
- D. The running Reactor Feed Pump Turbine (RFPT) will trip when a RFPT lube oil cooler outlet temperature of 135 °F is reached.

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QUESTION 21

The plant is in MODE 2 when the running CRDH Pump trips.

CRD charging water header pressure decreases to reactor pressure.

Which one of the following describes the plant conditions that would require immediately placing the Reactor Mode Switch in the SHUTDOWN position in accordance with ONI-C11-1, Inability To Move Control Rods?

- A. Reactor pressure is 500 psig.
Accumulator fault occurs on control rod 20-27 at position 00.
- B. Reactor pressure is 500 psig.
Accumulator fault occurs on control rod 20-27 at position 24.
- C. Reactor pressure is 700 psig.
Accumulator fault occurs on control rod 20-27 at position 00.
- D. Reactor pressure is 700 psig.
Accumulator fault occurs on control rod 20-27 at position 24.

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QUESTION 22

Which one of the following Plant Emergency Instruction (PEI) curves or limits, if exceeded, could directly result in a loss of Primary Containment integrity?

- A. Primary Containment Limit (PCL)
- B. Pressure Suppression Pressure (PSP)
- C. SRV Tail Pipe Level Limit (SRVTPLL)
- D. Maximum Core Uncovery Time Limit (MCUTL)

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QUESTION 23

Which one of the following describes the bases for isolating any system discharging into the annulus and surrounding containment in accordance with PEI-N11, Containment Leakage Control?

- A. To terminate rising temperatures, radiation levels, and water levels in the Secondary Containment.
- B. To protect equipment in the Annulus and Primary Containment.
- C. To minimize reactor coolant inventory loss.
- D. To preserve Turbine Building accessibility.

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QUESTION 24

Which one of the following alarms, if received on AB EL 574' EAST area radiation monitor, would require entry into PEI-N11, Containment Leakage Control?

- A. Fail
- B. Alert
- C. High
- D. High-High

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QUESTION 25

The following plant conditions exist:

- A steam leak has occurred in the RCIC Pump Room
- HIGH radiation alarm is received on the Auxiliary Building Ventilation Exhaust GAS module
- ALERT radiation alarm is received on the Unit 1 Plant Vent GAS module
- PEI-N11, Containment Leakage Control, has been entered

Which one of the following describes the current lineup of the Auxiliary Building Ventilation System, including the location of the controls and indications used to monitor system operation?

- A. Only one Exhaust Fan is running; system controls and indications are located in the Control Room.
- B. Only one Exhaust Fan is running; system controls and indications are located in the plant.
- C. Only two Exhaust Fans are running; system controls and indications are located in the Control Room.
- D. Only two Exhaust Fans are running; system controls and indications are located in the plant.

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QUESTION 26

The following plant conditions exist:

- A 25 gpm leak has occurred on the ESW-side of the RHR 'A' Heat Exchanger
- RHR A PUMP ROOM SUMP LEVEL HIGH alarm is received on panel H13-P601

Which one of the following describes how this leak is captured?

Assume no operator actions have been taken.

- A. The RHR 'A' Pump Room sump drain valve will automatically open to route the leakage to the Auxiliary Building Floor Drain Sump.
- B. The RHR 'A' Pump Room sump drain valve will automatically close to contain the leakage to the RHR 'A' Pump Room.
- C. The RHR 'A' Pump Room sump will gravity drain to the Auxiliary Building Floor Drain Sump.
- D. The RHR 'A' Pump Room sump will fill and overflow into the RHR 'A' Pump Room.

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QUESTION 27

During a reactor startup, control rods are being withdrawn to achieve 50% rod density.

- Rod Sequence 'A' is selected
- All Group 5 through 10 control rods are fully inserted
- All Group 1 and 2 control rods have been fully withdrawn
- All Group 3 control rods have been withdrawn to notch position '12'

The Control Room Operator selects a Group 4 control rod for withdrawal.

Which one of the following describes the response of the Rod Control and Information System (RC&IS)?

- A. Withdrawal of the control rod is immediately blocked.
- B. Withdrawal of the control rod will occur with no restrictions.
- C. Withdrawal of the control rod will be blocked when the control rod reaches notch position '04'.
- D. Withdrawal of the control rod will be blocked when the control rod reaches notch position '12'.

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QUESTION 28

The plant is operating at 100% power.

- AFDL IN CONTROL alarm is received on panel H13-P680
- APRM Channel 'A' failed upscale
- Fifteen (15) seconds later, APRM Channel 'A' is inadvertently bypassed

Assume no additional operator actions are taken.

Which one of the following describes the response of the Reactor Recirculation System Flow Control Valves (FCVs)?

- A. The Reactor Recirculation Loop Flow Controllers will return the FCVs to their pre-transient valve positions.
- B. The Reactor Recirculation Loop Flow Controllers will maintain the FCVs at their current valve positions.
- C. The Automatic Flow Demand Limiter will return the FCVs to their pre-transient valve positions.
- D. The Automatic Flow Demand Limiter will maintain the FCVs at their current valve positions.

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QUESTION 29

Which one of the following describes the operation of the RHR PUMP 'A' & HX COOLER, M39-B001A?

The RHR PUMP 'A' & HX COOLER will automatically start _____.

- A. when an RHR LOCA initiation signal seals-in (K110A relay contact); room heat is dissipated by recirculating room air through a heat exchanger cooled directly by ECC.
- B. when an RHR LOCA initiation signal seals-in (K110A relay contact); room heat is dissipated by recirculating room air through a heat exchanger cooled directly by ESW.
- C. when RHR Pump 'A' breaker closes (52a contact); room heat is dissipated by recirculating room air through a heat exchanger cooled directly by ECC.
- D. when RHR Pump 'A' breaker closes (52a contact); room heat is dissipated by recirculating room air through a heat exchanger cooled directly by ESW.

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QUESTION 30

One hour ago the Control Room Operators discovered that the blue pressure permissive light for the LPCS Injection Valve, 1E21-F005, was not lit.

Control Room Operators confirmed the blue light bulb was good.

Which one of the following describes the operation of the LPCS Injection Valve control logic if a Loss-of-Coolant Accident occurs?

- A. The LPCS Injection Valve automatically opens, irrespective of RPV pressure, due to the LPCS LOCA initiation signal.
- B. The LPCS Injection Valve remains closed and cannot be opened with its control switch until RPV pressure decreases to 600 psig.
- C. The LPCS Injection Valve remains closed and cannot automatically open until RPV pressure decreases to 530 psig.
- D. The LPCS Injection Valve remains closed and cannot automatically open until RPV pressure decreases to 600 psig.

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QUESTION 31

The following plant conditions exist:

- A Loss of Coolant Accident has occurred
- Drywell pressure is 1.8 psig
- RPV water level is +195 inches and stable
- The High Pressure Core Spray (HPCS) Pump has been overridden to STOP

Subsequently, Bus EH13 loses power and is re-energized by the HPCS Diesel Generator.

Assume no additional operator actions were taken.

Which one of the following describes the current condition of the HPCS Pump?

The HPCS Pump is _____.

- A. not running because the initiation logic was reset.
- B. not running because the override logic was not affected.
- C. running because the override logic was reset.
- D. running because the initiation logic was not affected.

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QUESTION 32

The following plant conditions exist:

- MODE 5
- RPS INST VOL HI annunciator on panel H13-P680 is in alarm
- All INST VOL LEVEL HI SCRAM BYPASS switches are in BYPASS
- RPS logic is reset

Which one of the following describes the effect on the Reactor Protection System (RPS) when the Reactor Mode Switch is taken from SHUTDOWN, through REFUEL, to the STARTUP/STANDBY position?

- A. RPS actuation occurs because the Scram Discharge Volume High trip is enabled when the Reactor Mode Switch is in the STARTUP/STANDBY position.
- B. RPS actuation occurs because the Scram Discharge Volume High trip is enabled when the Reactor Mode Switch is in the REFUEL position.
- C. RPS actuation does not occur because the Scram Discharge Volume High trip is bypassed when the Reactor Mode Switch is in the STARTUP/STANDBY position.
- D. RPS actuation does not occur because the Scram Discharge Volume High trip is bypassed when the INST VOL LEVEL HI SCRAM BYPASS switches are in BYPASS.

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QUESTION 33

The plant is operating at 75% power.

Which one of the following setpoints is displayed when the Operator at the Controls depresses the APRM ALARM LEVEL RECORD pushbutton for an IRM/APRM Recorder?

- A. IRM high flux rod block
- B. IRM upscale scram
- C. APRM flow-biased rod block
- D. APRM flow-biased scram

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QUESTION 34

RHR Loop 'B' is operating in the shutdown cooling mode when a loss of RPS Bus 'A' occurs.

Which one of the following describes the isolation condition of RHR Loop 'B', including the action(s) required to reset from the RHR shutdown cooling isolation condition?

- A. Only an RHR SDC Outboard isolation occurred; only the NS⁴ Outboard isolation logic must be reset.
- B. Only an RHR SDC Outboard isolation occurred; RPS Bus 'A' must be re-energized and then the NS⁴ Outboard isolation logic must be reset.
- C. An RHR SDC Inboard and Outboard isolation occurred; the NS⁴ Inboard and Outboard isolation logic must be reset.
- D. An RHR SDC Inboard and Outboard isolation occurred; RPS Bus 'A' must be re-energized and then the NS⁴ Inboard and Outboard isolation logic must be reset.

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QUESTION 35

The following plant conditions exist:

- A Station Blackout (SBO) is in progress
- RCIC System is maintaining RPV water level
- RCIC suction is from the CST

Which one of the following describes the response of the RCIC suction valve(s) if a high Suppression Pool (SP) level occurs?

- A. The RCIC suction valves fail 'as-is'.
- B. The SP suction valve remains closed.
- C. The CST suction valve remains open.
- D. The RCIC suction valve transfer occurs.

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QUESTION 36

Which one of the following is the power source to the ADS 'B' solenoid valves?

- A. ED-1-A
- B. ED-1-B
- C. D-1-A
- D. D-1-B

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QUESTION 37

The following plant conditions exist:

- A Loss of Coolant Accident has occurred
- Hydrogen is present in the Drywell
- PEI-M51/56, Hydrogen Control, has been entered
- Combustible Gas Mixing Compressors have been started

Which one of the following conditions would cause Combustible Gas Mixing Compressor 'A' to trip?

- A. RHR Pump 'A' control switch taken to STOP.
- B. Less than 17 gpm cooling water flow to the oil cooler.
- C. Less than 80 gpm cooling water flow to the air aftercooler.
- D. LPCI A Injection Valve, 1E12-F042A, less than 90% open.

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QUESTION 38

The following plant conditions exist:

- A Loss of Coolant Accident has occurred
- PEI-M51/56, Hydrogen Control, has been entered
- All hydrogen control systems have been started
- Containment hydrogen concentration is 7.0% and below HDOL

Which one of the following describes the continued operation of the Hydrogen Recombiners in accordance with PEI-M51/56?

- A. The heat produced inside a recombiner can damage the recombiner internals; continued recombiner operation is allowed until HDOL is exceeded.
- B. The heat produced inside a recombiner can damage the recombiner internals; continued recombiner operation is not allowed.
- C. The heat produced inside a recombiner cannot damage the recombiner internals; continued recombiner operation is allowed until HDOL is exceeded.
- D. The heat produced inside a recombiner cannot damage the recombiner internals; continued recombiner operation is allowed.

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QUESTION 39

Following a reactor scram, RPV water level decreased to +100 inches.

Which one of the following systems will have automatically isolated?

- A. Nuclear Closed Cooling Water System (P43)
- B. Safety-Related Instrument Air System (P57)
- C. Reactor Water Cleanup System (G33)
- D. Fire Service Water System (P54WTR)

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QUESTION 40

The following plant conditions exist:

- RHR loop 'A' started in the LPCI mode on a high Drywell pressure signal
- RHR Pump 'A' was shutdown by taking its control switch to the STOP position

Which one of the following conditions will automatically re-start RHR Pump 'A'?

Assume no further operator actions are taken.

- A. Automatic Depressurization System (ADS) initiation signal occurs.
- B. Drywell pressure signal clears and re-occurs.
- C. Containment Spray initiation signal occurs.
- D. RPV low water level (L1) signal occurs.

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QUESTION 41

The tailpipe vacuum breaker for SRV F051C has failed in the 'open' position during automatic SRV operations.

SRV F051C is an ADS Valve and a Low-Low Set Valve.

Which one of the following describes the impact of the tailpipe vacuum breaker failure, including an action the Control Room Operators can perform which will prevent all pneumatic operation of SRV F051C from the Control Room?

- A. Steam will discharge from the tailpipe directly into the Containment airspace each time the SRV is opened; placing both of its associated keylock switches to OFF will prevent all pneumatic operation from the Control Room.
- B. Steam will discharge from the tailpipe directly into the Containment airspace each time the SRV is opened; removing the applicable solenoid control power fuses will prevent all pneumatic operation from the Control Room.
- C. Steam will discharge from the tailpipe directly into the Drywell airspace each time the SRV is opened; placing both of its associated keylock switches to OFF will prevent all pneumatic operation from the Control Room.
- D. Steam will discharge from the tailpipe directly into the Drywell airspace each time the SRV is opened; removing the applicable solenoid control power fuses will prevent all pneumatic operation from the Control Room.

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QUESTION 42

The following plant conditions exist:

- Main Turbine roll is in progress
- STARTING RATE – MEDIUM has been selected
- SPEED SET RPM – 1800 has been selected
- Main Turbine speed is 500 rpm and increasing

Which one of the following is the effect on the acceleration rate of the Main Turbine if one of the acceleration input signals in the Speed Control Unit is lost?

The acceleration rate will _____.

- A. decrease by $1/3$ (one-third).
- B. decrease by $1/2$ (one-half).
- C. remain the same.
- D. double.

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QUESTION 43

Which one of the following sets of Feedwater controls provides a speed demand signal to the Reactor Feed Pump Turbines?

- A. RFP 'A' Recirc Flow Controller and Manual Speed Control Dial.
- B. RFP 'A' Recirc Flow Controller and Low Flow Controller.
- C. Startup Level Controller and Manual Speed Control Dial.
- D. Startup Level Controller and Low Flow Controller.

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QUESTION 44

The plant is operating at 40% power.

- REACTOR NARROW RANGE LEVEL Switch, 1C34-S1, is selected to Channel 'A'
- Reactor Narrow Range Channel 'A' indicates +196 inches on 1C34-R606A
- Reactor Narrow Range Channel 'B' indicates +193 inches on 1C34-R606B
- The Master Level Controller is in operation with its tapeset at +196 inches

Which one of the following describes the RPV water level response, as indicated on Reactor Narrow Range Channel 'B', when the Control Room Operator switches 1C34-S1 to Channel 'B'?

RPV water level initially _____.

- A. decreases and then stabilizes at +193 inches.
- B. decreases and then stabilizes at +196 inches.
- C. increases and then stabilizes at +196 inches.
- D. increases and then stabilizes at +199 inches.

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QUESTION 45

The following plant conditions exist:

- A plant startup is in progress with reactor power currently at 20%
- The Main Generator has been synchronized to the grid and station loads have been transferred

Without warning, a Main Turbine/Generator trip occurs.

Which one of the following describes the automatic response of the station loads due to the Main Turbine/Generator trip, including the required action to be taken if the automatic response does not occur?

- A. The station loads shift to the Startup Transformer; if station loads fail to shift as required, then close START-UP SUPPLY BRKRS L1006 and L1009.
- B. The station loads shift to the Startup Transformer; if station loads fail to shift as required, then open NORMAL SUPPLY BRKRS L1102 and L1202.
- C. The station loads shift to the Auxiliary Transformer; if station loads fail to shift as required, then close NORMAL SUPPLY BRKRS L1102 and L1202.
- D. The station loads shift to the Auxiliary Transformer; if station loads fail to shift as required, then open START-UP SUPPLY BRKRS L1006 and L1009.

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QUESTION 46

A Loss of Off-Site Power (LOOP) occurs.

RPV water level decreases to +10 inches.

Ten minutes later, the Division 1 DG jacket water pump fails.

Which one of the following describes the effect on Bus EH11 due to the Division 1 DG jacket water pump failure?

- A. Bus EH11 de-energizes because the Division 1 DG trips on high jacket water temperature.
- B. Bus EH11 de-energizes because the Division 1 DG trips on high lube oil temperature.
- C. Bus EH11 remains energized because the Division 1 DG high jacket water temperature trip is bypassed on a LOOP signal.
- D. Bus EH11 remains energized because the Division 1 DG high jacket water temperature trip is bypassed on a LOCA signal.

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QUESTION 47

If a Reactor Recirculation Pump is started at a reduced RPV water level, then RPV water level in the downcomer annulus will initially _____.

- A. decrease which may cause an RPS actuation due to RPV Level 3.
- B. decrease which may cause cavitation of the Flow Control Valves.
- C. increase which may cause an RPS actuation due to high neutron flux.
- D. increase which may cause an excessive cooldown of the RPV.

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QUESTION 48

Which one of the following requirements provides for adequate NPSH for RHR Pump 'A' during startup or operation in the Suppression Pool Cooling mode?

- A. The LPCS & RHR A waterleg pump must be running before RHR Pump 'A' will start.
- B. The Suppression Pool suction valve must be open before RHR Pump 'A' will start.
- C. The LPCS System must not be operated in the LPCS Test mode during RHR 'A' Suppression Pool Cooling mode operation.
- D. The RHR System flow must be maintained greater than 6000 gpm during RHR 'A' Suppression Pool Cooling mode operation.

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QUESTION 49

A refueling outage is in progress. One control rod is selected and withdrawn with the Reactor Mode Switch in the REFUEL position.

Which one of the following Refueling Platform (F15) operations would be prevented?

- A. Removing a fuel assembly from the RPV with the Main Fuel Hoist.
- B. Removing a control rod blade from the RPV with the Auxiliary Hoist.
- C. Moving the Refueling Platform inside the RPV with the Main Fuel Hoist unloaded.
- D. Moving the Refueling Platform from IFTS to the RPV with the Main Fuel Hoist unloaded.

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QUESTION 50

The plant is operating at 100% power with the following Main Generator conditions:

- Electrical output 1000 MWe
- Hydrogen pressure 60 psig
- Power factor 1

Select the maximum allowable reactive load for the Main Generator under these conditions.

PDB-C0002, Generator Capability Curve is provided for reference.

- A. 575 MVars
- B. 675 MVars
- C. 700 MVars
- D. 775 MVars

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QUESTION 51

Which one of the following conditions will cause the static transfer switch in the Plant Vital Balance of Plant uninterruptible power supply (BOP-UPS) system to automatically shift?

- A. Low cooling air flow to the inverter.
- B. High voltage sensed at the output of the inverter.
- C. Ground fault sensed on Vital Distribution Bus V-1-A.
- D. Loss of battery chargers to Battery D-1-A for more than 15 minutes.

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QUESTION 52

DC control power is lost to Bus H11.

Which one of the following describes the operation of circuit breakers supplying loads from Bus H11?

The circuit breakers can _____.

- A. be opened and closed locally at the breaker cubicle.
- B. be closed from the Control Room and opened locally at the breaker cubicle.
- C. be closed locally at the breaker cubicle, however, all circuit breaker automatic trip functions are still available.
- D. be opened and closed from the Control Room, however, all circuit breaker automatic trip functions are disabled.

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QUESTION 53

An air purge of the Off-Gas System has been established in accordance with SOI-N64/62, Off-Gas / Condenser Air Removal System, during a plant startup.

Which one of the following describes the source of purge air and the point of injection into the Off-Gas System?

- A. Instrument Air enters at the inlet to the recombiners.
- B. Instrument Air enters at the inlet to the adsorbers.
- C. Service Air enters at the inlet to the preheaters.
- D. Service Air enters at the inlet to the gas dryers.

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QUESTION 54

The Fire Service Water System is in Standby Readiness when a fire system initiation occurs. Fire main pressure decreases to 110 psig and then increases to 150 psig.

Which one of the following describes the current configuration of the Fire Service Water System?

Assume no operator actions were performed.

Fire Service Jockey Pump	Motor Fire Service Pump	Diesel Fire Service Pump
-----------------------------	----------------------------	-----------------------------

- | | | | |
|----|---------|---------|---------|
| A. | Running | Off | Off |
| B. | Off | Running | Off |
| C. | Running | Running | Running |
| D. | Off | Off | Running |

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QUESTION 55

The Non-Licensed Operator reports that the guide vanes on the operating Control Complex Chiller (P47) have failed closed.

Which one of the following describes the potential impact of this condition?

Control Room air temperature will _____.

- A. decrease; personnel habitability limits may be exceeded.
- B. decrease; equipment temperature limits may be exceeded.
- C. increase; equipment humidity limits may be exceeded.
- D. increase; equipment temperature limits may be exceeded.

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QUESTION 56

A Non-Licensed Operator reports that the refrigeration unit for in-service Instrument Air (IA) Dryer 1P52-D003A is not operating.

Which one of the following contaminants will be introduced into the Instrument Air System if this condition is left uncorrected, including an action that can be taken to terminate further introduction of this contaminant?

- A. Foreign particles; open the IA Desiccant Air Dryer Bypass Valve to bypass malfunctioning IA Dryer 1P52-D003A.
- B. Foreign particles; shift from malfunctioning IA Dryer 1P52-D003A to the standby IA Dryer 1P52-D003B.
- C. Water; open the IA Desiccant Air Dryer Bypass Valve to bypass malfunctioning IA Dryer 1P52-D003A.
- D. Water; shift from malfunctioning IA Dryer 1P52-D003A to the standby IA Dryer 1P52-D003B.

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QUESTION 57

The following equipment conditions exist:

- All ECCS and RCIC are in Standby Readiness
- Division 1 and 2 Diesel Generators are in Standby Readiness
- HPCS Diesel Generator is in Secured Status

A reactor scram occurs and RPV water level decreases to +120 inches.

Two minutes later, which one of the following describes the configuration of the Emergency Service Water (ESW) System?

Assume no operator actions are performed.

	<u>ESW Pump A</u>	<u>ESW Pump C</u>
A.	Off	Off
B.	Running	Off
C.	Running	Running
D.	Off	Running

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QUESTION 58

A reactor startup/heatup is in progress with IRMs on Range 7.

During a single notch withdrawal of control rod 30-31 from position 08 to 10, the collet fingers stick in the 'unlocked' position.

Which one of the following describes the effect of this control rod withdrawal event?

Control rod 30-31 will _____.

- A. settle at position 10; reactor power and heatup rate will stabilize.
- B. drift into the core; reactor power and heatup rate will decrease.
- C. drift out of the core; reactor power and heatup rate will increase.
- D. remain at position 08 until drive water header pressure has been increased sufficiently to free the collet fingers.

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QUESTION 59

The Fuel Pool Cooling and Cleanup (FPCC) System is in operation when a RHR LOCA initiation occurs.

Which one of the following describes the cooling water flowpath configuration for the FPCC heat exchangers?

- A. Nuclear Closed Cooling water flowpath automatically isolates; Emergency Service Water flowpath automatically lines up to provide cooling water flow.
- B. Nuclear Closed Cooling water flowpath automatically isolates; Emergency Service Water flowpath must be manually lined up to provide cooling water flow.
- C. Nuclear Closed Cooling water flowpath must be manually isolated; Emergency Service Water flowpath must be manually lined up to provide cooling water flow.
- D. Nuclear Closed Cooling water flowpath must be manually isolated; Emergency Service Water flowpath automatically lines up to provide cooling water flow.

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QUESTION 60

Which one of the following Radiation Monitors will isolate the Containment Vessel and Drywell Purge System (M14) if a high radiation condition occurs?

- A. Drywell Atmosphere Radiation Monitor, 1D17-K670
- B. Containment Atmosphere Radiation Monitor, 1D17-K680
- C. Containment Ventilation Exhaust Radiation Monitor, 1D17-K609A-D
- D. Containment & Drywell Purge Exhaust Radiation Monitor, 1D17-K660

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QUESTION 61

Which one of the following describes the procedural requirements for performance of a Valve Lineup Instruction (VLI)?

- A. The valves can be positioned in any order unless a specific order is specified by the Unit Supervisor.
 The Independent Verifier can verify the valves in any order.
- B. The valves can be positioned in any order unless a specific order is specified by the Unit Supervisor.
 The Independent Verifier must verify the valves in the same order.
- C. The valves shall be positioned in the order in which they appear unless specified otherwise by the Unit Supervisor.
 The Independent Verifier must verify the valves in the same order.
- D. The valves shall be positioned in the order in which they appear unless specified otherwise by the Unit Supervisor.
 The Independent Verifier can verify the valves in any order.

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QUESTION 62

The following conditions exist:

- You are an on-coming Control Room Operator (SO/US/SS)
- This is your first day back on-shift after 10 days of time off

Which one of the following describes the requirement for reviewing the Daily and Standing Instructions?

At a minimum, the Daily and Standing Instructions should be reviewed for the previous _____.

- A. one day.
- B. two days.
- C. seven days.
- D. ten days.

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QUESTION 63

An Infrequently Performed Test or Evolution (IPTE) is in progress which will demonstrate the heat removal capability of the RHR heat exchangers.

The following plant conditions exist:

- Reactor power is being maintained at 5%
- RCIC is operating in the CST-to-CST mode in order to raise Suppression Pool temperature to 100 ± 2 °F
- Suppression Pool temperature is 97 °F and slowly increasing

Which one of the following describes the entry requirements, if any, for PEI-T23, Containment Control, and the Required Action requirements for LCO 3.6.2.1, Suppression Pool Average Temperature?

- A. PEI-T23 is not required to be entered; the Required Actions for LCO 3.6.2.1 are not required to be performed.
- B. PEI-T23 is not required to be entered; the Required Actions for LCO 3.6.2.1 are required to be performed.
- C. PEI-T23 is required to be entered; the Required Actions for LCO 3.6.2.1 are not required to be performed.
- D. PEI-T23 is required to be entered; the Required Actions for LCO 3.6.2.1 are required to be performed.

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QUESTION 64

A General Emergency is in progress.

Which one of the following individuals is directly charged with the command authority over all activities involving plant operations.

- A. EOF Emergency Coordinator
- B. TSC Operations Manager
- C. Shift Supervisor
- D. Unit Supervisor

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QUESTION 65

I&C has been authorized to start SVI-C71-T0042B, Drywell High Pressure Channel B Functional for 1C71-N650B.

The Operator at the Controls has been notified that the following alarms will occur during performance of this SVI:

- | | |
|-------------------------------------|-------------|
| • RPS DW PRESS HI | P680-05A-B8 |
| • 1/2 SCRAM B/D | P680-05A-B9 |
| • RPS B & D OUT OF SERVICE | P680-05A-C5 |
| • RPS B TRIP UNIT IN CAL/FAIL | P680-06A-D7 |
| • NS4 INBD ISOLATION OUT OF SERVICE | P601-18A-A3 |
| • BOP ISOL DW PRESS HIGH | P601-19A-A6 |

There are no other surveillances in progress.

Which one of the following describes the required action to be performed if annunciator 1/2 SCRAM A/C occurs during performance of this surveillance?

- A. The alarm is 'unexpected'; notification of the Unit Supervisor is not required.
- B. The alarm is 'unexpected'; notification of the Unit Supervisor is required.
- C. The alarm is 'expected'; alarm confirmation is not required.
- D. The alarm is 'expected'; alarm confirmation is required.

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QUESTION 66

Which one of the following examples maintains the lowest total collective dose?

- A. One individual performing the job in a 60 mrem/hr field for 60 minutes.
- B. One individual installing temporary shielding in a 60 mrem/hr field for 30 minutes, performing the job in a 6 mrem/hr field for 60 minutes, and then removing the temporary shielding in a 6 mrem/hr field for 20 minutes.
- C. Two individuals performing the job in a 60 mrem/hr field for 35 minutes.
- D. Two individuals installing temporary shielding in a 60 mrem/hr field for 15 minutes, performing the job in a 6 mrem/hr field for 40 minutes, and then removing the temporary shielding in a 6 mrem/hr field for 10 minutes.

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QUESTION 67

Immediately following a reactor scram, the following plant conditions exist:

- Reactor power 0%
- RPV pressure 940 psig
- RPV water level +196 inches
- Two control rods are stuck Position 48
- Drywell pressure 0.5 psig
- Drywell temperature 130 °F
- Containment temperature 97 °F

Which of the following Plant Emergency Instruction(s) is/are required to be entered based on the plant conditions described above?

- A. PEI-T23, Containment Control and PEI-B13, RPV Control (Non-ATWS).
- B. PEI-T23, Containment Control and PEI-B13, RPV Control (ATWS).
- C. Only PEI-B13, RPV Control (ATWS).
- D. Only PEI-T23, Containment Control.

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QUESTION 68

The following plant conditions exist:

- The plant is in Hot Shutdown
- The Main Steam Isolation Valves (MSIVs) are isolated
- RHR & RCIC Steam Supply Inboard isolation Valve, 1E51-F063, has a confirmed steam leak from its valve packing area
- Drywell temperature is elevated and currently stable
- The Drywell Cooling System (M13) is in the normal operating condition in accordance with SOI-M13. Nuclear Closed Cooling (NCC) water is currently lined up to the 'A' cooling coils

Which one of the following describes the effect on Drywell temperature, if any, if a loss of Instrument Air to the Drywell occurs?

- A. Drywell temperature will remain the same; the air-operated dampers located on the discharge of the fans will fail open.
- B. Drywell temperature will remain the same; the air-operated 3-way NCC supply valves that control the cooling water flow to the cooling coils will fail to the 'B' cooling coil position.
- C. Drywell temperature will increase; the air-operated dampers located on the discharge of the fans will fail closed.
- D. Drywell temperature will increase; the air-operated 3-way NCC supply valves that control the cooling water flow to the cooling coils will fail closed.

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QUESTION 69

The plant is operating at 50% power.

Both Reactor Recirculation Pumps trip to OFF resulting in a core flow of 30 Mlbm/hr.

Which one of the following conditions will require the Control Room Operator to immediately insert a manual reactor scram in accordance with ONI-C51, Unplanned Change in Reactor Power or Reactivity?

- A. APRM oscillations of 5% peak-to-peak are observed.
- B. The pre-transient load line was 102%.
- C. All OPRMs are currently inoperable.
- D. As directed by Reactor Engineering.

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QUESTION 70

The plant was operating at 35% power with the Reactor Recirculation Pumps in fast speed when a reactor scram occurred.

During the subsequent plant transient:

- RPV water level decreased to +152 inches before being restored to normal
- RPV pressure increased to 1074 psig before being restored to normal

Which one of the following describes the current Reactor Recirculation Pump breaker lineup?

CB 1A/B	CB 2A/B	CB 3A/B	CB 4A/B	CB 5A/B
------------	------------	------------	------------	------------

- | | | | | | |
|----|--------|--------|--------|--------|--------|
| A. | Closed | Closed | Closed | Closed | Open |
| B. | Open | Open | Closed | Closed | Closed |
| C. | Closed | Closed | Open | Open | Open |
| D. | Open | Open | Open | Open | Open |

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QUESTION 71

The following plant conditions exist:

- The Control Room has been evacuated due to toxic gas
- All Immediate Actions of ONI-C61, Evacuation of the Control Room, have been completed

Assume no other operator actions have been performed.

Which one of the following identifies the RPV water level instrumentation available on the Remote Shutdown Panel(s) that is indicating actual RPV water level, if any, at this time?

- A. No RPV water level instrumentation.
- B. Only the Division 1 Remote Shutdown Panel RPV water level instrumentation.
- C. Only the Division 2 Remote Shutdown Panel RPV water level instrumentation.
- D. The Division 1 and Division 2 Remote Shutdown Panel RPV water level instrumentation.

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QUESTION 72

The plant was operating at 100% power.

Combustible Gas Mixing Compressor 'A' was operating for its quarterly surveillance when the following simultaneous events occurred:

- The Balance-of-Plant (BOP) isolation valves isolated
- All standby ECCS Pumps started
- The Nuclear Closed Cooling System (NCC) isolated

Assuming RPV water level remained normal, which one of the following additional automatic actions immediately occurred?

- A. The RCIC System initiated.
- B. The Main Turbine tripped.
- C. The reactor scrammed.
- D. The MSIVs isolated.

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QUESTION 73

The plant is operating at 90% power.

Which one of the following describes the effect of an increase in air and non-condensable gases in the Main Condenser?

Overall plant efficiency will _____.

- A. decrease because condensate temperature decreases.
- B. decrease because the Main Turbine is operating with a higher backpressure.
- C. increase because condensate temperature increases.
- D. increase because the Main Turbine is operating with a lower backpressure.

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QUESTION 74

The plant is operating at 100% power.

A Control Room Operator inadvertently arms and depresses the LPCS & LPCI A MANUAL INITIATION pushbutton, 1E21A-S9, on panel H13-P601.

Which one of the following describes an effect of this inadvertent action?

- A. A loss of Drywell cooling occurs due to the loss of electrical power to the Drywell Cooling Fans.
- B. A loss of Drywell cooling occurs due to the isolation of cooling water flow to the Drywell Cooling Fans.
- C. A loss of Containment cooling occurs due to the loss of electrical power to the Containment Vessel Cooling Fans.
- D. A loss of Containment cooling occurs due to the isolation of cooling water flow to the Containment Vessel Cooling Fans.

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QUESTION 75

Which one of the following describes the LCO Bases for the Annulus Exhaust Gas Treatment System during MODES 1, 2, and 3 in accordance with Technical Specifications?

- A. Provides the capability to control the hydrogen concentration in the Drywell during a Design Bases Accident (DBA).
- B. Supports the operability of the Secondary Containment by maintaining the Secondary Containment at a positive pressure with respect to the environment.
- C. Processes radioactive material that leaks from the Primary Containment into the Secondary Containment prior to release during a Design Bases Accident (DBA).
- D. Limits the release of radioactive material to the environment during movement of recently irradiated fuel assemblies in the Primary Containment.

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QUESTION 76

A Loss of Coolant Accident has occurred.

The following plant conditions exist:

- Indicated Wide Range Level +30 inches
- RPV pressure 50 psig
- Containment temperature 260 °F
- Drywell temperature 275 °F

Which one of the following describes the status of the Wide Range level indication?

The Wide Range level indication is _____.

PEI-SPI Figure 1a and 2a are provided for reference.

- A. not valid because indicated Wide Range level is less than 33 inches.
- B. not valid because Drywell temperature is greater than RPV saturation temperature.
- C. valid because indicated Wide range level is greater than 23 inches.
- D. valid because Drywell temperature is less than RPV saturation temperature.

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QUESTION 77

The plant is operating at 100% power.

The following plant conditions exist:

- SVI-E51-T2001, RCIC Pump and Valve Operability Test, is in progress
- The RCIC Turbine is in operation
- Suppression Pool temperature is 85 °F
- The Suppression Pool heatup rate is 12 °F per hour

Which one of the following is the maximum amount of time that the RCIC Turbine may continue to be operated without exceeding the Suppression Pool average temperature limit in accordance with Technical Specifications?

- A. Approximately 30 minutes.
- B. Approximately 50 minutes.
- C. Approximately 100 minutes.
- D. Approximately 120 minutes.

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QUESTION 78

The plant is operating at 90% power.

The initial load line is 101%.

HTR 6A EXST & INLET DRNS ISOL LEVEL HIGH alarm is received on panel H13-P870.

Which one of the following describes the appropriate action which the Unit Supervisor should direct the Supervising Operator to perform in order to mitigate the consequences of this event, including the reason for this action?

- A. Maintain reactor power $\leq 95\%$ using Reactor Recirculation Flow Control because core inlet subcooling is decreasing.
- B. Maintain reactor power $\leq 95\%$ using Reactor Recirculation Flow Control because core inlet subcooling is increasing.
- C. Lower reactor power to $\leq 90\%$ using Reactor Recirculation Flow Control because core inlet subcooling is decreasing.
- D. Lower reactor power to $\leq 90\%$ using Reactor Recirculation Flow Control because core inlet subcooling is increasing.

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 79

An off-site release event is in progress.

The following information is available for the Shift Supervisor:

- HIGH radiation alarm has been received on the TB/HB Ventilation GAS module, 1D17-K856
- TB/HB Ventilation GAS module indicates 7.2×10^5 cpm
- TB/HB Ventilation GAS module HIGH alarm setpoint is 3.4×10^3 cpm
- Chemistry reports that it will take 45 minutes to obtain a TB/HB Ventilation gas sample for analysis
- Chemistry reports that it will take 30 minutes to perform the Emergency Dose calculations needed to confirm the radiation levels at the site boundary

Which one of the following describes the required Emergency Plan classification for this event?

EPI-A1 is provided for reference.

- A. Unusual Event
- B. Alert
- C. Site Area Emergency
- D. General Emergency

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QUESTION 80

Which one of the following is the minimum Reactor Cavity Pool water level required during movement of irradiated fuel assemblies within the RPV in accordance with Technical Specifications?

- A. 22 feet 9 inches above the top of the RPV flange.
- B. 22 feet 9 inches above the top of irradiated fuel assemblies seated within the RPV.
- C. 23 feet above the top of the RPV flange.
- D. 23 feet above the top of irradiated fuel assemblies seated within the RPV.

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 82

During an ATWS, which one of the following identifies the highest Suppression Pool temperature, and its corresponding bases, that requires the initiation of the Standby Liquid Control System (SLC)?

- A. 110 °F; to ensure that Hot Shutdown Boron Weight is injected prior to Suppression Pool temperature exceeding the Heat Capacity Limit (HCL).
- B. 110 °F; to ensure that SLC is initiated prior to exceeding the Technical Specification limit that requires a reactor scram.
- C. 120 °F; to ensure that Hot Shutdown Boron Weight is injected prior to Suppression Pool temperature exceeding the Heat Capacity Limit (HCL).
- D. 120 °F; to ensure that SLC is initiated prior to exceeding the Technical Specification limit that requires RPV depressurization to less than 200 psig.

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 84

Which one of the following conditions would require the Unit Supervisor to declare the Outboard Main Steam Isolation Valves (MSIVs) inoperable because they may be incapable of closing within their required Technical Specification times?

- A. Parallel Instrument Air header pressure less than 90 psig.
- B. ADS Air Storage Tank 'B' pressure less than 150 psig.
- C. ADS Air Storage Tank 'B' pressure less than 90 psig.
- D. Instrument Air header pressure less than 90 psig.

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 85

The following plant conditions exist:

- The plant is in Day 4 of refueling outage RF08
- The RPV has been disassembled
- CORE ALTERATIONS have not commenced
- RPV water level is at the RPV flange
- The in-service RHR SDC Pump has just tripped
- Reactor coolant temperature is 120 °F

Assume no operator actions have been taken.

Which one of the following identifies the time available to restore shutdown cooling before RPV water level boils off to the Top of Active Fuel (TAF)?

PDB-A0019 is provided for reference.

- A. Approximately 8.2 hours.
- B. Approximately 12.4 hours.
- C. Approximately 14.0 hours.
- D. Approximately 21.0 hours.

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 86

The plant is operating at 100% power.

Replacement of an internal power supply will cause the complete de-energization of Division 1 of the Redundant Reactivity Control System (RRCS).

Which one of the following identifies the additional component/equipment that must be declared inoperable in accordance with Technical Specifications?

- A. SLC Subsystem 'A'
- B. SLC Subsystem 'B'
- C. RPS Trip System 'A'
- D. RPS Trip System 'B'

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QUESTION 87

The following plant conditions exist:

- CORE ALTERATIONS are in progress in reactor quadrant 'A'
- All control rods are fully inserted
- SRM Channel 'C' detector is fully withdrawn due to a failed detector drive

SRM Channel A/B Recorder, 1C51-R602A, has just failed and will have to be removed for repairs.

No other indications for SRM Channels 'A' and 'B' are currently available.

Which one of the following describes the Required Action, if any, that must be completed in accordance with Technical Specifications?

Technical Specification 3.3.1.2, SRM Instrumentation is provided for reference.

- A. Entry into LCO 3.3.1.2 is not required.
- B. Suspend CORE ALTERATIONS immediately.
- C. Restore the required SRM(s) to OPERABLE status within 4 hours.
- D. Place the Reactor Mode Switch in the SHUTDOWN position within 1 hour.

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QUESTION 88

Which one of the following conditions specifically requires SRO oversight of all RHR valve alignments and system manipulations when SHUTDOWN COOLING OTBD SUCT ISOL, 1E12-F008, and SHUTDOWN COOLING INBD SUCT ISOL, 1E12-F009, are open?

- A. The RHR Pump Minimum Flow Valve, 1E12-F064A(B) is incapable of opening to provide minimum flow in MODE 3.
- B. The RHR Pump Minimum Flow Valve, 1E12-F064A(B) is incapable of opening to provide minimum flow in MODE 4.
- C. The Reference Leg Backfill System is out of service in MODE 3.
- D. The Reference Leg Backfill System is out of service in MODE 4.

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QUESTION 89

The plant is operating at 100% power with both Reactor Feed Pump Turbines (RFPTs) on the Master Level Controller and the Motor Feed Pump (MFP) in Standby Readiness. The HPCS System is in Secured Status.

A Main Turbine trip with failure of the Bypass Valves occurs. All control rods do not fully insert.

The following panel H13-P680 indications exist:

- RRCS FDW RUNBACK annunciator is in alarm
- Amber RRCS FWRB RUNBACK INITIATED light is illuminated
- Amber MANUAL OVERRIDE AVAILABLE light is illuminated
- RPV water level is +100 inches and decreasing

As the Unit Supervisor, which one of the following operator actions should be directed in order to stabilize RPV water level using the Feedwater System?

- A. Operate a RFPT on its Manual Speed Control Dial.
- B. Operate a RFPT in MANUAL on the Startup Level Controller.
- C. Operate the MFP in MANUAL on the Startup Level Controller.
- D. Operate the MFP in MANUAL on its individual Flow Controller.

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QUESTION 90

The plant is operating at 50% power when SB&PR Channel 'A' fails.

The SB&PR System automatically transfers to SB&PR Channel 'B'.

The plant remains operating at 50% power.

Which one of the following describes the impact on continued plant operation, if any, due to the failure of SB&PR Channel 'A'?

- A. This is an 'unanalyzed' plant condition; the LCO for Linear Heat Generation Rate (LHGR) is not met.
- B. This is an 'unanalyzed' plant condition; the LCO for Minimum Critical Power Ratio (MCPR) is not met.
- C. This is an 'analyzed' plant condition; the LCO for Linear Heat Generation Rate (LHGR) is met.
- D. This is an 'analyzed' plant condition; the LCO for Minimum Critical Power Ratio (MCPR) is met.

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QUESTION 91

Which one of the following conditions would allow the Unit Supervisor to direct the Safety System to be manually overridden?

- A. The LPCS System is required to maintain RPV water level above the top of active fuel.
- B. A valid HPCS initiation is confirmed by two independent RPV water level indications.
- C. The SPMU timer is running during a large break loss of coolant accident.
- D. A Diesel Generator is in operation without ESW cooling water flow.

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QUESTION 92

During reactor operation, one channel of the IRM System will be placed in an inoperable condition for the purpose of performing a channel functional test.

Provided that the associated IRM Function maintains RPS trip capability, which one of the following is the maximum time that entry into the associated Technical Specification Conditions and Required Actions may be delayed?

- A. 2 hours
- B. 4 hours
- C. 6 hours
- D. 12 hours

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QUESTION 93

The plant is in MODE 5 with the vessel head removed.

Which one of the following refueling activities shall be observed and directly supervised by a licensed SRO who has no other concurrent responsibilities?

- A. Re-seating of a fuel bundle during core verification.
- B. Movement of the Refueling Platform with all hoists unloaded.
- C. Normal withdrawal of a SRM detector for signal to noise checks.
- D. Normal withdrawal of a control rod when its associated core cell is de-fueled.

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QUESTION 94

Which one of the following describes how Technical Specification Completion Times are tracked when situations require entry into multiple Conditions within a single LCO?

- A. Only a single Completion Time is tracked for the Condition that was entered last.
- B. Only a single Completion Time is tracked for the Condition with the most limiting Completion Time.
- C. Separate Completion Times are tracked for each Condition starting from the time of discovery of each situation.
- D. Separate Completion Times are tracked for each Condition starting from the time of discovery of the initial situation.

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QUESTION 95

The plant is in an outage. The Division 2 DG has been removed from service for maintenance. The Division 1 DG Room has been posted with a Shutdown Safety Sign.

During his daily plant tour, the Plant Manager wants to enter the Div 1 DG Room.

Which one of the following individuals must grant permission for the Plant Manager to enter the Division 1 DG Room in accordance with PAP-0116, Shutdown Safety?

- A. Unit Supervisor
- B. Shift Supervisor
- C. Shift Outage Director
- D. Shutdown Safety Advisor

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 96

Which one of the following types of instruction changes requires the Unit Supervisor or Shift Supervisor to assign an expiration date in accordance with PAP-0522, Preparation, Review, and Approval of Procedures and Instructions?

- A. Intent Final Instruction Change
- B. Non-Intent Final Instruction Change
- C. Permanent Conditional Instruction Change
- D. Non-Permanent Conditional Instruction Change

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 97

The following plant conditions exist:

- A Site Area Emergency has been declared
- You are the Shift Supervisor and Emergency Coordinator
- The TSC is still in the 'activation' process
- You have waived a plant worker's Federal 10CFR20 TEDE dose limit in order to perform a lifesaving activity in an emergency situation

Which one of the following is the recommended maximum emergency TEDE dose you can authorize the plant worker to receive in accordance with HPI-B0003, Processing of Personnel Dosimetry?

- A. 5 Rem
- B. 10 Rem
- C. 20 Rem
- D. 25 Rem

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 98

The Plant Emergency Instructions (PEIs) have been entered.

As the Shift Supervisor, which one of the following sets of individuals are you required to notify in accordance with PAP-0201, Conduct of Operations?

- A. Shift Technical Advisor and System Central Dispatcher.
- B. Operations Manager and Shift Technical Advisor.
- C. System Central Dispatcher and Plant Manager.
- D. Plant Manager and Operations Manager.

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 99

The following plant conditions exist:

- MODE 3
- Unit 2 Startup Transformer is supplying Bus L10
- Division 2 DG is in Secured Status for pre-planned maintenance
- Unit 1 Startup Transformer needs to be removed from service due to a damaged bushing on the primary side of the transformer

Which one of the following electrical power sources will satisfy the requirement to have two OPERABLE qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System in accordance with LCO 3.8.1, AC Sources – Operating?

- A. Cross-tie Bus L10 with Bus L20.
- B. Restore the Division 2 DG to OPERABLE status.
- C. Feed Bus L10 from Bus L11 or L12 via the Unit 1 Auxiliary Transformer.
- D. Feed Bus L20 from Bus L21 or L22 via the Unit 2 Auxiliary Transformer.

**U.S. NUCLEAR REGULATORY COMMISSION
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QUESTION 100

The following plant conditions exist:

- An earthquake has occurred
- SW PUMP DISCH HEADER PRESS LOW annunciator alarm on panel H13-P970 is in alarm
- ONI-P41, Loss of Service Water, has been entered.

As the Unit Supervisor, you have directed a Supervising Operator to start all three ESW loops as required by the Supplemental Actions of ONI-P41.

Which one of the following is the bases for this action?

- A. To maintain the ESW loops filled.
- B. To support the manual backwash of the ESW strainers.
- C. To prevent stagnant ESW forebay water from heating up.
- D. To maintain cooling water flow to safety-related components.

The Illuminating Company The Energy Makers.

SIGNATURE ONLY

TEST INTEGRITY STATEMENT

—Test taking is an individual effort. Cheating on an exam by giving or receiving help is grounds for termination of employment.

REG. GUIDE 8.13 STATEMENT (GET Training Only)

—I have received, read and understand the applicable portions of Regulatory Guide 8.13 relating to limiting radiation exposure to the unborn.

COURSE NAME _____

COURSE ID NUMBER _____



The Perry Plant

EXAMPLE

- WRONG 1 (1) (2) (4) (5)
- WRONG 2 (1) (2) (X) (4) (5)
- WRONG 3 (1) (2) (3) (4) (5)
- RIGHT 4 (1) (2) (3) (4) (5)

T A	F 1	T A	F 2	T A	F 3	T A	F 4	T A	F 5	T A	F 6	T A	F 7	T A	F 8	T A	F 9	T A	F 10	T A	F 11	T A	F 12	T A	F 13	T A	F 14	T A	F 15	T A	F 16	T A	F 17	T A	F 18	T A	F 19	T A	F 20	T A	F 21	T A	F 22	T A	F 23	T A	F 24	T A	F 25	T A	F 26	T A	F 27	T A	F 28	T A	F 29	T A	F 30	T A	F 31	T A	F 32	T A	F 33	T A	F 34	T A	F 35	T A	F 36	T A	F 37	T A	F 38	T A	F 39	T A	F 40	T A	F 41	T A	F 42	T A	F 43	T A	F 44	T A	F 45	T A	F 46	T A	F 47	T A	F 48	T A	F 49	T A	F 50	T A	F 51	T A	F 52	T A	F 53	T A	F 54	T A	F 55	T A	F 56	T A	F 57	T A	F 58	T A	F 59	T A	F 60	T A	F 61	T A	F 62	T A	F 63	T A	F 64	T A	F 65	T A	F 66	T A	F 67	T A	F 68	T A	F 69	T A	F 70	T A	F 71	T A	F 72	T A	F 73	T A	F 74	T A	F 75	T A	F 76	T A	F 77	T A	F 78	T A	F 79	T A	F 80	T A	F 81	T A	F 82	T A	F 83	T A	F 84	T A	F 85	T A	F 86	T A	F 87	T A	F 88	T A	F 89	T A	F 90	T A	F 91	T A	F 92	T A	F 93	T A	F 94	T A	F 95	T A	F 96	T A	F 97	T A	F 98	T A	F 99	T A	F 100	T A	F 101	T A	F 102	T A	F 103	T A	F 104	T A	F 105	T A	F 106	T A	F 107	T A	F 108	T A	F 109	T A	F 110	T A	F 111	T A	F 112	T A	F 113	T A	F 114	T A	F 115	T A	F 116	T A	F 117	T A	F 118	T A	F 119	T A	F 120	T A	F 121	T A	F 122	T A	F 123	T A	F 124	T A	F 125	T A	F 126	T A	F 127	T A	F 128	T A	F 129	T A	F 130	T A	F 131	T A	F 132	T A	F 133	T A	F 134	T A	F 135	T A	F 136	T A	F 137	T A	F 138	T A	F 139	T A	F 140	T A	F 141	T A	F 142	T A	F 143	T A	F 144	T A	F 145	T A	F 146	T A	F 147	T A	F 148	T A	F 149	T A	F 150	T A	F 151	T A	F 152	T A	F 153	T A	F 154	T A	F 155	T A	F 156	T A	F 157	T A	F 158	T A	F 159	T A	F 160	T A	F 161	T A	F 162	T A	F 163	T A	F 164	T A	F 165	T A	F 166	T A	F 167	T A	F 168	T A	F 169	T A	F 170	T A	F 171	T A	F 172	T A	F 173	T A	F 174	T A	F 175	T A	F 176	T A	F 177	T A	F 178	T A	F 179	T A	F 180	T A	F 181	T A	F 182	T A	F 183	T A	F 184	T A	F 185	T A	F 186	T A	F 187	T A	F 188	T A	F 189	T A	F 190	T A	F 191	T A	F 192	T A	F 193	T A	F 194	T A	F 195	T A	F 196	T A	F 197	T A	F 198	T A	F 199	T A	F 200	T A	F 201	T A	F 202	T A	F 203	T A	F 204	T A	F 205	T A	F 206	T A	F 207	T A	F 208	T A	F 209	T A	F 210	T A	F 211	T A	F 212	T A	F 213	T A	F 214	T A	F 215	T A	F 216	T A	F 217	T A	F 218	T A	F 219	T A	F 220	T A	F 221	T A	F 222	T A	F 223	T A	F 224	T A	F 225	T A	F 226	T A	F 227	T A	F 228	T A	F 229	T A	F 230	T A	F 231	T A	F 232	T A	F 233	T A	F 234	T A	F 235	T A	F 236	T A	F 237	T A	F 238	T A	F 239	T A	F 240	T A	F 241	T A	F 242	T A	F 243	T A	F 244	T A	F 245	T A	F 246	T A	F 247	T A	F 248	T A	F 249	T A	F 250	T A	F 251	T A	F 252	T A	F 253	T A	F 254	T A	F 255	T A	F 256	T A	F 257	T A	F 258	T A	F 259	T A	F 260	T A	F 261	T A	F 262	T A	F 263	T A	F 264	T A	F 265	T A	F 266	T A	F 267	T A	F 268	T A	F 269	T A	F 270	T A	F 271	T A	F 272	T A	F 273	T A	F 274	T A	F 275	T A	F 276	T A	F 277	T A	F 278	T A	F 279	T A	F 280	T A	F 281	T A	F 282	T A	F 283	T A	F 284	T A	F 285	T A	F 286	T A	F 287	T A	F 288	T A	F 289	T A	F 290	T A	F 291	T A	F 292	T A	F 293	T A	F 294	T A	F 295	T A	F 296	T A	F 297	T A	F 298	T A	F 299	T A	F 300	T A	F 301	T A	F 302	T A	F 303	T A	F 304	T A	F 305	T A	F 306	T A	F 307	T A	F 308	T A	F 309	T A	F 310	T A	F 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411	T A	F 412	T A	F 413	T A	F 414	T A	F 415	T A	F 416	T A	F 417	T A	F 418	T A	F 419	T A	F 420	T A	F 421	T A	F 422	T A	F 423	T A	F 424	T A	F 425	T A	F 426	T A	F 427	T A	F 428	T A	F 429	T A	F 430	T A	F 431	T A	F 432	T A	F 433	T A	F 434	T A	F 435	T A	F 436	T A	F 437	T A	F 438	T A	F 439	T A	F 440	T A	F 441	T A	F 442	T A	F 443	T A	F 444	T A	F 445	T A	F 446	T A	F 447	T A	F 448	T A	F 449	T A	F 450	T A	F 451	T A	F 452	T A	F 453	T A	F 454	T A	F 455	T A	F 456	T A	F 457	T A	F 458	T A	F 459	T A	F 460	T A	F 461	T A	F 462	T A	F 463	T A	F 464	T A	F 465	T A	F 466	T A	F 467	T A	F 468	T A	F 469	T A	F 470	T A	F 471	T A	F 472	T A	F 473	T A	F 474	T A	F 475	T A	F 476	T A	F 477	T A	F 478	T A	F 479	T A	F 480	T A	F 481	T A	F 482	T A	F 483	T A	F 484	T A	F 485	T A	F 486	T A	F 487	T A	F 488	T A	F 489	T A	F 490	T A	F 491	T A	F 492	T A	F 493	T A	F 494	T A	F 495	T A	F 496	T A	F 497	T A	F 498	T A	F 499	T A	F 500	T A	F 501	T A	F 502	T A	F 503	T A	F 504	T A	F 505	T A	F 506	T A	F 507	T A	F 508	T A	F 509	T A	F 510	T A	F 511	T A	F 512	T A	F 513	T A	F 514	T A	F 515	T A	F 516	T A	F 517	T A	F 518	T A	F 519	T A	F 520	T A	F 521	T A	F 522	T A	F 523	T A	F 524	T A	F 525	T A	F 526	T A	F 527	T A	F 528	T A	F 529	T A	F 530	T A	F 531	T A	F 532	T A	F 533	T A	F 534	T A	F 535	T A	F 536	T A	F 537	T A	F 538	T A	F 539	T A	F 540	T A	F 541	T A	F 542	T A	F 543	T A	F 544	T A	F 545	T A	F 546	T A	F 547	T A	F 548	T A	F 549	T A	F 550	T A	F 551	T A	F 552	T A	F 553	T A	F 554	T A	F 555	T A	F 556	T A	F 557	T A	F 558	T A	F 559	T A	F 560	T A	F 561	T A	F 562	T A	F 563	T A	F 564	T A	F 565	T A	F 566	T A	F 567	T A	F 568	T A	F 569	T A	F 570	T A	F 571	T A	F 572	T A	F 573	T A	F 574	T A	F 575	T A	F 576	T A	F 577	T A	F 578	T A	F 579	T A	F 580	T A	F 581	T A	F 582	T A	F 583	T A	F 584	T A	F 585	T A	F 586	T A	F 587	T A	F 588	T A	F 589	T A	F 590	T
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SRO 1 / RO 1

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295003 AK1.02	
	Importance Rating	3.1	3.4
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – Bus EH11 Stub Bus Breaker does not trip open on an UV condition (will trip open on a LOCA condition).</p> <p>B - Bus EH11 Stub Bus Breaker does not trip open on an UV condition (will trip open on a LOCA condition) and CRDH Pump A breaker will trip open on an UV condition.</p> <p>D – NCC Pump A breaker will trip open on an UV condition (and will not automatically reclose because there is no LOOP signal generated).</p>			
Technical Reference(s): SDM-R10, SDM-P43, SDM-C11(CRDH)		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-R10 Obj D			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires student to predict a system response based on initial plant conditions provided.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295006 AK2.02	
	Importance Rating	3.8	3.8
Proposed Question: See attached			
Proposed Answer: D			
Explanation (Why the distractors are incorrect): <p>A – Setpoint Setdown is actuated when actual RPV water level decreases to Level 3 (178"); it is not actuated by an RPS scram signal. The initial level demand signal is based on the actual MLC tape set position which was 200" (the normal tapeset position is 196").</p> <p>B - Setpoint Setdown is actuated when actual RPV water level decreases to Level 3 (178"); it is not actuated by an RPS scram signal.</p> <p>C - The initial level demand signal is based on the actual MLC tape set position which was 200" (the normal tapeset position is 196").</p>			
Technical Reference(s): IOI-8, ONI-C71-1, SDM-C34		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-C34 Obj C, OT-3035-003-01 Obj B			
Question Source:	Bank # Modified Bank # New	P-924 _____ _____	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	_____ __C__	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): Requires student to predict the response of the FW Master Level Controller based on initial plant conditions provided.			

SRO 3 / RO 3

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295007 AA1.05	
	Importance Rating	3.7	3.8
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – TCVs would open further until LOAD LIMIT is reached (110%) and Bypass Valves would be commanded to open until the MCFL is reached (130%).</p> <p>C – TCVs would open further until LOAD LIMIT is reached (110%).</p> <p>D - Bypass Valves would be commanded to open until the MCFL is reached (130%).</p>			
Technical Reference(s): SDM-N32/C85		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-N32/C85 Obj E			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge _____		
	Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u>		
	55.43 _____		
<p>Comments (Why is it an upper level question): Requires student to predict the response of the SB&PR System based on initial conditions provided.</p> <p>*MS pressure xmtr output failure upscale would be equivalent to a high reactor pressure condition. High reactor pressure would be equivalent to a PR failure high. The MCFL would limit total steam flow to 130% (turbine flow +bypass valve flow). The Load Limiter would limit total turbine flow to 110% so that the bypass valves would open to pass the remaining 20% flow.</p>			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295010 AA1.02	
	Importance Rating	3.6	3.6
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect): A – RPV Level 1 is incorrect (need both parts to be correct in order to be a correct answer). C – No automatic actions associated with drain sump high discharge temperature. D – Drain sump pump trips on high discharge pressure after a 10 second time delay. This is not a Containment isolation valve signal.			
Technical Reference(s): SDM-G61		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-G61 Obj E			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

SRO 5 / RO 5

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295015 AK1.04	
	Importance Rating	3.8	3.8
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – Lowest SRV LLS opening setpoint is 1033 psig. Allowing SRVs to automatically cycle on LLS will allow RPV pressure to exceed 1000 psig.</p> <p>C – MSIVs are allowed to be closed to stabilize pressure if it is decreasing. However, the SRVs are upstream of the MSIVs, therefore, closing the MSIVs would have <u>no</u> effect on a stuck open SRV.</p> <p>D – Preferred flowpath is the Bypass Valves to the Main Condenser. It would be inappropriate to use SRVs (and add heat to the SP) if the Bypass Valves were available and sufficient Bypass Valve capacity existed to control pressure.</p>			
Technical Reference(s): PEI-B13, RPV Control (ATWS), PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None.			
Learning Objective (As available): OT-3402-005-04b Obj D			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

SRO 6 / RO 6

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295015 AK2.08	
	Importance Rating	3.6	3.7
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – SLC Pump trip is actuated on low SLC tank level; APRM Not Downscale permissive is not required.</p> <p>C – ARI logic is actuated on low RPV level or high reactor pressure; APRM Not Downscale permissive is not required.</p> <p>D – Recirc Pump Transfer to LFMG logic is actuated on high reactor pressure; APRM Not Downscale permissive is not required.</p>			
Technical Reference(s): SDM-C22		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-001-C22 Obj D			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge <u> X </u>		
	Comprehension or Analysis _____		
10 CFR Part 55 Content:	55.41 <u> X </u>		
	55.43 _____		
Comments (Why is it an upper level question): NA			

SRO 7 / RO 7

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295016 AA1.04	
	Importance Rating	3.1	3.2
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – This method is not specified in ONI-C61; it is specified in PEI-B13, RPV Control (ATWS).</p> <p>B – This method is not specified in any procedure.</p> <p>C – This is not the preferred method specified in ONI-C61.</p>			
Technical Reference(s): ONI-C61		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-002-15B Obj A, OT-3036-003-C61 Obj C			
Question Source:	Bank # Modified Bank # New	P-1286 _____ _____	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> X </u> _____	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): NA			

SRO 8 / RO 8

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295017 AA1.03	
	Importance Rating	3.4	3.4
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – This is the normal mode of operation with <u>no</u> high noble gas radiation condition present.</p> <p>D – This is the correct FHB Vent System lineup due to a high radiation condition. However, it is the noble GAS module that causes the lineup shift, <u>not</u> the IODINE module.</p>			
Technical Reference(s): SDM-M40, SOI-M40, ONI-D17		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-M40 Obj D, OT-3035-003-01 Obj A			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge _____		
	Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u>		
	55.43 _____		
Comments (Why is it an upper level question): Requires student to predict the response of the FHB Vent System, including the reason, based on initial plant conditions provided.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295024 EA2.01	
	Importance Rating	4.2	4.4
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect): <p>A –The steam-air mixture is forced into the SP where the steam is condensed. There is no <u>direct flowpath</u> from the Drywell to the Containment air space which would directly pressurize the Containment due to the design of the Containment/Drywell.</p> <p>C – The rise in Drywell pressure will cause the vents to become uncovered, <u>not cause the vents to become covered.</u></p> <p>D - The rise in Drywell pressure will not <u>prevent</u> the vents from becoming uncovered, it will cause the vents to become uncovered.</p>			
Technical Reference(s): AT&AA Text-Containment LOCA, SDM-T23		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3401-005-14 Obj D, OT-3036-005-T23 Obj B			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): Requires the students to predict the response of Containment and Drywell pressure during a DBA LOCA.			

SRO 10 / RO 10

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295027 EK3.03	
	Importance Rating	3.7	3.7
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – While a Cont temperature of 110 F does require entry into PEI-T23, it does <u>not</u> require PEI-B13, RPV Control (Non-ATWS) to be entered and the reactor scrammed. A <u>SP temperature</u> of 110 F would require PEI-B13, RPV Control (Non-ATWS) to be entered and the reactor scrammed. A SP temperature of 110 F also requires the Rx Mode Switch to be placed in the Shutdown position as required by Tech Specs for SP Ave. Water Temperature.</p> <p>D – A Cont temperature of 185 F is the correct temperature value but the bases for the action is incorrect. This incorrect bases is the bases for the action to emergency depressurize the RPV.</p>			
Technical Reference(s): PEI-T23, PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-004-07 Obj C			
Question Source:	Bank # Modified Bank # New	<u> P-609 </u> <u> </u>	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> </u> <u> C </u>	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 <u> </u>		
Comments (Why is it an upper level question): Requires the student to determine the correct condition which requires initiation of a reactor scram, including the correct reason for this action.			

SRO 11 / RO 11

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295030 EK3.03	
	Importance Rating	3.6	3.7
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – The height of the SP suction strainer is approx. 3 ft off the bottom of the SP.</p> <p>C – Exceeding the stress limits of the SRV tail pipe is associated with the SRV Tail Pipe Level Limit (which only occurs when SP level exceeds 24.5 ft).</p> <p>D – The uncovering of the SRV tailpipe quenchers will not occur until SP level is 5.25 ft.</p>			
Technical Reference(s): PEI-B13, PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-005-01 Obj D			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

SRO 12 / RO 12

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295031_EA1.12	
	Importance Rating	3.9	4.1
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – Feedwater flow will <u>decrease</u> due to the false high water level signal.</p> <p>C – RFPTs do not trip directly due to low RPV level at Level 2 (+130 inches). At Level 2, RCIC automatically initiates which directly trips the RFPTs.</p>			
Technical Reference(s): SDM-N27		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-N27 Obj D			
Question Source:	Bank #	_____ (Note changes or attach parent)	
	Modified Bank #	P-1007	
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): Requires student to predict the response of the Feedwater System based on initial plant conditions provided.			

SRO 13 / RO 13

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295037 EK3.05	
	Importance Rating	3.2	3.7
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A - 70°F is the minimum reactor vessel flange temperature when the head studs are under tension (TS 3.4.11).</p> <p>B - 70°F is the minimum reactor vessel flange temperature when the head studs are under tension (TS 3.4.11). Also, all control rods are assumed to be fully withdrawn.</p> <p>D - All control rods are assumed to be fully withdrawn.</p>			
Technical Reference(s): SDM-C41, PEI-B13, RPV Control (ATWS), PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-C41/SYS-5014-C41 Rev 000 Obj C, OT-3402-005-03 Obj D			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295038 EK3.02	
	Importance Rating	3.9	4.2
Proposed Question: See attached			
Proposed Answer: D			
Explanation (Why the distractors are incorrect): A / B – It is <u>not</u> a system that can be used to reduce RPV pressure (i.e., SRVs) or maintain RPV water level (i.e, HPCS). A primary system has a direct cause and effect relationship such that if RPV pressure is lowered, then the discharge of water or steam flow from the unisolated break in the primary system will also decrease. This relationship is not necessarily true in Answers A or B. C – This may 'generically' describe a 'primary system, however, it is <u>not</u> the PEI-D17 Bases definition of a primary system.			
Technical Reference(s): PEI-D17		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-003-15 Obj C			
Question Source:	Bank # Modified Bank # New	P-1306 <u> </u> <u> </u>	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> X </u> <u> </u>	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 <u> </u>		
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	500000 EK3.03	
	Importance Rating	3.0	3.5

Proposed Question: See attached.

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A – 4% hydrogen concentration is the lower limit of flammability; this value does not require the hydrogen recombiners to be secured.

B - 4% hydrogen concentration is the lower limit of flammability; this value does not require the hydrogen recombiners to be secured. Also there is no bases for 'insufficient oxygen to support the recombination reaction'. Perry does not inert its Containment.

C - There is no bases for 'insufficient oxygen to support the recombination reaction'. Perry does not inert its Containment.

Technical Reference(s): PEI-M51/56, PEI Bases Document, SOI-M51/56	Reference Attached: <u> X </u> (Attach if not previously provided)
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Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3402-006-10 Obj C, OT-3036-005-M51 Obj C

Question Source:	Bank # _____	(Note changes or attach parent)
	Modified Bank # _____	
	New <u> X </u>	

Question Cognitive Level:	Memory or Fundamental Knowledge _____
	Comprehension or Analysis <u> C </u>

10 CFR Part 55 Content:	55.41 <u> X </u>
	55.43 _____

Comments (Why is it an upper level question): Requires student to recognize the relationship between hydrogen concentration and termination of hydrogen recombiner operation, including what may happen if the hydrogen recombiners are not secured.

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295004 AK 3.0.3	
	Importance Rating	3.1	3.5
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B / C – The RPV Level 8 trip for the RFPTs is inop during a complete loss of DC Bus D-1-A. RPV water level will continue to increase. The reactor will scram when RPV level reaches Level 8.</p> <p>D – This condition is correct only if Reactor Narrow Range Level Channel 'A' was initially selected.</p>			
Technical Reference(s): ONI-R42-4		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-R42 Obj E, OT-3035-001-05 Obj D			
Question Source:	Bank #	P-243	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to predict the plant wide response based on initial plant conditions and a loss of DC D-1-A.			

SRO 17 / RO 17

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	2
	K/A#	295005 AK2.03	
	Importance Rating	3.2	3.3
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – EOC-RPT logic also trips the CB3 and CB4 breakers. (This description is for a normal fast-to-slow speed transfer).</p> <p>C / D – EOC-RPT logic is bypassed when rated thermal power is less than 38%.</p>			
Technical Reference(s): SDM-B33		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-B33 Obj E			
Question Source:	Bank # Modified Bank # New	P-220 _____ _____	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	_____ __C__	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): Requires student to predict the response of the Reactor Recirculation System following a Main Turbine trip based on a specified rated thermal power level.			

SRO 18 / RO 18

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295008 AK1.02	
	Importance Rating	2.8	2.8
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – Per SDM-E51, the RCIC Terry Turbine was chosen because it is <u>not</u> affected by water slugging.</p> <p>B / D – There is no supporting documentation for either type of damage even though each type of damage is plausible.</p>			
Technical Reference(s): SDM-B21(NBPI)		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-B21(INST) Obj B			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295011 AK3.01	
	Importance Rating	3.6	3.9
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – The Cntmt design temperature limit is 185°F. (330°F is the Drywell design temperature limit).</p> <p>B – The Cntmt average air temperature LCO limit is 95°F. (145°F is the Drywell average air temperature LCO limit).</p> <p>C – The environmental qualification temperature for safety-related electrical equipment in Cntmt is 185°F. (330°F is the environmental qualification temperature for safety-related electrical equipment in the Drywell).</p>			
Technical Reference(s): PEI-T23, PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-004-07 Obj B			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295018 AK3.06	
	Importance Rating	3.3	3.3
Proposed Question: See attached			
Proposed Answer: C *The exact temperature values provided are correct The student is expected to know what cools the load and whether or not there is an automatic trip.			
Explanation (Why the distractors are incorrect): A – The IA Compressors are cooled by NCC (<u>not</u> TBCC). Therefore, they will <u>not</u> trip during a loss of TBCC only. B – The Main Lube Oil Coolers are cooled by SW (<u>not</u> TBCC). Also, there is <u>no</u> automatic Main Turbine trip based on a Main Lube Oil Cooler outlet high temperature. D – The RFPT Lube Oil Coolers are cooled by TBCC. However, there is <u>no</u> automatic RFPT trip based on a RFPT LO Cooler outlet high temperature.			
Technical Reference(s): SDM-P44, ONI-P44, SDM-R13, Various ARIs		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-P44 Obj B & E, OT-3035-002-02 Obj A, OT-3036-004-R13 Obj B, C, D, & H			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): Requires the student to predict the consequences on various plant equipment loads during a loss of TBCC if no operator actions are taken to restore cooling water flow to the heat exchangers..			

SRO 21 / RO 21

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295022 AK2.03	
	Importance Rating	3.4	3.4
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – The control rod associated with the inoperable accumulator must be withdrawn (rod 20-27 is fully inserted).</p> <p>C / D – Reactor pressure must be ≤ 600 psig in Mode 2 when any CRD accumulator is inoperable and CRD Charging Water pressure is < 1600 psig.</p> <p>*Accumulator fault is equivalent to an inoperable accumulator.</p>			
Technical Reference(s): ONI-C11-1		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-007-C11(CRDH) Obj G, OT-3035-004-07 Obj A			
Question Source:	Bank #	P-136	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to recognize the correct set of plant conditions which would immediately require the Reactor Mode Switch to be placed in the SHUTDOWN position.			

SRO 22 / RO 22

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295029 EK1.01	
	Importance Rating	3.4	3.7
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – PSP is a function of SP water level and is used to ensure the pressure suppression capability of the Containment is maintained while the RPV is at pressure.</p> <p>C – SRVTPLL is defined to be the highest SP water level at which opening of an SRV will not result in exceeding the stress limits of the SRV tail pipe, tail pipe supports, quencher, or quencher supports. The SRVTPLL is used to prevent SRV system damage.</p> <p>D – MCUTL is <u>not</u> a function of SP water level. It is defined to be the greatest amount of time that the core can remain completely uncovered with no heat transfer to water or steam, and the clad temperature of the hottest fuel rod not exceeding 1500 °F.</p>			
Technical Reference(s): PEI-B13, RPV Control (Non-ATWS), PEI Bases Document		Reference Attached: <input checked="" type="checkbox"/> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-005-02 Obj F			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <input checked="" type="checkbox"/>		
Question Cognitive Level:	Memory or Fundamental Knowledge <input checked="" type="checkbox"/>		
	Comprehension or Analysis _____		
10 CFR Part 55 Content:	55.41 <input checked="" type="checkbox"/>		
	55.43 _____		
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	3	2
	K/A#	295032 EK3.03	
	Importance Rating	3.8	3.9
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – One of the bases for PEI-N11 is to protect equipment in the annulus and <u>Secondary</u> Containment, not the <u>Primary</u> Containment.</p> <p>C – This is not a bases for PEI-N11; reactor coolant inventory loss is controlled by other PEIs (e.g., PEI-B13 and PEI-T23).</p> <p>D – The Turbine Bldg is not part of the Perry Expanded Functional Secondary Containment. Turbine Bldg accessibility is controlled by PEI-D17, Radioactivity Release Control.</p>			
Technical Reference(s): PEI-N11, PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-001-17 Obj D			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295033 EA1.01	
	Importance Rating	3.9	4.0
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – These are legitimate Area Rad Monitor alarms but are not an Entry Condition into PEI-N11.</p> <p>D – The High-High alarm does not exist for the Area Rad Monitoring System.</p>			
Technical Reference(s): PEI-N11, PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-001-17 Obj C			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295034 EA1.03	
	Importance Rating	4.0	3.9
Proposed Question: See attached			
Proposed Answer: B *Due to interlocks, only one Supply Fan and one Exhaust Fan can be running during normal system operation.			
Explanation (Why the distractors are incorrect): <p>A – Only one Exhaust Fan will be running. The running Supply Fan will have tripped off due to the Aux Bldg Vent high GAS alarm. However, the Aux Bldg Vent System controls and indications are located in the plant at local panel H51-P172, <u>not</u> in the Control Room.</p> <p>C - Only one Exhaust Fan will be running. The running Supply Fan will have tripped off due to the Aux Bldg Vent high GAS alarm. Also the Aux Bldg Vent System controls and indications are located in the plant at local panel H51-P172, <u>not</u> in the Control Room.</p> <p>D - Only one Exhaust Fan will be running. The running Supply Fan will have tripped off due to the Aux Bldg Vent high GAS alarm.</p>			
Technical Reference(s): SDM-M38, ONI-D17		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): SYS-5014-001-M38 Obj E, OT-3035-003-01 Obj A			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): Requires student to predict the response of the Aux Bldg Vent System based on initial conditions provided for a secondary containment ventilation high radiation problem.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	3	2
	K/A#	295036 EK2.01	
	Importance Rating	3.1	3.2
Proposed Question: See attached			
Proposed Answer: D			
Explanation (Why the distractors are incorrect): A / B – The pump room sump drain valve is a manual valve (normally closed); there is no automatic pump room sump drain valve. C - The pump room sump drain valve is a normally closed manual valve. This isolates the RHR 'A' Pump Room Sump from the Aux Bldg Floor Drain Sump.			
Technical Reference(s): ARI-H13-P601-18(D1), SDM-G61		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-001-02b Obj 7, OT-3403-001-09 Part 1 Obj 5, OT-3036-002-G61 Obj F			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires student to predict the response of the Liquid Radwaste Sumps System given initial plant conditions.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	201005 K4.06	
	Importance Rating	3.5	3.5
Proposed Question: See attached			
Proposed Answer: A			
Explanation (Why the distractors are incorrect): B / C / D – Group 3 control rods are neither fully inserted or withdrawn; therefore the RPC will enforce a rod withdrawal block to prevent withdrawal of the Group 4 control rod. (Notch positions '04' and '12' are required bank positions but they are irrelevant in this case because the Group 3 control rods are not fully withdrawn).			
Technical Reference(s): SDM-C11(RCIS)		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-C11(RCIS) Obj H			
Question Source:	Bank # Modified Bank # New	P-130 _____ _____	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	_____ <u> C </u>	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): Requires student to predict the response of the RC&IS System given initial plant conditions.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	202002 A3.01	
	Importance Rating	3.6	3.4
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – When the AFDL override is signal is cleared (i.e., when APRM Channel A becomes bypassed), then the FCVs will respond to the signal from their associated Loop Flow Controller. This will cause the FCVs to return to their original positions.</p> <p>C / D - When the AFDL override is signal is cleared (i.e., when APRM Channel A becomes bypassed), then the FCVs will respond to the signal from their associated Loop Flow Controller.</p>			
Technical Reference(s): SDM-B33, ARI-H13-P680-4 (E9)		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-B33 Obj E and F			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to predict the automatic response of the FCVs when the AFDL is in control and the failed APRM channel is bypassed before the operator performs an emergency shutdown of the FCV HPUs.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	203000 K1.10	
	Importance Rating	3.2	3.2
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – Room cooler auto starts when the RHR Pump A breaker closes (52a contact), does not start on a RHR LOCA initiation signal (K110A relay energizes).</p> <p>B – Room cooler auto starts when the RHR Pump A breaker closes (52a contact), does not start on a RHR LOCA initiation signal (K110A relay energizes). Also, cooling water is provided directly by ECC.</p> <p>D – Cooling water is provided directly by ECC, not ESW (ESW cools ECC via ECC HX).</p>			
Technical Reference(s): SDM-M39, B-208-131 Sheet 04		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): SYS-5014-M39-00 Obj B & D			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	209001 A1.04	
	Importance Rating	3.7	3.7
Proposed Question: See attached			
Proposed Answer: D			
Explanation (Why the distractors are incorrect):			
A – The LPCS Injection Valve will not auto open based on only a LOCA signal. The RPV pressure permissive (<600 psig) must also be met to complete the valve auto open logic circuitry.			
B – With a LOCA signal present, the LPCS Injection Valve can be manually opened anytime regardless of RPV pressure. The LOCA signal bypasses the RPV pressure permissive (<600 psig) in the valve manual open logic circuitry.			
C – With a LOCA signal present, the LPCS Injection Valve will automatically open when RPV pressure decreases to 600 psig, not 530 psig. The phrase 'until RPV pressure decreases to 530 psig' establishes an upper limit on RPV pressure which is incorrect. (530 psig is the RPV pressure permissive for the LPCI Injection Valves.)			
Technical Reference(s): SDM-E21, SOI-E21		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-E21 Obj E			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): Requires the student to predict the response of the LPCS Injection Valve based on initial plant conditions provided.			
The blue pressure permissive actually looks at the pressure between the LPCS Inj Valve and the Inj Check Valve. Loss of this pressure permissive would imply that pressure in this line equals RPV pressure (i.e., the Inj Check Valve is leaking). When RPV pressure decreases <600 psig, the pressure permissive would then be met.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	209002 K2.03	
	Importance Rating	2.8	2.9
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect): A – The initiation logic will <u>not</u> automatically reset because of a loss of AC power. The initiation logic is DC-powered, therefore, it is unaffected (i.e., still sealed-in due to LOCA signal). C – The HPCS Pump remains overridden off after the loss of Bus EH13 and subsequent re-energization. The override logic is dc-powered, therefore, it is still sealed-in. D – The HPCS Pump remains overridden off after the loss of Bus EH13 and subsequent re-energization. The initiation logic is DC-powered, therefore, it is unaffected (i.e., still sealed-in due to LOCA signal).			
Technical Reference(s): SDM-E22A		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-E22A Obj E			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to predict the response of the HPCS Pump based on initial plant conditions provided.			

SRO 32 / RO 32

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	212000 A3.05	
	Importance Rating	3.9	3.9
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – In the REFUEL position, the SDV high level scram bypass is still enabled. Therefore, no RPS actuation occurs due to SDV high level.</p> <p>C / D – RPS actuation does occur because the SDV high level scram bypass is <u>no</u> longer bypassed when the Reactor Mode Switch is in the STARTUP/STANDBY position.</p>			
Technical Reference(s): SDM-C71, SOI-C71, LER 97-012		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-005-C71 Obj F & G			
Question Source:	Bank # Modified Bank # New	P-1342 _____ _____	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	_____ <u> C </u>	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
<p>Comments (Why is it an upper level question): Requires the student to predict the response of the RPS when the position of the Reactor Mode Switch is changed based on initial plant conditions provided.</p> <p>To go from SHUTDOWN to STARTUP/STANDBY, you must go through REFUEL.</p>			

SRO 33 / RO 33

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	215005 A4.01	
	Importance Rating	3.2	3.1
Proposed Question: See attached			
Proposed Answer: C			
Explanation (Why the distractors are incorrect): A / B / D – The recorder <u>only</u> displays the APRM flow-biased rod block setpoint.			
Technical Reference(s): SDM-C51(PRM & OPRM), IOI-1		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-005-C51(APRM & OPRM) Obj C			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	216000 A2.06	
	Importance Rating	2.9	3.1
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – NS4 relays <u>de-energize</u> to cause an RHR SDC isolation in <u>both isolation trip systems</u> (Inboard and Outboard)</p> <p>When RPS Bus A de-energizes, the NS4 SDC isolation relay K129A de-energizes to cause the RHR SDC Outboard isolation valves to close. In addition, RPS Bus A provides power to the RPV Pressure-High sensor and trip unit (B21-N679C) in the RHR SDC Inboard isolation logic. When the sensor/trip unit de-energizes, relay K124C de-energizes and contact K124C opens, thereby causing NS4 SDC isolation relay K129B to de-energize. This causes the RHR SDC Inboard isolation valves to close.</p> <p>C – Before the Inboard and Outboard isolation signals can be reset, power must be restored to RPS Bus A in order to re-energize the associated NS4 trip units, relays, etc. Only then can the NS4 isolation logic be reset.</p>			
Technical Reference(s): ONI-C71-2		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-006 Obj A, OT-3036-005-C71 Obj L			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
<p>Comments (Why is it an upper level question): Requires the student to predict the response of the RHR SDC System based on his comprehension of the RPS power supplies to the NS4 RHR SDC isolation circuitry and the actions required to restore from the isolation condition.</p> <p>The question asks the student to predict the impact on the RHR SDC System when a loss of power occurs (RPS Bus A) to the NBPI instrumentation associated with the NS4 RHR SDC isolation logic.</p>			

SRO 35 / RO 35

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	217000 K6.01	
	Importance Rating	3.4	3.5
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – Both RCIC suction valves are DC-powered (not AC-powered). Since the suction transfer will occur, they will not fail 'as-is'.</p> <p>B – Since the SP suction valve is DC-powered, it will automatically open on a high SP level signal.</p> <p>C - Since the CST suction valve is DC-powered, it will automatically close on a high SP level signal.</p>			
Technical Reference(s): SDM-E51		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-003-E51 Obj D			
Question Source:	Bank #	P-1147	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
<p>Comments (Why is it an upper level question): Requires the student to predict the response of the RCIC suction valves due to a high SP level condition during a Station Blackout.</p>			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	218000 K2.01	
	Importance Rating	3.1	3.3
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect): A – ED-1-A is the power source to the ADS 'A' solenoid valves. C / D – D-1-A and D-1-B are 'Non-Class 1E' DC power sources. ADS receives power from 'Class 1E' DC power sources ED-1-A and ED-1-B.			
Technical Reference(s): SDM-R42, SDM-B21C (ADS)		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-B21C Obj E, OT-3036-006-R42 Obj B			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

SRO 37 / RO 37

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	223001 K6,14	
	Importance Rating	3.6	3.8
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – It is the design amount of cooling water flow to the oil cooler but is <u>not</u> a compressor trip signal.</p> <p>C - It is the original design amount of cooling water flow to the air aftercooler but an engineering evaluation determined that cooling water flow could be isolated (0 gpm). It is <u>not</u> a compressor trip signal.</p> <p>D – It is the Cntmt Spray First Shutoff Valve, 1E12-F028A, that will cause the compressor to trip if the valve is less than 90% open.</p>			
Technical Reference(s): SDM-M51		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-005-M51 Obj E			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	223001 A2.04	
	Importance Rating	3.7	3.8

Proposed Question: See attached

Proposed Answer: **B *6% hydrogen is the key value which the student must recognize.**

Explanation (Why the distractors are incorrect):

A – Recombiner operation is prohibited when Cont hydrogen concentration reaches 6% to prevent damage to the recombiner internals. Continued recombiner operation is not allowed (not even up to HDOL)

C / D – When Cont hydrogen concentration reaches 6%, damage to the recombiner internals from the heat produced by the recombination of hydrogen and oxygen into water will occur. Therefore, continued operation is not allowed (not even up to HDOL).

Technical Reference(s): PEI-M51/56, PEI Bases Document	Reference Attached: <u> X </u> (Attach if not previously provided)
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Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3402-006-10 Obj C

Question Source:	Bank # _____	(Note changes or attach parent)
	Modified Bank # _____	
	New <u> X </u>	

Question Cognitive Level:	Memory or Fundamental Knowledge _____
	Comprehension or Analysis <u> C </u>

10 CFR Part 55 Content:	55.41 <u> X </u>
	55.43 _____

Comments (Why is it an upper level question): Requires the student to predict the impact on continued recombiner operation and the action required to be performed, if any, based on the initial plant conditions provided.

SRO 39 / RO 39

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	223002 A3.02	
	Importance Rating	3.5	3.5
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – NCC isolates on a RPV Level 1 isolation signal (<16.5 inches).</p> <p>B – There are <u>no</u> automatic isolation signals associated with SRIA (even though the Cntmt isolation valves are normally open MOVs).</p> <p>D – There are <u>no</u> MOVs associated with the Fire Service Water System. The Cntmt isolation valves are manual valves which are normally closed in MODES 1, 2 and 3.</p>			
Technical Reference(s): SDM-B21(NS4)		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-B21(NS4) Obj E			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge <u> X </u>		
	Comprehension or Analysis _____		
10 CFR Part 55 Content:	55.41 <u> X </u>		
	55.43 _____		
Comments (Why is it an upper level question): NA			

SRO 40 / RO 40

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	1
	K/A#	226001 A3.07	
	Importance Rating	3.5	3.5
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – An ADS initiation signal does <u>not</u> cause an automatic RHR pump start. ADS requires a low pressure ECCS pump (RHR or LPCS) to be in operation in order to generate an ADS initiation signal.</p> <p>B – The RHR LOCA logic does <u>not</u> automatically reset if the initiating conditions clear. The logic is manually reset by the operator using the Seal-in Reset PB.</p> <p>D – The RHR LOCA logic is already sealed-in. The RPV low water level signal would therefore have no further effect.</p>			
Technical Reference(s): SDM-E12		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-E12 Obj F & G			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to predict the response of the RHR System based on initial conditions provided.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	239002 A2.01	
	Importance Rating	3.0	3.3
Proposed Question: See attached			
Proposed Answer: D *Removing the applicable solenoid control power fuses is required to disable all pneumatics (air) operation for this SRV (both the Relief mode and ADS mode). There is no specific procedural guidance for a vacuum breaker failure, there is ONI guidance which the Control Room Operators can use to close an open SRV (and keep it closed).			
<p>Explanation (Why the distractors are incorrect):</p> <p>A - Steam is discharged directly into the Drywell airspace, it does <u>not</u> discharge directly into the Containment airspace. Also, placing both of its associated keylock switches in OFF only disables the pneumatic Relief mode of operation, it does <u>not</u> disable the automatic mode of ADS (which is a pneumatic mode of operation).</p> <p>B - Steam is discharged directly into the Drywell airspace, it does <u>not</u> discharge directly into the Containment airspace.</p> <p>C - Placing both of its associated keylock switches in OFF only disables the pneumatic Relief mode of operation, it does <u>not</u> disable the automatic mode of ADS (which is a pneumatic mode of operation).</p>			
Technical Reference(s): SDM-B21/N11		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-005-B21/N11 Obj B, C, and E			
Question Source:	Bank # Modified Bank # New	<u> P-1301 </u> (Note changes or attach parent) <u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> </u> <u> C </u>	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 <u> </u>		
Comments (Why is it an upper level question): Requires the student to predict the impact of the SRV tailpipe vacuum breaker failure in the 'open' position, including actions which can be taken to mitigate the consequences of this failure.			

SRO 42 / RO 42

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	241000 K3.17	
	Importance Rating	2.7	2.8
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – There is no bases for 60 rpm (decrease by one third) other than it is the acceleration rate corresponding to the STARTING RATE-SLOW pushbutton.</p> <p>B – The actual acceleration doubles, it does <u>not</u> decrease by one half (to 45 rpm).</p> <p>C - The actual acceleration doubles, it does <u>not</u> remain the same (90 rpm).</p>			
Technical Reference(s): SDM-N32/C85		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Figure SDM-N32/C85-1 is of no benefit to the students if it were to be provided as a reference.			
Learning Objective (As available): OT-3036-002-N32/C85 Obj D			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge _____		
	Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u>		
	55.43 _____		
Comments (Why is it an upper level question): Requires student to predict the acceleration response of the Main Turbine if an acceleration input signal is lost during the Main Turbine roll based on initial plant conditions provided.			

SRO 43 / RO 43

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	259002 K4.08	
	Importance Rating	2.9	3.0
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – The RFP A Recirc Flow Controller is incorrect. The output of the RFP A Recirc Flow Controller is used to position the RFP Recirc Valve, N27-F160A.</p> <p>B – The RFP A Recirc Flow Controller is incorrect. The output of the RFP A Recirc Flow Controller is used to position the RFP Recirc Valve, N27-F160A. The Low Flow Controller is incorrect. The output of the Low Flow Controller is used to position the Low Flow Control Valve, N27-F175.</p> <p>D - The Low Flow Controller is incorrect. The output of the Low Flow Controller is used to position the Low Flow Control Valve, N27-F175.</p>			
Technical Reference(s): SDM-C34, SDM-N27		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-C34 Obj B, OT-3036-004-N27 Obj C			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge <u> X </u>		
	Comprehension or Analysis _____		
10 CFR Part 55 Content:	55.41 <u> X </u>		
	55.43 _____		
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	259002 A1.01	
	Importance Rating	3.8	3.8
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – RPV water level does <u>not</u> initially decrease. With the MLC tapeset at 196" and NR Channel B at 193", there will a 3" level error. Feedwater flow will increase until NR Channel B is at 196" (which is the level desired by the MLC). Therefore, initial RPV water level response will increase.</p> <p>D – RPV water level will stabilize at 196" as called for by the MLC tapeset (which is set to 196").</p> <p>At 40% power, there will be <u>no</u> effect on actual RPV water level due to water level programming.</p>			
Technical Reference(s): SDM-C34, SOI-C34		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-C34 Obj C			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires student to predict the RPV water level response when the Narrow Range Level Channel input to the Master Level Controller is switched from Channel A to Channel B.			

SRO 45 / RO 45

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	1
	K/A#	262001 A2.01	
	Importance Rating	3.4	3.6
Proposed Question: See attached			
Proposed Answer: B *Per the initial conditions, the station loads had been transferred (i.e., shifted from the Startup Xfmr to the Aux Xfmr). When the Main Turbine trips, then the station loads should automatically shift from the Aux Xfmr back to the Startup Xfmr.			
Explanation (Why the distractors are incorrect): <p>A – This is the expected automatic response of the station loads. However, ONI-N32 does <u>not</u> direct the operator to close the L1006 and L1009 breakers to effect a manual transfer if the station loads fail to properly shift.</p> <p>C / D – The station loads do <u>not</u> shift to the Aux Transformer. Based on the initial conditions, the station loads had been transferred which implies they are already on the Aux Transformer. On a Main Turbine trip, the station loads will shift from the Aux Transformer to the Startup Transformer.</p>			
Technical Reference(s): ONI-N32		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-001-03 Obj B, OT-3036-002-N32/C85 Obj N			
Question Source:	Bank # Modified Bank # New	<u> </u> P-1084 (Note changes or attach parent) <u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> </u> <u> C </u>	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 <u> </u>		
Comments (Why is it an upper level question): Requires the student to comprehend that the station loads are initially being supplied from the Aux Transformer (based on the initial plant conditions provided), predict the expected response of the station loads if a Main Turbine/Generator trip occurred, and the ONI-N32 Immediate Action to be performed to mitigate the consequences if the station loads failed to properly shift.			

SRO 46 / RO 46

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	264000 K3.02	
	Importance Rating	3.9	4.0
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – Bus EH11 remains energized. The high jacket water and lube oil temperature trips are bypassed on a LOCA condition. (LOCA signal exists because RPV water level decreased below +16.5 inches).</p> <p>C – Even though Bus EH11 remains energized, the high jacket water temperature is <u>not</u> bypassed on a LOOP signal. (It is bypassed on a LOCA signal)</p> <p>On a LOOP concurrent with a LOCA, the DG output bkr will automatically close to provide power to the EH bus.</p>			
Technical Reference(s): SDM-R43		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-R43/48 Obj D			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to predict the response of Bus EH11 due to a malfunction of the Div 1 DG based on initial conditions provided.			

SRO 47 / RO 47

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	202001 A4.09	
	Importance Rating	3.7	3.7
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – RPV water level will decrease but will not cause cavitation of the FCVs. FCV cavitation is caused by low fdw flow . Low fdw flow, if not bypassed, will initiate a fast to slow speed transfer or prevent a fast speed pump start.</p> <p>C / D – RPV water level initially decreases, <u>not</u> increases. Increased neutron moderation and excessive RPV cooldown may be consequences of higher RPV level.</p>			
Technical Reference(s): SOI-B33		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-B33 Obj G			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	219000 K4.08	
	Importance Rating	2.9	3.0
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect):			
A – There is <u>no</u> interlock between the waterleg pump and the RHR pump. The RHR System waterleg pump prevents a water hammer event when the RHR Pump is started by maintaining the RHR System filled.			
C – RHR Pump A shall not be run on minimum flow when LPCS is in the LPCS Test mode due to the shutoff head concern for RHR Pump A. This condition could result in a loss of minimum flow for RHR Pump A; this not a NPSH concern.			
D – This RHR System flow requirement when the SP Test Valve to SP (E12-F024A/B) is open prevents voiding at the high point in the RHR System.			
Technical Reference(s): SDM-E12, SOI-E12		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-E12 Obj F			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	3	2
	K/A#	234000 K1.06	
	Importance Rating	3.0	3.2

Proposed Question: See attached

Proposed Answer: **A**

Explanation (Why the distractors are incorrect):

B – There are no Aux Hoist interlocks associated with RC&IS which affect the operation of the Aux Hoist and removal of a control rod blade.

C – There is no F15 bridge interlock associated with RC&IS which affects the movement of the F15 bridge inside the RPV when the Main Fuel Hoist is unloaded.

D – There is no F15 bridge interlock associated with RC&IS which affects the movement of the F15 bridge from IFTS to the RPV when the Main Fuel Hoist is unloaded.

Technical Reference(s): SDM-F11/15, SOI-F15

Reference Attached: X
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): SYS-5014-003-F11/15 Obj E

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis C

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments (Why is it an upper level question): Requires the student to comprehend which set of conditions would prevent the operation of the F15 Platform. The correct answer describes the Refuel Interlock.

SRO 50 / RO 50

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	245000 A4.14	
	Importance Rating	2.5	2.5
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect): A - 575 MVars is based on misreading the graph at 1200 MWe and 60 psig hydrogen. C - 700 MVars is based on misreading the graph at 1200 MWe and 75 psig hydrogen. D - 775 MVars is based on misreading the graph at 1000 MWe and 60 psig hydrogen.			
Technical Reference(s): IOI-3, PDB-C0002		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: PDB-C0002			
Learning Objective (As available): OT-3046-003-05b Obj A, OT-3036-004-N41/51 Obj H			
Question Source:	Bank #	P-549	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to interpret the Generator Capability Curve in order to determine the max allowed MVars based on initial conditions provided.			

SRO 51 / RO 51

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	262002 A3.01	
	Importance Rating	2.8	3.1
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – This condition will cause a DB-1-A Trouble alarm. It will <u>not</u> cause an automatic shift of the Static Transfer Switch.</p> <p>B – Undervoltage, <u>not</u> high voltage, will cause an automatic shift of the Static Transfer Switch.</p> <p>C – A ground fault on Bus V-1-A will <u>not</u> cause an automatic shift of the Static Transfer Switch.</p>			
Technical Reference(s): SDM-R14/15		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-R14/15 Obj B			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	263000 K3.02	
	Importance Rating	3.5	3.8
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – Ability to close the breaker remotely is lost and manual tripping/closing is still available locally.</p> <p>C - Manual tripping/closing is still available locally and all circuit breaker automatic functions are disabled.</p> <p>D - Ability to open and close the breaker remotely is lost.</p>			
Technical Reference(s): ONI-R42-5, GP Components Text		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3303-004-06 Obj 7, 8, and 10, OT-3552-001-00 Obj E & F			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

SRO 53 / RO 53

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	271000 K1.07	
	Importance Rating	2.7	2.7
Proposed Question: See attached			
Proposed Answer: C			
Explanation (Why the distractors are incorrect): A / B – The source of the purge air is Service Air, <u>not</u> Instrument Air. D – The purge air enters at the inlet to the preheaters, <u>not</u> the inlet to the gas dryers.			
Technical Reference(s): SDM-N64		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-N64 Obj B			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

SRO 54 / RO 54

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	286000 A3.01	
	Importance Rating	3.4	3.4
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – The Motor Fire Service Pump auto started at 120 psig decreasing and must be manually secured.</p> <p>C – The Fire Service Jockey Pump automatically turned off when header pressure increased to 140 psig. The Diesel Fire Service Pump did <u>not</u> start because header pressure did not decrease to 105 psig.</p> <p>D - The Motor Fire Service Pump auto started at 120 psig decreasing and the Diesel Fire Service Pump did <u>not</u> start because header pressure did not decrease to 105 psig.</p>			
Technical Reference(s): SDM-P54(WTR)		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-005-P54(WTR) Obj D			
Question Source:	Bank #	P-1123	
	Modified Bank #	_____ (Note changes or attach parent)	
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

SRO 55 / RO 55

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	290003 K5.03	
	Importance Rating	2.6	2.7
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – Closure of the chiller guide vanes will cause chill water temperature to increase thereby causing Control Room air temperature to <u>increase</u>, not decrease.</p> <p>C – Exceeding equipment temperature limits is the concern when Control Room air temperature increases. There is no reference to equipment operability concerns due to high humidity levels in the TS Bases for LCO 3.7.4.</p>			
Technical Reference(s): SDM-P47, LCO 3.7.4 Bases, SOI-P47		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-001-P47 Obj C, OT-3037-000-11 Obj C			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
<p>Comments (Why is it an upper level question): Requires student to predict the effect on Control Room temperature, including the operational implication, due to a failure of the guide vanes in the closed position for the operating Control Complex chiller which supports the operation of the Control Room Ventilation System.</p>			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	300000 A2.01	
	Importance Rating	2.9	2.8
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B malfunctioning IA Dryer refrigeration unit would <u>not</u> introduce foreign particles into the IA System. The function of the IA Dryer is to remove moisture from the IA. Therefore, a failure of the refrigeration unit would cause the IA dewpoint to increase resulting in the potential introduction of water into the IA System.</p> <p>C – Water is the correct contaminant. However, just bypassing the malfunctioning IA Dryer would <u>not</u> correct the problem. It will still cause water to be introduced into the IA System because there would be <u>no</u> drying of the IA as it flows from the IA Receiver out into the IA System.</p>			
Technical Reference(s): SDM-P51/P52, SOER 88-01, SOI-P51/52		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-P51/52 Obj B, C & J			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
<p>Comments (Why is it an upper level question): Requires the student to predict the consequences of a malfunctioning IA Dryer refrigeration unit, including an action which can be taken to correct the problem. Student must also use his system knowledge of the IA System (there are 2 IA Dryers associated with each IA Receiver; one IA Dryer is in service and the other IA Dryer is in Standby).</p>			

SRO 57 / RO 57

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	400000 K4.01	
	Importance Rating	3.4	3.9
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – ESW Pump A will auto start due to the RCIC initiation at RPV level 2 and ESW Pump C will auto start due to the HPCS System initiation at RPV level 2 (+130 inches).</p> <p>B - ESW Pump C will auto start due to the HPCS System initiation at RPV level 2 (+130 inches).</p> <p>D - ESW Pump A will auto start due to the RCIC initiation at RPV level 2 +130 inches).</p>			
Technical Reference(s): SDM-P45		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-005-P45 Obj E			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to predict the response of the ESW System based on initial conditions provided.			

SRO 58 / RO 58

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	3
	K/A#	201003 K3.01	
	Importance Rating	3.2	3.4
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – For a normal control rod single notch withdrawal, the control rod would settle at position 10. With stuck collet fingers, the rod will continue to withdraw and will <u>not</u> settle at position 10.</p> <p>B – For a normal control rod single notch withdrawal, the control rod would settle at position 10. With stuck collet fingers, the rod will continue to withdraw and will <u>not</u> drift into the core. Reactor power and heatup rate will <u>not</u> decrease.</p> <p>D – the control rod will <u>not</u> remain at position 08, it will drift outward since the collet fingers are stuck in the outward position.</p>			
Technical Reference(s): SDM-C11(CRDM)		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-C11(CRDM) Obj B & C			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
<p>Comments (Why is it an upper level question): Requires the student to predict the response of reactor power and heatup rate during a control rod withdrawal where the collet fingers become stuck in the outward position. A 'rod drift' in the outward direction will occur.</p>			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	3	3
	K/A#	233000 K5.01	
	Importance Rating	2.5	2.7
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – The ESW flowpath will <u>not</u> automatically line up, it must be manually lined up by the Control Room Operator.</p> <p>C – The NCC flowpath automatically isolates on a LOCA signal.</p> <p>D - The NCC flowpath automatically isolates on a LOCA signal. The ESW flowpath will <u>not</u> automatically line up, it must be manually lined up by the Control Room Operator.</p>			
Technical Reference(s): SDM-G41, SDM-P43, SDM-P42		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-G41 Obj B, OT-3036-004-P43 Obj B, OT-3036-005-P42 Obj B & E			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

SRO 60 / RO 60

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	3	3
	K/A#	288000 A3.01	
	Importance Rating	3.8	3.8
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – No automatic isolation feature; only causes a DW evacuation signal.</p> <p>B / D - No automatic isolation feature; only causes a Containment evacuation signal.</p>			
Technical Reference(s): SDM-M14		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-003-M14 Obj F			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	Cat 1	Cat 1
	K/A#	GEN 2.1.29	
	Importance Rating	3.4	3.3
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – There is <u>no</u> procedural requirement for the IV to verify the valves in the same order as the initial person.</p> <p>C – There is <u>no</u> procedural requirement to position valves in the order in which they appear in the VLI (unless specified otherwise by the Unit Supervisor). In addition, there is <u>no</u> procedural requirement for the IV to verify the valves in the same order as the initial person.</p> <p>D - There is <u>no</u> procedural requirement to position valves in the order in which they appear in the VLI (unless specified otherwise by the Unit Supervisor).</p>			
Technical Reference(s): PAP-0205, PAP-0528		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-008-02 Obj A, OT-3039-001-04 Obj A			
Question Source:	Bank #	P-839	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): NA			

SRO 62 / RO 62

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	Cat 1	Cat 1
	K/A#	GEN 2.1.3	
	Importance Rating	3.0	3.4
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B / C – The requirement is to review the DIs and SIs back to the last shift worked. These time frames are less than this requirement (it has been 10 days since he last worked).</p>			
Technical Reference(s): PAP-0126		Reference Attached: <input checked="" type="checkbox"/> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-007-01 Obj B			
Question Source:	Bank #	_____ (Note changes or attach parent)	
	Modified Bank #	P994	
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	<input checked="" type="checkbox"/>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<input checked="" type="checkbox"/>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	Cat 4	Cat 4
	K/A#	GEN 2.4.5	
	Importance Rating	2.9	3.6
Proposed Question: See attached			
Proposed Answer: A			
Explanation (Why the distractors are incorrect):			
B – The Conditions and Required Actions of LCO 3.6.2.1 are <u>not</u> required to be performed because SP temperature has not exceeded 105 F during testing which adds heat to the SP when thermal power is > 1%.			
C – PEI-T23 is <u>not</u> required to be entered when SP temperature exceeded 95 F because this IPTE is a pre-planned evolution/test.			
D - PEI-T23 is <u>not</u> required to be entered when SP temperature exceeded 95 F because this IPTE is a pre-planned evolution/test and the Conditions and Required Actions of LCO 3.6.2.1 are <u>not</u> required to be performed because SP temperature has not exceeded 105 F during testing which adds heat to the SP when thermal power is > 1%.			
Technical Reference(s): PEI Bases Document, PAP-0528, LCO 3.6.2.1		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-005-01 Obj B, OT-3039-001-04 Obj A			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires a student to develop a course of action involving entry into emergency and abnormal procedures based on initial plant conditions provided (specifically SP temperature and a pre-planned IPTE).			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	Cat 4	Cat 4
	K/A#	GEN 2.4.12	
	Importance Rating	3.4	3.9
Proposed Question: See attached			
Proposed Answer: C			
Explanation (Why the distractors are incorrect): A / B – The Shift Supervisor is responsible for the overall site command function. The E-Plan does <u>not</u> transfer this responsibility to either the TSC Operations Manager or the EOF Emergency Coordinator. D – The Unit Supervisor is in charge of directing all activities in the Control Room dealing with plant operations (this task is delegated by the Shift Supervisor) but the responsibility for overall command authority still lies with the Shift Supervisor.			
Technical Reference(s): PAP-0201, Tech Spec		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-008-02 Obj A, OT-3037-000-15 Obj B			
Question Source:	Bank #	P-662	
	Modified Bank #	_____ (Note changes or attach parent)	
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	_____	
Comments (Why is it an upper level question): NA			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	Cat 1	Cat 1
	K/A#	GEN 2.1.20	
	Importance Rating	4.3	4.2
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect): A – The alarm is 'unexpected' which requires notification of the Unit Supervisor. C / D – The alarm is 'unexpected', <u>not</u> 'expected'.			
Technical Reference(s): OPS Expectation Handbook, SVI-C71-T0042B		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-001-04 Obj A			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to analyze the ½ SCRAM A/C alarm, and based on the alarms he expected to receive, classify the alarm as unexpected and perform the required action based on the OPS Expectations Handbook.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	Cat 3	Cat 3
	K/A#	GEN 2.3.2	
	Importance Rating	2.5	2.9
Proposed Question: See attached			
Proposed Answer: B (30 mrem + 6 mrem + 2 mrem = 38 mrem)			
Explanation (Why the distractors are incorrect): A – The total dose for the job is 60 mrem which is greater than Answer B (38 mrem). C - The total dose for the job is 70 mrem which is greater than Answer B (38 mrem). D - The total dose for the job is 40 mrem which is greater than Answer B (38 mrem).			
Technical Reference(s): PAP-0114, RCT Handbook		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-007-01 Obj A & B, GEN-1002-008-02 Obj B			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires student to determine the total collective dose in each example in order to determine which example best exemplifies the concept of ALARA.			

SRO 67 / RO 67

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	Cat 4	Cat 4
	K/A#	GEN 2.4.1	
	Importance Rating	4.3	4.6
<p>Proposed Question: See attached</p> <p>GEN 2.4.1 has two parts. However, at Perry, there are no EOP Immediate Actions. Therefore, this question only addresses EOP entry conditions.</p>			
<p>Proposed Answer: D Only PEI-T23 is entered due to Cntmt temperature exceeding 95 °F</p>			
<p>Explanation (Why the distractors are incorrect):</p> <p>A - No entry conditions have been met that require entry into PEI-B13, RPV Control (Non-ATWS).</p> <p>B / C – There are <u>no</u> direct entry conditions into PEI-B13, RPV Control (ATWS); it is entered from PEI-B13, RPV Control (Non-ATWS). In addition, <u>no</u> entry conditions have been met that require entry into PEI-B13, RPV Control (Non-ATWS).</p>			
<p>Technical Reference(s): PEI-T23, PEI-B13 RPV Control (Non-ATWS), PEI-B13, RPV Control (ATWS), PEI Bases Document</p>		<p>Reference Attached: <u> X </u> (Attach if not previously provided)</p>	
<p>Proposed references to be provided to applicants during examination: None</p>			
<p>Learning Objective (As available): OT-3402-005-02 Obj B, OT-3402-005-03 Obj B, OT-3402-004-07 Obj B</p>			
Question Source:	Bank #	P-829	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
<p>Comments (Why is it an upper level question): NA</p>			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295012 AA1.02	
	Importance Rating	3.8	3.8
Proposed Question: See attached			
Proposed Answer: B – Cooling water flow from NCC is never lost, therefore, Drywell temperature should <u>not</u> change because IA has been lost to the Drywell.			
Explanation (Why the distractors are incorrect):			
A – DW temperature will remain the same. However, there are <u>no</u> air-operated dampers located on the discharge of the DW Cooling Fans, therefore, they <u>cannot</u> fail open. (The Containment Vessel Cooling Fans (M11) utilize air-operated discharge dampers).			
C – DW temperature will <u>not</u> increase because the ability of the DW Cooling System to cool the Drywell is <u>not</u> affected by the loss of Instrument Air. There are <u>no</u> air-operated dampers located on the discharge of the DW Cooling Fans, therefore, they <u>cannot</u> fail closed. (The Containment Vessel Cooling Fans (M11) utilize air-operated discharge dampers).			
D – DW temperature will <u>not</u> increase because the ability of the DW Cooling System to cool the Drywell is <u>not</u> affected by the loss of Instrument Air. The air-operated 3-way NCC supply valves do <u>not</u> fail closed, they fail to the 'B' cooling coil position. Therefore, cooling water flow is never lost.			
Technical Reference(s): SDM-M13		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-M13 Obj C & F			
Question Source:	Bank # Modified Bank # New	<u> </u> <u> </u> <u> </u>	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> </u> <u> C </u>	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 <u> </u>		
Comments (Why is it an upper level question): Requires the student to predict the response of the Drywell Cooling System (based on initial plant conditions) when Instrument Air is lost to the Drywell, and the subsequent impact on Drywell temperature.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295001 / GEN 2.4.11	
	Importance Rating	3.4	3.6
Proposed Question: See attached			
Proposed Answer: C (New revision of ONI-C51 due to TS Amendment 118)			
Explanation (Why the distractors are incorrect): <p>A – ONI-C51, Attachment 1 quantifies 'power oscillations' as 10% peak-to-peak. Power oscillations of 5% would <u>not</u> require an immediate manual reactor scram.</p> <p>B – The combination of core flow less than 42 Mlbm/hr and loadline > 95.2% does <u>not</u> require an immediate manual reactor scram unless you are less than the minimum required number of operable OPRMs. The initial questions assume all OPRMs are operable (unless stated otherwise).</p> <p>D – There is <u>no</u> ONI-C51 Immediate Action regarding the insertion of a manual reactor scram as directed by Reactor Engineering.</p>			
Technical Reference(s): ONI-C51		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-005-C51(APRM & OPRM) Obj I, OT-3035-001-03 Obj E			
Question Source:	Bank # Modified Bank # New	<u> </u> P-689 (Note changes or attach parent) <u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> X </u> <u> </u>	
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 <u> </u>		
Comments (Why is it an upper level question): NA			

SRO 70

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295006 AA1.04	
	Importance Rating		3.2
Proposed Question: See attached			
Proposed Answer: A Normal slow speed breaker lineup following RPV Level 3 (+177").			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – Normal fast speed breaker lineup. Recirc Pumps would have transferred to slow speed due to RPV Level 3 (+177").</p> <p>C – Recirc Pump breaker lineup following an EOC-RPT. EOC-RPT trip did <u>not</u> occur because it is bypassed when reactor thermal power is less than 38%.</p> <p>D – Recirc Pump breaker lineup following an ATWS-RPT. ATWS-RPT trip did <u>not</u> occur because RPV water level did <u>not</u> decrease below RPV Level 2 (+130").</p>			
Technical Reference(s): SDM-B33		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-006-B33 Obj E			
Question Source:	Bank #	P-1118	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to predict the response of the Reactor Recirculation System following a reactor scram based on pre-scram and post-scram plant conditions.			

SRO 71

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295016 AA2.02	
	Importance Rating		4.3
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – The RPV water level instrumentation at the Division 2 Remote Shutdown Panel is always active. There are <u>no</u> operator actions which must be completed before the instrument can indicate actual RPV water level.</p> <p>B / D – The Division 1 Remote Shutdown Panel RPV water level instrumentation is <u>not</u> currently active. Before it will provide actual RPV water level indication, the operator must place its associated Transfer Switch in the EMERG position.</p>			
Technical Reference(s): SDM-C61		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-C61 Obj B			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge <u> X </u>		
	Comprehension or Analysis _____		
10 CFR Part 55 Content:	55.41 <u> X </u>		
	55.43 _____		
Comments (Why is it an upper level question): NA			

SRO 73

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		2
	K/A#	295002 AK1.01	
	Importance Rating		2.5
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – Plant efficiency does decrease but condensate temperature does <u>not</u> decrease. Condensate temperature will increase because condenser absolute pressure increases.</p> <p>C / D – Plant efficiency does <u>not</u> increase. Plant efficiency decreases. Less cooling of the exhaust steam means higher exhaust steam pressure. Higher exhaust steam pressure means higher exhaust steam enthalpy. Higher exhaust steam enthalpy means less turbine work. Plant efficiency = turbine power / reactor power. Therefore, plant efficiency decreases. The remainder of each answer, whether correct or not, does not matter since the initial portion of each answer is incorrect.</p>			
Technical Reference(s): GP Components Text Chapter 3		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3303-004-03 Obj 18			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge <u> X </u> Comprehension or Analysis _____		
10 CFR Part 55 Content:	55.41 <u> X </u> 55.43 _____		
Comments (Why is it an upper level question): NA			

SRO 74

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		2
	K/A#	295020 AA1.02	
	Importance Rating		3.2
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect): A – Drywell Cooling Fans do <u>not</u> lose electrical power. Their normal power supplies are F1B08, F1C08, and F1D08. These 480V busses are <u>not</u> powered from any Div 1 Class 1E power source. C / D Containment cooling (either the cooling water flowpath or the electrical power supply) are <u>not</u> affected by a Division 1 RHR LOCA isolation signal. Containment Vessel Chill Water System (P50) supplies cooling water to the Containment Vessel Cooling Fans (M11). P50 isolates on a BOP LOCA signal.			
Technical Reference(s): SDM-E12, SDM-M13, SDM-P43		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-E12 Obj F, OT-3036-004-M13 Obj B, C & I, OT-3036-004-P43 Obj E			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> X </u>	
	55.43	<u> </u>	
Comments (Why is it an upper level question): Requires the student to predict the loss of cooling water flow (NCC) to the Drywell Cooling Ventilation System (M13) during an inadvertent Division 1 RHR LOCA initiation.			

SRO 75

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		1
	K/A#	261000 / GEN 2.2.25	
	Importance Rating		3.7
Proposed Question: See attached			
Proposed Answer: C			
Explanation (Why the distractors are incorrect):			
A – The AEGTS System is <u>not</u> allowed to be used for Hydrogen control during a DBA.			
B – The AEGTS System maintains the Sec. Containment at a <u>negative</u> pressure with respect to the environment (<u>not</u> at a positive pressure) in order to support the operability of the Sec. Containment.			
D – This is <u>not</u> the bases for the AEGTS System in MODES 1, 2, and 3. It is the bases during the other specified condition of 'moving irradiated fuel assemblies in the Primary Containment'.			
Technical Reference(s): TS 3.6.4.3 Bases		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-001-10 Obj B			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> X </u>	
Comments (Why is it an upper level question): NA			

SRO 76

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295009 AA2.01	
	Importance Rating		4.2
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – Drywell temperature is <u>not</u> greater than RPV sat temperature (even though the Wide Range level indication is <u>not</u> valid).</p> <p>C / D – Indicated Wide Range level is <u>not</u> valid. Per PEI-SPI Figure 2a, the Minimum Indicated Wide Range Level must be ≥ 33 inches. In the initial conditions, the indicated Wide Range level value is only 30 inches. Therefore, the Wide Range level indication is no longer valid. Also in Answer C, the value of 23 inches is incorrect. This is the value you would obtain if you incorrectly applied the lower Containment temperature curve (250 F). Also in Answer D, Drywell temperature is less than RPV saturation temperature but the answer is still incorrect.</p>			
Technical Reference(s): PEI-SPI Figures 1a & 2a, PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: PEI-SPI Figures 1a & 2a			
Learning Objective (As available): OT-3402-005-01 Obj D			
Question Source:	Bank # Modified Bank # New	<u> </u> P-B556 <u> </u>	(Note changes or attach parent)
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> </u> <u> A </u>	
10 CFR Part 55 Content:	55.41 55.43	<u> </u> <u> 43.5 </u>	
Comments (Why is it an upper level question): Requires the student to determine/assess if the indicated RPV water level is valid or not valid, including the bases for his decision, based in initial plant conditions provided.			

SRO 77

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295013 / GEN 2.1.12	
	Importance Rating		4.0
Proposed Question: See attached			
Proposed Answer: C $85\text{ F} + (12\text{ F/hr} \times .1666\text{ hrs}) = 105\text{ F}$. The LCO temperature limit during testing which adds heat to the SP when RTP is > 1% is 105 F.			
<p>Explanation (Why the distractors are incorrect):</p> <p>A - $85\text{ F} + (12\text{ F/hr} \times .5\text{ hrs}) = 91\text{ F}$ The 30 minute time is therefore incorrect. (RCIC operation may continue past 30 minutes)</p> <p>B - $85\text{ F} + (12\text{ F/hr} \times .833\text{ hrs}) = 95\text{ F}$ The 50 minute time is therefore incorrect. (RCIC operation may continue past 50 minutes)</p> <p>D - $85\text{ F} + (12\text{ F/hr} \times 2\text{ hrs}) = 109\text{ F}$ The 120 minute time is therefore incorrect. (RCIC operation should have been suspended at the 100 minute point).</p>			
Technical Reference(s): TS 3.6.2.1		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-001-10 Obj A & C			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> A </u>		
10 CFR Part 55 Content:	55.41 _____ 55.43 <u> 43.2 & 43.5 </u>		
Comments (Why is it an upper level question): Requires the student to assess the initial plant conditions, and in conjunction with his knowledge of LCO 3.6.2.1 and its associated Immediate Required Actions, determine the time remaining during which RCIC operation may continue for surveillance purposes.			

SRO 78

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295014	AA2.01
	Importance Rating		4.2
Proposed Question: See attached			
Proposed Answer: D *The student is expected to know that reactor power will increase. The question will ask for the reason why reactor power increases.			
Explanation (Why the distractors are incorrect): <p>A – The appropriate power level is that power level prior to the loss of fdw heating (90%) per ONI-N36. Also core inlet subcooling is <u>not</u> decreasing. It is increasing, which adds positive reactivity, and subsequently causes reactor power to increase.</p> <p>B - The appropriate power level is that power level prior to the loss of fdw heating (90%) per ONI-N36.</p> <p>C - Core inlet subcooling is <u>not</u> decreasing. It is increasing, which adds positive reactivity, and subsequently causes reactor power to increase.</p>			
Technical Reference(s): ONI-N36, GP Thermodynamics Text Chapter 9		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-N36/25/26 Obj F, OT-3035-001-04 Obj A, OT-3302-004-09 Obj 20			
Question Source:	Bank # Modified Bank # New	<u> </u> P-1298 (Note changes or attach parent) <u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> </u> <u> C </u>	
10 CFR Part 55 Content:	55.41 55.43	<u> </u> <u> 43.5 </u>	
Comments (Why is it an upper level question): Requires the SRO student to analyze the initial conditions provided in order to determine the appropriate Off-Normal Instruction (ONI) to be entered and also the appropriate course of action (i.e., the limiting value of reactor power and the method by which the power reduction will be accomplished), including the reason for his action. The SRO is responsible for the determination of the correct ONI to enter. This is currently as 'extra SRO question' which could be re-classified as one of the '25 SRO-only' questions, if necessary.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295017 / GEN 2.4.41	
	Importance Rating		4.1
Proposed Question: See attached			
Proposed Answer: D HG1- TB/HB Vent Gas module indicates $> 1.6 \times 10^6$ cpm and Emergency Dose calculations cannot confirm, within 15 minutes of exceeding the above limit, that levels at the Site Boundary are less than the stated limits.			
Explanation (Why the distractors are incorrect): A / B / C – Enough information is provided which meets the criteria for an Unusual Event, an Alert, and a Site Area Emergency. However, EPI-A1 states that 'when several Initiating Conditions are met, declare the most severe emergency class'. Which, in this case study, is a General Emergency. Therefore, these answers are all incorrect because they are all less severe than the General Emergency.			
Technical Reference(s): EPI-A1		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: EPI-A1			
Learning Objective (As available): EPL-0804-009-01 Obj A & H			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	<u> A </u>
	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.5 </u>	
Comments (Why is it an upper level question): Requires the SRO student to assess the initial conditions provided and to classify the event in accordance with EPI-A1. Classification of potential emergency events is the responsibility of the Shift Supervisor (who is the highest ranking SRO on-shift).			

SRO 80

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295023 AA2.02	
	Importance Rating		3.7
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – 'Above the top of irradiated fuel assemblies seated within the RPV' is incorrect. The correct reference is 'above the top of the RPV flange'.</p> <p>C – 23 feet is incorrect. The correct level is 22 feet 9 inches.</p> <p>D - 23 feet is incorrect. The correct level is 22 feet 9 inches. Also, 'above the top of irradiated fuel assemblies seated within the RPV' is incorrect. The correct reference is 'above the top of the RPV flange'.</p>			
Technical Reference(s): TS LCO 3.9.6, IOI-9		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-000-13 Obj A, OT-3035-004-12 Obj B			
Question Source:	Bank #	P-517	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.2 & 43.6 </u>	
Comments (Why is it an upper level question): NA			

SRO 81

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295025 EA2.03	
	Importance Rating		4.1
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – 113 F is a safe value but is <u>not</u> the highest temperature that the SP can reach without exceeding HCL.</p> <p>C – 117 F is incorrect. If the wrong RPV pressure line is used (950 psig vs. 1000 psig), then a value of 117 F is below the HCL.</p> <p>D – 119 F is incorrect. If the wrong SP level line is used (18.5 ft vs. 17.8 ft), then a value of 119 F is below the HCL.</p>			
Technical Reference(s): PEI-SPI- Figure 4		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: PEI-SPI- Figure 4			
Learning Objective (As available): OT-3402-004-06 Obj C			
Question Source:	Bank # Modified Bank # New	<u> </u> PB-621 (Note changes or attach parent) <u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	<u> </u> <u> A </u>	
10 CFR Part 55 Content:	55.41 55.43	<u> </u> <u> 43.5 </u>	
Comments (Why is it an upper level question): Requires the SRO student to determine the value of HCL based on the initial conditions provided and then determine the highest corresponding SP temperature that can be reached without exceeding the value of HCL.			

SRO 82

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295026 EA2.01	
	Importance Rating		4.2
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – 110 F is correct, however, the bases is incorrect. This is one of the two possible bases for BIIT, however, at Perry, the bases we take credit for is the SP temperature at which initiation of a reactor scram is required by Tech Specs.</p> <p>C / D - 120 F is incorrect. This is the Tech Spec-based SP temperature limit whose Required Action is to depressurize the RPV to less than 200 psig in 12 hours (TS 3.6.2.1).</p>			
Technical Reference(s): PEI-B13, RPV Control (ATWS), PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-005-03 Obj D			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	This question is based on the SRO's responsibility to assess plant conditions during an ATWS, and when required, direct the initiation of SLC in order to reduce the challenge to HCL / Containment integrity.
	55.43	<u> 43.2 & 43.5 </u>	
Comments (Why is it an upper level question): NA			

SRO 83

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295030 EA2.03	
	Importance Rating		3.9
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – This is incorrect because SP level is less than 5.25 ft. This decision box would have been answered incorrectly.</p> <p>B - This is incorrect because SP level is less than 5.25 ft. This decision box would have been answered incorrectly. Also, it would have been inappropriate to open only 6 ADS SRVs since 2 Non-ADS SRVs were already open in order to have a total of 8 SRVs open.</p> <p>D – The RFPTs are unavailable because they would have tripped on the RCIC initiation at RPV level 2 (+130"). There are no provisions in PEI-B13,ED, to override the trip of the RFPTs.</p>			
Technical Reference(s): PEI-B13, Emergency Depressurization, PEI Bases Document		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: PEI-B13, ED Flowchart			
Learning Objective (As available): OT-3402-005-12 Obj C			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.5 </u>	
Comments (Why is it an upper level question): Requires the SRO student to assess the initial plant conditions provided, and then using PEI-B13 ED flowchart, determine the correct method to be used to depressurize the RPV. ED would be performed when plant conditions require the RPV pressure be reduced to 0 psig (or as low as practicable).			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		2
	K/A#	295019 / GEN 2.1.33	
	Importance Rating		4.0
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – The Parallel IA header supplies IA to the Inboard MSIVs, <u>not</u> the Outboard MSIVs. Therefore, the Inboard MSIVs are declared inoperable when the Parallel IA header pressure decreases below 90 psig.</p> <p>B – ADS Air Storage Tank 'B' provides is a support system for Outboard MSIV leak tightness, it does <u>not</u> assist with MSIV closing times. A pressure less than 150 psig will require the supported ADS SRVs to be declared inoperable.</p> <p>C - ADS Air Storage Tank 'B' provides is a support system for Outboard MSIV leak tightness, it does <u>not</u> assist with MSIV closing times. A pressure less than 90 psig will require the supported Outboard MSIVs to be declared inoperable based on leak tightness concerns, <u>not</u> closing times.</p>			
Technical Reference(s): ARI-H13-P870-2 (B3), SDM-P51/52, SDM-B21/N11, SOI-P57		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-004-P51/52 Obj B, G & H, OT-3036-005-B21/N11 Obj C, OT-3036-002-P57 Obj B, F & H			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge <u> X </u>		
	Comprehension or Analysis _____		
10 CFR Part 55 Content:	55.41 _____		
	55.43 <u> 43.2 </u>		
Comments (Why is it an upper level question): NA			

Time-to-Core Uncovery Curves for Water Level @ RX Vessel Flange

SRO 85

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		2
	K/A#	295019 / GEN 2.1.25	
	Importance Rating		3.1
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – 8.2 hours is incorrect based on using the wrong initial RPV water level graph (Normal RPV level vs. RPV level at RPV flange).</p> <p>B – 12.4 hours is incorrect based on using the wrong initial RPV water level graph (Normal RPV level vs. RPV level at RPV flange) and the wrong fuel bundle off-load status graph (After an off-load of 304 bundles vs. off-load of zero bundles).</p> <p>D – 21.0 hours is incorrect based on using the wrong fuel bundle off-load status graph (After an off-load of 304 bundles vs. off-load of zero bundles).</p>			
Technical Reference(s): PAP-0116, PDB-A0019		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: PDB-A0019			
Learning Objective (As available): OT-3039-007-01 Obj A & B			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.5 </u>	
<p>Comments (Why is it an upper level question): Requires the SRO student to determine the time before RPV water level boils down to the TAF, which threatens adequate core cooling, based on the initial plant conditions provided and the use of PDB-A0019.</p>			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		1
	K/A#	211000 / GEN 2.2.24	
	Importance Rating		3.8
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – RRCS and SLC have a divisional relationship. SLC Subsystem B is associated with RRCS Division 2 (and will <u>not</u> be affected by the de-energization of RRCS Division 1). SLC is a Tech Spec system.</p> <p>C / D – There is <u>no</u> operability association between RRCS and RPS. The ARI feature of RRCS is physically and electrically separate from RPS. The intent of RPS and RRCS is to provide separate mechanisms by which control rods can be fully inserted into the core. RPS is a Tech Spec system.</p>			
Technical Reference(s): SOI-C41, SOI-C22, SDM-C41, SDM-C22		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036/SYS-5014-000-C41 Obj G			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.2 </u>	
Comments (Why is it an upper level question): NA			

SRO 87

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		1
	K/A#	215004 A2.06	
	Importance Rating		2.5
Proposed Question: See attached			
Proposed Answer: B LCO 3.3.1.2, Condition E			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – This is incorrect. SRMs A, B, and C are currently inoperable. Table 3.3.1.2-1 requires 2 operable SRM channels in MODE 5, therefore, LCO 3.3.1.2 will have to be entered.</p> <p>C – This is the incorrect Action based on incorrectly entering Condition A. The plant is currently in MODE 5, not MODE 2.</p> <p>D – This is the incorrect Action based on incorrectly entering Condition D. The plant is currently in MODE 5, not MODE 3 or 4.</p>			
Technical Reference(s): TS 3.3.1.2		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: TS 3.3.1.2 and Bases			
Learning Objective (As available): OT-3037-005-07 Obj G & H			
Question Source:	Bank #	<u> </u>	
	Modified Bank #	PB-897 (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.2 & 43.6 </u>	
Comments (Why is it an upper level question): Requires the SRO student to predict a course of action, as required by Technical Specifications, when there are less than the minimum required number of operable SRMs during MODE 5 when CORE ALTS are being performed.			

SRO 88

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		2
	K/A#	205000 / GEN 2.1.32	
	Importance Rating		3.8
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – Although there is guidance in the SOI-E12 Precautions and Limitations concerning this valve, it is <u>not</u> based on the guidance contained in PAP-0201 (The guidance listed in PAP-0201 is from NRC Bulletin 93-03).</p> <p>D – The specific guidance contained in PAP-0201 is for MODE 3 only, it is <u>not</u> applicable to MODE 4.</p>			
Technical Reference(s): PAP-0201, SOI-E12		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-008-02 Obj A, OT-3036-004-E12 Obj J			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.5 </u>	
Comments (Why is it an upper level question): NA			

SRO 89

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		2
	K/A#	259001 / GEN 2.4.48	
	Importance Rating		3.8
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – Both RFPTs tripped and are <u>not</u> available due to the automatic initiation of RCIC when RPV water level decreased to Level 2 (+130").</p> <p>D – The MFP <u>cannot</u> be operated on its individual flow controller. It automatically defaults to the SULC regardless of the position of the Startup Selector Switch because both RFPTs are seen as 'unavailable' by the FDW Level Control logic.</p>			
Technical Reference(s): SDM-C22, SDM-N27		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-001-C22 Obj D, OT-3036-004-N27 Obj D			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> A </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.5 </u>	
Comments (Why is it an upper level question): Requires SRO student to develop a course of action using the Feedwater System based on analysis of the initial plant conditions provided.			

SRO 90

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		3
	K/A#	290002 A2.05	
	Importance Rating		4.2
Proposed Question: See attached			
Proposed Answer: B *Since MCPR is 'undefined', the Tech Spec LCO for MCPR will <u>not</u> be met which <u>implies</u> the SRO will take the appropriate Required Action(s).			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – This is an 'unanalyzed' plant condition for which MCPR is undefined. Therefore the MCPR LCO is declared as '<u>not met</u>' per the guidance in IOI-3 (<u>not</u> the LCO for LHGR).</p> <p>C – This is <u>not</u> an 'analyzed' plant condition. It is as 'unanalyzed' plant condition for which MCPR is undefined. Therefore the MCPR LCO is declared as '<u>not met</u>' per the guidance in IOI-3 (<u>not</u> the LCO for LHGR).</p> <p>D - This is <u>not</u> an 'analyzed' plant condition. It is as 'unanalyzed' plant condition for which MCPR is undefined. Therefore the MCPR LCO is declared as '<u>not met</u>' per the guidance in IOI-3.</p>			
Technical Reference(s): IOI-3, CR 98-0727, LCO 3.2.2, LCO 3.0.1		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036-002-N32/C85 Obj N, OT-3046-003-05a Obj B			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge _____		
	Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 _____		
	55.43 <u> 43.2 </u>		
Comments (Why is it an upper level question): Requires the SRO student to predict how the failure of the SB&PR channel affects continued plant operation and the appropriate action to be taken to mitigate the SB&PR channel failure.			

SRO 91

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 1
	K/A#	GEN 2.1.6	
	Importance Rating		4.3
Proposed Question: See attached			
Proposed Answer: D this is a condition where misoperation in automatic is confirmed because the DG requires ESW for cooling water.			
Explanation (Why the distractors are incorrect):			
A – The US shall <u>not</u> manually override a safety system that will result in inadequate core cooling.			
B – The key word is 'valid' HPCS initiation. It does <u>not</u> meet any of the 3 criteria for overriding the safety system, especially the criteria which states that the initiation is proven incorrect (beyond a reasonable doubt by two independent indications).			
C - It does <u>not</u> meet any of the 3 criteria for overriding the safety system, especially the criteria which states that the continued operation is no longer required. The SPMU timer is performing its intended function. The function of the SPMU System is to transfer water from the upper Cntmt pool to the lower SP during a LOCA.			
Technical Reference(s): PAP-0205		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-008-02 Obj A			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.5 </u>	
Comments (Why is it an upper level question): Requires the SRO student to recognize the relationship between the criteria for manually overriding a safety system and each potential answer in order to determine the correct answer.			

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 1
	K/A#	GEN 2.1.12	
	Importance Rating		4.0
Proposed Question: See attached			
Proposed Answer: C			
Explanation (Why the distractors are incorrect): A – 2 hours was the previous allotted time in the Note for the old Tech Spec (pre-ITS). B – There is <u>no</u> specific bases for 4 hours, however, there are 4 hour Completion Times for some Required Actions associated with other Functions covered by RPS Instrumentation. D – 12 hours is the Completion Time to place an inoperable IRM channel in the Tripped condition.			
Technical Reference(s): TS 3.3.1.3 and Bases		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-005-07 Obj D			
Question Source:	Bank #	P-1178	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.2 & 43.5 </u>	
Comments (Why is it an upper level question): NA			

SRO 93

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 2
	K/A#	GEN 2.2.27	
	Importance Rating		3.5
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B – This condition is <u>not</u> a CORE ALT. This condition also does <u>not</u> require the presence of a SRO-licensed individual as described in SOI-F15.</p> <p>C / D – These are exceptions to CORE ALTS as described in the definition of CORE ALTS.</p>			
Technical Reference(s): TS Definitions, ORM (PDB-R0001), PAP-0802		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-006-05 Obj A, OT-3037-000-16 Obj D & E, OT-3039-007-01 Obj A & B			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.6 </u>	
Comments (Why is it an upper level question): Requires the SRO student to recognize which answer correctly describes a CORE ALT based on the initial plant conditions provided.			

SRO 94

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 2
	K/A#	GEN 2.2.23	
	Importance Rating		3.8
Proposed Question: See attached			
Proposed Answer: C			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – Each answer is only <u>partially</u> correct. Separate Completion Times are required to be tracked for <u>each</u> Condition, <u>not</u> just the Condition entered last or the Condition with the most limiting Completion Time.</p> <p>D – This is incorrect. Separate Completion Times are required to be tracked for each Condition starting from the time of discovery of <u>each</u> situation, <u>not</u> the time of discovery of the initial situation.</p>			
Technical Reference(s): TS Use and Application		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-005-02 Obj E			
Question Source:	Bank #	_____	
	Modified Bank #	P-1465 (Note changes or attach parent)	
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	_____	
	55.43	<u> 43.2 </u>	
Comments (Why is it an upper level question): NA			

SRO 95

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 2
	K/A#	GEN 2.2.18	
	Importance Rating		3.6
Proposed Question: See attached			
Proposed Answer: B			
Explanation (Why the distractors are incorrect): A / C / D – PAP-0116 specifically identifies the Shift Supervisor as the <u>only</u> person who can authorize entry into an area posted with a Shutdown safety sign.			
Technical Reference(s): PAP-0116		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-007-01 Obj A & B			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.5 </u>	
Comments (Why is it an upper level question): NA			

SRO 96

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 2
	K/A#	GEN 2.2.6	
	Importance Rating		3.3
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A / B – These are legitimate types of instruction changes described in PAP-0522 but they do <u>not</u> require either the US or SS to assign an expiration date.</p> <p>C – This type of instruction change does <u>not</u> exist in PAP-0522.</p>			
Technical Reference(s): PAP-0522		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-007-01 Obj A & B			
Question Source:	Bank #	_____	(Note changes or attach parent)
	Modified Bank #	_____	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	_____	
	55.43	<u> 43.3 </u>	
Comments (Why is it an upper level question): NA			

SRO 97

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 3
	K/A#	GEN 2.3.4	
	Importance Rating		3.1
Proposed Question: See attached			
Proposed Answer: D			
<p>Explanation (Why the distractors are incorrect):</p> <p>A – 5 Rem is the dose limit for 'emergency services' per HPI-B0003.</p> <p>B – 10 Rem is the dose limit for 'valuable property' per HPI-B0003.</p> <p>C – There is <u>no</u> bases for 20 Rem for increased dose limits for workers performing emergency services in HPI-B0003</p>			
Technical Reference(s): HPI-B0003		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-007-01 Obj A & B			
Question Source:	Bank #	P-1442	
	Modified Bank #	<u> </u> (Note changes or attach parent)	
	New	<u> </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>	
	Comprehension or Analysis	<u> </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.3 </u>	
Comments (Why is it an upper level question): NA			

SRO 98

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 4
	K/A#	GEN 2.4.15	
	Importance Rating		3.5
Proposed Question: See attached			
Proposed Answer: B			
<p>Explanation (Why the distractors are incorrect):</p> <p>A - PAP-0201 does <u>not</u> specifically require the System Central Dispatcher to be notified by the Shift Supervisor. PAP-0102 contains guidance for System Central Dispatcher notifications by the Supervising Operator (RO).</p> <p>C / D – PAP-0201 does <u>not</u> specifically require the System Central Dispatcher or the Plant Manager and to be notified by the Shift Supervisor. PAP-0102 contains guidance for System Central Dispatcher notifications. by the Supervising Operator (RO). There is <u>no</u> specific procedural guidance for the Plant Manager to be notified by the Shift Supervisor when PEIs have been entered.</p>			
Technical Reference(s): PAP-0201, PAP-0102		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-008-02 Obj A			
Question Source:	Bank # _____	(Note changes or attach parent)	
	Modified Bank # _____		
	New <u> X </u>		
Question Cognitive Level:	Memory or Fundamental Knowledge <u> X </u>		
	Comprehension or Analysis _____		
10 CFR Part 55 Content:	55.41 <u> 41.10 * SRO-level Objective </u>		
	55.43 <u> 43.5 </u>		
Comments (Why is it an upper level question): NA			

SRO 99

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 4
	K/A#	GEN 2.4.9	
	Importance Rating		3.9
Proposed Question: See attached			
Proposed Answer: C			
Explanation (Why the distractors are incorrect): A – It is <u>not</u> procedurally possible to cross-tie Bus L10 and Bus L20. B – Restoring the Div 2 DG to OPERABLE status does <u>not</u> satisfy the LCO 3.8.1 requirement for two sources of off-site power. D – There is <u>no</u> basis for this answer. The Unit 2 Auxiliary Transformer does <u>not</u> exist. Even if this lineup did exist, it would <u>not</u> supply power from an off-site source to the Unit 1 Class 1E busses.			
Technical Reference(s): TS LCO 3.8.1 and Bases		Reference Attached: _____ (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-001-12 Obj A & B			
Question Source:	Bank # _____ Modified Bank # _____ New <u> X </u>	(Note changes or attach parent)	
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis <u> C </u>		
10 CFR Part 55 Content:	55.41 _____ 55.43 <u> 43.5 </u>		
Comments (Why is it an upper level question): Requires the SRO student to comprehend the requirements of Technical Specification LCO 3.8.1 that ensure the availability of 2 OPERABLE off-site power sources in order to mitigate the consequences of a DBA LOCA			

SRO 100

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		Cat 4
	K/A#	GEN 2.4.24	
	Importance Rating		3.7
Proposed Question: See attached			
Proposed Answer: A			
<p>Explanation (Why the distractors are incorrect):</p> <p>B / C – These are legitimate reasons for other events (i.e., loss of off-site power or ESW forebay water temperature reaching 80 F) but are <u>not</u> the reason for starting all the ESW loops during a loss of Service Water event.</p> <p>D – There is <u>no</u> procedural guidance for this bases since the auto-start feature of the ESW pumps has not been disabled by the loss of Service Water event. ESW is the source of emergency cooling water to various safety-related components.</p>			
Technical Reference(s): SDM-P41, ONI-P41, ARI-H13-P970-1 (B8), ONI-D51		Reference Attached: <u> X </u> (Attach if not previously provided)	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3036/SYS-5014/SYS-5200-000-P41 Obj B, F, and I, OT-3035-003-16 Obj A			
Question Source:	Bank #	<u> </u>	(Note changes or attach parent)
	Modified Bank #	<u> </u>	
	New	<u> X </u>	
Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>	
	Comprehension or Analysis	<u> C </u>	
10 CFR Part 55 Content:	55.41	<u> </u>	
	55.43	<u> 43.5 </u>	
Comments (Why is it an upper level question): Requires the SRO student to recognize the relationship between the SW System and the ESW System in select the correct answer (bases) for his direction to start all the ESW loops as required by ONI-P41.			