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

Applicant Information	
Name: MASTER RO EXAMINATION	Region: I / II / III / IV
Date: 06/2001	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	100.00 Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

Docket 50-440
50-441

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REACTOR OPERATOR

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 2

Prior to a manual reactor scram per IOI-8, Shutdown By Manual Reactor Scram, the plant is operating at 100% power with the Feedwater Master Level Controller tape set at 200 inches.

Which one of the following describes the response of the Feedwater Level Control System following the manual reactor scram signal?

Assume no operator actions are taken.

A. Upon receipt of the manual reactor scram signal, the level demand signal will be 196 inches for 10 seconds and then decrease to 178 inches.

B. Upon receipt of the manual reactor scram signal, the level demand signal will be 200 inches for 10 seconds and then decrease to 178 inches.

C. When RPV water level decreases to 178 inches, the level demand signal will be 196 inches for 10 seconds and then decrease to 178 inches.

D. When RPV water level decreases to 178 inches, the level demand signal will be 200 inches for 10 seconds and then decrease to 178 inches.

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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 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.

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.

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.

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 <u>not</u> 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 <u>not</u> 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 NS^4 Outboard isolation logic must be reset.

B. Only an RHR SDC Outboard isolation occurred; RPS Bus 'A' must be re-energized and then the NS^4 Outboard isolation logic must be reset.

C. An RHR SDC Inboard and Outboard isolation occurred; the NS^4 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 NS^4 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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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 <u>not</u> 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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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.

	ESW Pump A	ESW Pump C
A.	Off	Off
B.	Running	Off
C.	Running	Running
D.	Off	Running

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REACTOR OPERATOR

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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REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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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REACTOR OPERATOR

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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WRITTEN EXAMINATION
REACTOR OPERATOR

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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REACTOR OPERATOR

QUESTION 70

A Loss of Coolant Accident has occurred.

The Safety Parameter Display System (SPDS) is unavailable.

The following plant conditions exist:

- Containment temperature 175 °F
- Drywell temperature 260 °F

Which one of the following is the lowest valid RPV water level that can be read on the Wide Range water level instruments?

PEI-SPI Figure 2a is provided for reference.

A. 8 inches

B. 11 inches

C. 15 inches

D. 23 inches

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REACTOR OPERATOR

QUESTION 71

The plant is operating in MODE 1.

In accordance with Technical Specifications, which one of the following is the minimum Suppression Pool temperature, that if exceeded, requires the Control Room Operator to place the Reactor Mode Switch in the SHUTDOWN position?

A. 95 °F

B. 105 °F

C. 110 °F

D. 120 °F

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REACTOR OPERATOR

QUESTION 72

The plant is operating at 20% power when a control rod drop event occurs.

Which one of the following alarms would be indicative of this control rod drop event?

A. ROD BLOCK SRM UPSC/INOP

B. ROD BLOCK IRM UPSCALE

C. ROD OVERTRAVEL

D. LPRM UPSCALE

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REACTOR OPERATOR

QUESTION 73

During refueling activities, a loss of upper Containment pool water level will require the suspension of Core Alterations and movement of irradiated fuel after placing them in a safe condition.

Which one of the following is a 'safe' condition for an irradiated fuel bundle in the Inclined Fuel Transfer System carriage (IFTS) carriage?

The fuel bundle is properly seated in the IFTS carriage with the carriage _____.

A. at the Raise Low Limit Carrier position with the Upender inclined.

B. at the Bottom Out Carrier position with the Upender vertical.

C. at the Raise Slow Carrier position with the Upender vertical.

D. at the Fill / Drain Carrier position with the Upender inclined.

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REACTOR OPERATOR

QUESTION 74

The following plant conditions exist:

- The reactor scrammed on high reactor pressure
- MSIVs are isolated
- RPV water level band 192 to 200 inches
- RPV pressure band 800 to 900 psig
- Suppression Pool temperature 105 °F (increasing)
- Suppression Pool level 19.5 ft (increasing)

Which one of the following actions would <u>improve</u> the margin to the Heat Capacity Limit (HCL)?

PEI-SPI Figure 4 is provided for reference.

A. Lower the Suppression Pool water level band to 17.8 – 18.5 feet.

B. Lower the Suppression Pool temperature band to 90 – 95 °F.

C. Raise the RPV water level band to 210 – 210 inches.

D. Raise the RPV pressure band to 900 – 1000 psig.

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REACTOR OPERATOR

QUESTION 75

Which one of the following lists the order of preference for indications to be used when determining Suppression Pool water temperature in accordance with the Plant Emergency Instructions?

Note: Order of preference is defined as most preferred to least preferred.

A. Validated SPDS, highest reading functional instrument, Post Accident recorders.

B. Post Accident recorders, highest reading functional instrument, validated SPDS.

C. Highest reading functional instrument, validated SPDS, Post Accident recorders.

D. Validated SPDS, Post Accident recorders, highest reading functional instrument.

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REACTOR OPERATOR

QUESTION 76

The plant is operating at 100% power.

A loss of Main Condenser vacuum event is in progress.

Main Condenser pressure is 6.0 inches HgA and currently stable.

Which one of the following automatic actions would occur to prevent a trip of the Main Turbine?

A. A Load Set Runback when less than three Circulating Water Pumps are in operation.

B. A Load Set Runback when Main Turbine Bypass Valve #1 is 50% open.

C. A Load Limit Setback when Main Turbine Bypass Valve #1 is 50% open.

D. A Load Limit Setback when less than three Circulating Water Pumps are in operation.

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REACTOR OPERATOR

QUESTION 78

A Control Room Operator was performing rod position indication data substitution in accordance with SOI-C11 (RCIS).

When the ENT SUBST pushbutton was depressed, the red SUBST POSITION ERROR status light energized.

Which one of the following describes a potential cause for the SUBST POSITION ERROR light?

The Control Room Operator attempted to _____.

A. replace 'bad' data from a channel containing 'good' data.

B. replace 'bad' data from a channel containing 'substitute' data.

C. replace 'bad' data in the same channel which already contained 'substitute' data at a different position for the same rod.

D. replace 'bad' data in the same channel which already contained 'substitute' data at a different position for another rod.

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WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 79

A plant startup is in progress.

Recirc Pump 'B' is running in slow speed with its flow control valve at 100% open. The Operator at the Controls has just shifted Recirc Pump 'A' to fast speed.

The following indications were received:

- Reactor power increased and stabilized at 34% power
- Reactor water level decreased to +190 inches and then was restored to normal
- RCIRC A FCV RUNBACK alarm was received on panel H13-P680

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

A. FCVs 'A' and 'B' will remain at their present positions and only FCV 'A' runback logic has actuated.

B. FCVs 'A' and 'B' will remain at their present positions and both FCVs 'A' and 'B' runback logic has actuated.

C. FCV 'A' remains at its present position and FCV 'B' will runback to approximately 17% valve position and only FCV 'B' runback logic has actuated.

D. FCV 'A' will runback to 0% valve position and FCV 'B' will runback to approximately 17% valve position and both FCVs 'A' and 'B' runback logic has actuated.

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WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 80

The plant is operating at 100% power.

- Alarm LPCS OUT OF SERVICE is received on panel H13-P601
- Amber matrix status light LPCS LEAK DETECTED is energized
- A LPCS line break condition has been confirmed

Which one of the following describes the location of the LPCS line break?

A LPCS line break exists _____.

A. between the discharge of the LPCS pump and the injection valve (F005).

B. between the injection valve (F005) and the injection check valve (F006).

C. between the RPV and the core shroud.

D. inside the core shroud.

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WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 81

Which one of the following describes the response of the HPCS Pump upon receipt of a Division 3 LOCA initiation signal?

The HPCS Pump will start _____.

A. immediately.

B. after a 5 second time delay.

C. after a 10 second time delay.

D. after a 15 second time delay.

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WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 82

The Standby Liquid Control System (SLC) is operating to mitigate the consequences of an ATWS event.

Which one of the following conditions will require the Control Room Operators to shutdown the SLC Pumps?

A. Reactor power is 1%.

B. SLC storage tank level is 190 gallons.

C. SLC storage tank temperature is 95 °F.

D. Boron concentration in the RPV is 1000 ppm.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 83

The following plant conditions exist:

- The Reactor Mode Switch is in the STARTUP/STANDBY position
- All IRMs are selected to Range 2
- SRM Channel 'A' is failed downscale and bypassed

Which one of the following conditions will generate a control rod withdrawal block?

A. SRM Channel 'A' indicates 0.5 cps with its detector fully inserted.

B. SRM Channel 'B' indicates 2×10^2 cps with its detector fully withdrawn.

C. SRM Channel 'C' indicates 7×10^4 cps with its detector partially withdrawn.

D. SRM Channel 'D' indicates 75 cps with its detector partially withdrawn.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 84

A Loss of Coolant Accident occurs with increased leakage from the Containment into the Annulus.

- AEGTS Train 'A' is in operation with its Annulus differential pressure controller in the AUTO mode
- AEGTS Train 'B' is in Secured Status

Which one of the following describes the response of AEGTS Train 'A' in order to restore the Annulus differential pressure to its desired value?

A. The Exhaust damper throttles open and the Recirculation damper throttles closed.

B. The Recirculation damper throttles open and the Exhaust damper throttles closed.

C. Only the Exhaust damper throttles open.

D. Only the Recirculation damper throttles closed.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 85

An ATWS is in progress.

The Control Room Operator has been directed to perform PEI-SPI 1.6, Increased Cooling Water D/P.

Which one of the following describes the operation of the CRD DRIVE PRESS CONTROL VALVE, 1C11-F003, during performance of this instruction?

A. The valve is closed to cause the control rods to drift in.

B. The valve is opened to cause the control rods to drift in.

C. The valve is closed to cause the control rods to insert faster when manually inserting control rods.

D. The valve is opened to cause the control rods to insert faster when manually inserting control rods.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 86

An isolation signal caused RWCU SUCT FM CNTMT OTBD ISOL VALVE, 1G33-F004, to automatically close; however, RWCU SUCT FM CNTMT INBD ISOL VALVE, 1G33-F001 remained open.

Which one of the following conditions caused this isolation?

A. SLC Pump 'B' initiation

B. RWCU high differential flow

C. NRHX outlet high temperature

D. RWCU Pump Room 'B' high ambient temperature

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 87

The following plant conditions exist:

- The plant is in MODE 4
- RHR Loop 'A' is operating in the shutdown cooling mode using the normal return path

Which one of the following describes why RHR Pump 'A' flow must be maintained greater than 2000 gpm?

A. To prevent excessive motor current.

B. To prevent pump damage due to runout.

C. To prevent a loss of RPV water inventory.

D. To prevent voiding in the high point of the system.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 88

A plant startup is in progress.

The reactor is at the Point of Adding Heat (POAH) and control rods are being withdrawn for reactor heatup and pressurization.

A complete loss of argon gas pressure occurs in the fission chamber detector for IRM Channel 'A'.

Which one of the following describes the response of IRM Channel 'A', including an action which could be performed, if necessary, in order to continue the reactor heatup and pressurization?

A. IRM Channel 'A' will fail downscale; no Control Room Operator action is required since the IRM 'downscale' rod block is currently bypassed due to the position of the Reactor Mode Switch.

B. IRM Channel 'A' will fail downscale; the Control Room Operator can bypass IRM Channel 'A' in order to clear the IRM 'downscale' rod block.

C. IRM Channel 'A' will fail upscale; no Control Room Operator action is required since the IRM 'upscale' rod block is currently bypassed due to the position of the Reactor Mode Switch.

D. IRM Channel 'A' will fail upscale; the Control Room Operator can bypass IRM Channel 'A' in order to clear the IRM 'upscale' rod block.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 89

An ATWS is in progress.

Emergency Depressurization is required.

The Operator at the Controls has been directed to terminate and prevent Feedwater injection in accordance with PEI-SPI 5.3, Feedwater Injection Prevention.

Which one of the following describes an <u>improper</u> method of Feedwater injection prevention?

A. Shutdown all Reactor Feed Booster Pumps (RFBPs).

B. Close the Feedwater Header Shutoff valves, 1B21-F065A & B.

C. Place all Feedwater Flow Controllers (C34) in MANUAL with minimum (0%) output.

D. Trip both Reactor Feed Pump Turbines (RFPTs), close the Reactor Feed Pump (RFP) Discharge Valves and Motor Feed Pump (MFP) Flow Control Valves, place the Startup Level Controller in MANUAL with minimum output, and close the FDW Pumps Bypass Valve (N27-F200).

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 90

The following plant conditions exist:

- A plant startup is in progress
- Steam Jet Air Ejector (SJAE) 'A' is in operation
- The Adsorber Vault Mode Select Switch is in the AUTO position on Off-Gas Panel H13-P845
- An alarm is received on Common Process & Area Radiation Monitoring Panel H13-P604

The Control Room Operator reports that the HI alarm (amber light) is energized on Off-Gas Post-Treatment 'A' Radiation Monitor.

Off-Gas Post-Treatment 'B' Radiation Monitor is currently <u>not</u> in alarm.

Which one of the following describes the automatic response of the Off-Gas System?

A. The Off-Gas dryers are bypassed.

B. The Off-Gas discharge header isolates.

C. The Off-Gas loop seal drain lines isolate.

D. The Off-Gas adsorbers are placed in service.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 91

The plant is operating at 100% power.

Nuclear Closed Cooling (NCC) Pumps 'A' and 'B' are in operation when NCC Pump 'A' trips due to motor overcurrent. NCC Pump 'C' is in standby.

Which one of the following describes the plant response to the loss of NCC Pump 'A', including an action the Control Room Operators should perform in order to mitigate the consequences of the event?

A. The running Service Air Compressor will trip when a discharge air temperature of 130 °F is reached; start the standby NCC Pump.

B. The running Service Air Compressor will trip when a discharge air temperature of 130 °F is reached; perform a fast reactor shutdown.

C. The running Reactor Recirculation Pumps will trip when a pump seal cavity temperature of 180 °F is reached; start the standby NCC Pump.

D. The running Reactor Recirculation Pumps will trip when a pump seal cavity temperature of 180 °F is reached; perform a fast reactor shutdown.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 92

The plant is operating at 100% power.

A Main Steam Line (MSL) high flow condition is sensed which exceeds the isolation setpoint for only MSL 'A'.

Which one of the following describes the response, if any, of the MSIVs?

A. No MSIVs isolated.

B. All MSIVs isolated.

C. Only the inboard MSIVs isolated.

D. Only the outboard MSIVs isolated.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 93

The plant is operating at 75% power.

Which one of the following describes the effects on the Condensate System if a reduction in Circulating Water System flow occurs?

	Condenser Absolute Pressure	Hotwell Temperature
A.	Decrease	Decrease
B.	Decrease	Increase
C.	Increase	Decrease
D.	Increase	Increase

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 94

Which one of the following describes the most probable effect if the plastic strain of the fuel cladding exceeds 1% during power operation, including how the Control Room Operators can prevent this abnormal condition?

A. Fuel cladding cracking due to high stress; maintain Linear Heat Generation Rate (LHGR) within Technical Specification limits.

B. Fuel cladding cracking due to high stress; maintain Minimum Critical Power Ratio (MCPR) within Technical Specification limits.

C. Fuel cladding cracking due to loss of cooling; maintain Linear Heat Generation Rate (LHGR) within Technical Specification limits.

D. Fuel cladding cracking due to loss of cooling; maintain Minimum Critical Power Ratio (MCPR) within Technical Specification limits.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 95

Which one of the following is considered to be a CORE ALTERATION during refueling with the vessel head removed and fuel in the RPV?

A. Withdrawal of a source range monitor.

B. Insertion of a traversing in-core probe.

C. Removal of a jet pump assembly.

D. Removal of a control rod blade.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 96

You have prepared a Non-Intent Conditional Change to SOI-B33, Reactor Recirculation System, in order to support the current plant startup.

The on-shift Unit Supervisor has reviewed and approved the conditional change in the "Plant Management Staff" Block on the Procedure/Instruction Change (PIC) Form.

Which one of the following additional individuals must approve the conditional change before it can become effective?

PNPP Form No. 7309 is provided for reference.

A. Shift Technical Advisor

B. Operations Manager

C. Shift Supervisor

D. Unit Supervisor

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 97

A Control Room Operator has completed the initial placement of the Control Room tags for a Clearance associated with RHR Loop 'A'.

You have been assigned to perform the Independent Verification for the Clearance tag placement.

You discover that the control switch for RHR 'A' Suppression Pool Suction Valve is currently in the OPEN position.

The Clearance required position for the RHR 'A' Suppression Pool Suction Valve control switch is the CLOSE position.

Which one of the following describes your expected actions?

A. Re-position the valve control switch to the correct position and then inform the Unit Supervisor.

B. Re-position the valve control switch to the correct position and then inform the Control Room Operator who performed the initial tag placement.

C. Stop the independent verification and then inform the Unit Supervisor.

D. Stop the independent verification and then inform the Control Room Operator who performed the initial tag placement to re-position the valve control switch to its correct position.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 98

A Non-Licensed Operator (NLO) is being considered for a job assignment in a High Radiation Area.

The dose rate in the job area is 120 mrem/hr. The job is expected to take 45 minutes.

The following information is known about the operator:

- His age is 35 years
- His year-to-date exposure is 950 mrem
- His year-to-date exposure at other facilities is 0 mrem
- His lifetime exposure history to date is 3500 mrem

Can the operator be assigned to this job and WHY?

A. Yes; the operator will <u>not</u> exceed his initial Dose Control Level.

B. Yes; the operator will be allowed to perform the job as long as an Increased Dose Control Level Authorization is obtained before the job.

C. No; the operator will exceed his federal occupational dose limits.

D. No; the operator will exceed his Dose Control Level limits which are <u>not</u> allowed to be increased.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 99

The plant is in MODE 4.

RHR Loop 'B' is operating in the shutdown cooling mode when the RHR Pump 'B' shaft seizes.

RHR Loop 'A' is out of service for maintenance.

Which one of the following describes an alternate method of decay heat removal in accordance with ONI-E12-2, Loss of Decay Heat Removal?

A. Operate the High Pressure Core Spray System (HPCS) to circulate reactor coolant between the Suppression Pool and the RPV via the Reactor Head Vent.

B. Operate the Residual Heat Removal 'C' System (RHR C) to circulate reactor coolant between the Suppression Pool and the RPV via the Safety Relief Valves (SRVs).

C. Operate the Reactor Feed Booster Pumps (RFBPs) to maintain RPV water level while dumping reactor coolant to the Main Condenser via the Main Steam Lines.

D. Operate the Low Pressure Core Spray System (LPCS) to maintain RPV water level while dumping reactor coolant to the Main Condenser via the Reactor Water Cleanup System (RWCU) blowdown line.

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION
REACTOR OPERATOR

QUESTION 100

The plant is operating at 100% power.

Just prior to shift change, the on-coming Fire Brigade Leader (FBL) calls in sick.

The Shift Supervisor is <u>not</u> able to obtain another FBL by shift change.

Can the off-going FBL be allowed to leave at shift change and WHY?

A. No; the FBL position <u>cannot</u> be left unmanned at shift change.

B. No; the FBL position <u>cannot</u> be left unmanned under any circumstances.

C. Yes; the FBL position may be left unmanned for a period of time not to exceed 2 hours.

D. Yes; the FBL position may be assumed by an on-coming Non-Licensed Operator who is a member of the Fire Brigade.

RO Answer Key

The Illuminating Company

The Energy Makers.

SIGNATURE ONLY

COURSE NAME

COURSE ID NUMBER

The Perry Plant

EXAMPLE

WRONG 1 ① ② ③ ④ ⑤

WRONG 2 ① ② ⊗ ④ ⑤

WRONG 3 ① ② ③ ● ⑤

RIGHT 4 ① ② ③ ④ ●

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.

	T	F				
	A	B	C	D	E	
1	①	②	●	④	⑤	
2	①	②	③	●	⑤	
3	●	②	③	④	⑤	
4	①	●	③	④	⑤	
5	●	②	③	④	⑤	
6	①	●	③	④	⑤	
7	①	②	③	●	⑤	
8	①	②	●	④	⑤	
9	①	●	③	④	⑤	
10	①	②	●	④	⑤	

	T	F				
	A	B	C	D	E	
11	●	②	③	④	⑤	
12	①	②	③	●	⑤	
13	①	②	●	④	⑤	
14	①	②	③	●	⑤	
15	①	②	③	●	⑤	
16	●	②	③	④	⑤	
17	①	●	③	④	⑤	
18	①	②	●	④	⑤	
19	①	②	③	●	⑤	
20	①	②	●	④	⑤	

	T	F				
	A	B	C	D	E	
21	①	●	③	④	⑤	
22	●	②	③	④	⑤	
23	●	②	③	④	⑤	
24	①	②	●	④	⑤	
25	①	●	③	④	⑤	
26	①	②	③	●	⑤	
27	●	②	③	④	⑤	
28	●	②	③	④	⑤	
29	①	②	●	④	⑤	
30	①	②	③	●	⑤	

	T	F				
	A	B	C	D	E	
31	①	●	③	④	⑤	
32	●	②	③	④	⑤	
33	①	②	●	④	⑤	
34	①	②	③	●	⑤	
35	①	②	③	●	⑤	
36	①	●	③	④	⑤	
37	●	②	③	④	⑤	
38	①	●	③	④	⑤	
39	①	②	●	④	⑤	
40	①	②	●	④	⑤	

	T	F				
	A	B	C	D	E	
41	①	②	③	●	⑤	
42	①	②	③	●	⑤	
			C	D	E	
44	①	②	●	④	⑤	
45	①	●	③	④	⑤	
46	①	②	③	●	⑤	
47	●		③	④	⑤	
48	①	●	③	④	⑤	
49	●	②	③	④	⑤	
50	①	●	③	④	⑤	

	T	F				
	A	B	C	D	E	
51	①	②	③	●	⑤	
52	●	②	③	④	⑤	
53	①	②	●	④	⑤	
54	①	●	③	④	⑤	
55	①	②	③	●	⑤	
56	①	②	③	●	⑤	
58	①	②	●	④	⑤	
59	①	②	③	④	⑤	
60	①	②	●	④	⑤	

	T	F				
	A	B	C	D	E	
61	●	②	③	④	⑤	
62	①	②	③	●	⑤	
64	①	②	●	④	⑤	
65	①	●	③	④	⑤	
66	①	●	③	④	⑤	
67	①	②	③	●	⑤	
68	①	●	③	④	⑤	
69	①	②	●	④	⑤	
70	①	②	●	④	⑤	

	T	F				
	A	B	C	D	E	
71	①	②	●	④	⑤	
72	①	②	③	●	⑤	
74	①	●	③	④	⑤	
75	①	②	③	●	⑤	
76	①	②	③	●	⑤	
77						
78	①	●	③	④	⑤	
79	●	②	③	④	⑤	
80	①	②	●	④	⑤	

	T	F				
	A	B	C	D	E	
81	①	②	●	④	⑤	
82	①	●	③	④	⑤	
84	●	②	③	④	⑤	
85	①	●	③	④	⑤	
86	①	②	●	④	⑤	
87	①	②	●	④	⑤	
88	①	●	③	④	⑤	
89	①	②	●	④	⑤	
90	①	②	③	●	⑤	

	T	F				
	A	B	C	D	E	
91	●	②	③	④	⑤	
92	①	●	③	④	⑤	
94	●	②	③	④	⑤	
95	①	②	③	●	⑤	
96	①	②	●	④	⑤	
97	①	②	●	④	⑤	
98	①	●	③	④	⑤	
99	①	●	③	④	⑤	
100	●	②	③	④	⑤	

	T	F				
	A	B	C	D	E	
101	①	②	③	④	⑤	
102	①	②	③	④	⑤	
104	①	②	③	④	⑤	
105	①	②	③	④	⑤	
106	①	②	③	④	⑤	
107	①	②	③	④	⑤	
108	①	②	③	④	⑤	
109	①	②	③	④	⑤	
110	①	②	③	④	⑤	

	T	F				
	A	B	C	D	E	
111	①	②		④	⑤	
112	①	②	③	④	⑤	
114	①	②	③	④	⑤	
115	①	②	③	④	⑤	
116	①	②	③	④	⑤	
117	①	②	③	④	⑤	
118	①	②	③	④	⑤	
119	①	②	③	④	⑤	
120	①	②	③	④	⑤	

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**

Explanation (Why the distractors are incorrect):

A – Bus EH11 Stub Bus Breaker does not trip open on an UV condition (will trip open on a LOCA condition).

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.

D – NCC Pump A breaker will trip open on an UV condition (and will not automatically reclose because there is no LOOP signal generated).

Technical Reference(s): SDM-R10, SDM-P43, SDM-C11(CRDH)	Reference Attached: __X__ (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 # _____ 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 student to predict a system response based on initial plant conditions provided.

SRO 2 / RO 2

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):

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").

B - Setpoint Setdown is actuated when actual RPV water level decreases to Level 3 (178"); it is not actuated by an RPS scram signal.

C - The initial level demand signal is based on the actual MLC tape set position which was 200" (the normal tapeset position is 196").

Technical Reference(s): IOI-8, ONI-C71-1, SDM-C34	Reference Attached: __X__ (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 #	P-924	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	

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 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**

Explanation (Why the distractors are incorrect):

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%).

C – TCVs would open further until LOAD LIMIT is reached (110%).

D - Bypass Valves would be commanded to open until the MCFL is reached (130%).

Technical Reference(s): SDM-N32/C85	Reference Attached: __X__ (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 # _____	
	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 student to predict the response of the SB&PR System based on initial conditions provided.

*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.

SRO 4 / RO 4

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: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	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**

Explanation (Why the distractors are incorrect):

B – Lowest SRV LLS opening setpoint is 1033 psig. Allowing SRVs to automatically cycle on LLS will allow RPV pressure to exceed 1000 psig.

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 no effect on a stuck open SRV.

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.

Technical Reference(s): PEI-B13, RPV Control (ATWS), PEI Bases Document	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	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**

Explanation (Why the distractors are incorrect):

A – SLC Pump trip is actuated on low SLC tank level; APRM Not Downscale permissive is not required.

C – ARI logic is actuated on low RPV level or high reactor pressure; APRM Not Downscale permissive is not required.

D – Recirc Pump Transfer to LFMG logic is actuated on high reactor pressure; APRM Not Downscale permissive is not required.

Technical Reference(s): SDM-C22	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	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**

Explanation (Why the distractors are incorrect):

A – This method is not specified in ONI-C61; it is specified in PEI-B13, RPV Control (ATWS).

B – This method is not specified in any procedure.

C – This is not the preferred method specified in ONI-C61.

Technical Reference(s): ONI-C61	Reference Attached: __X__ (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 #	P-1286	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	

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

10 CFR Part 55 Content:	55.41	__X__
	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**

Explanation (Why the distractors are incorrect):

A / B – This is the normal mode of operation with no high noble gas radiation condition present.

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, not the IODINE module.

Technical Reference(s): SDM-M40, SOI-M40, ONI-D17	Reference Attached: __X__ (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 #	_____	
	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 student to predict the response of the FHB Vent System, including the reason, based on initial plant conditions provided.

SRO 9 / RO 9

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):

A –The steam-air mixture is forced into the SP where the steam is condensed. There is no direct flowpath from the Drywell to the Containment air space which would directly pressurize the Containment due to the design of the Containment/Drywell.

C – The rise in Drywell pressure will cause the vents to become uncovered, not cause the vents to become covered.

D - The rise in Drywell pressure will not prevent the vents from becoming uncovered, it will cause the vents to become uncovered.

Technical Reference(s): AT&AA Text-Containment LOCA, SDM-T23	Reference Attached: __X__ (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 # _____	(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 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**

Explanation (Why the distractors are incorrect):

A / B – While a Cont temperature of 110 F does require entry into PEI-T23, it does not require PEI-B13, RPV Control (Non-ATWS) to be entered and the reactor scrammed. A SP temperature 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.

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.

Technical Reference(s): PEI-T23, PEI Bases Document | Reference Attached: __X__ (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 # P-609 (Note changes or attach parent) / New _____

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 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**

Explanation (Why the distractors are incorrect):

B – The height of the SP suction strainer is approx. 3 ft off the bottom of the SP.

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).

D – The uncovering of the SRV tailpipe quenchers will not occur until SP level is 5.25 ft.

Technical Reference(s): PEI-B13, PEI Bases Document	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

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**

Explanation (Why the distractors are incorrect):

A / B – Feedwater flow will decrease due to the false high water level signal.

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.

Technical Reference(s): SDM-N27	Reference Attached: __X__ (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 # _____
	Modified Bank # P-1007 (Note changes or attach parent)
	New _____

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 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**

Explanation (Why the distractors are incorrect):

A - 70°F is the minimum reactor vessel flange temperature when the head studs are under tension (TS 3.4.11).

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.

D - All control rods are assumed to be fully withdrawn.

Technical Reference(s): SDM-C41, PEI-B13, RPV Control (ATWS), PEI Bases Document	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

SRO 14 / RO 14

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 not 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 not the PEI-D17 Bases definition of a primary system.

Technical Reference(s): PEI-D17	Reference Attached: __X__ (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 #	P-1306	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	

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

10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question): NA

SRO 15 / RO 15

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: __X__ (Attach if not previously provided)

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 #	_____	
	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 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.

SRO 16 / RO 16

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**

Explanation (Why the distractors are incorrect):

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.

D – This condition is correct only if Reactor Narrow Range Level Channel 'A' was initially selected.

Technical Reference(s): ONI-R42-4	Reference Attached: __X__ (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 #	_____	(Note changes or attach parent)
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__A__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

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**

Explanation (Why the distractors are incorrect):

A – EOC-RPT logic also trips the CB3 and CB4 breakers. (This description is for a normal fast-to-slow speed transfer).

C / D – EOC-RPT logic is bypassed when rated thermal power is less than 38%.

Technical Reference(s): SDM-B33	Reference Attached: __X__ (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-220	
	Modified Bank # _____	(Note changes or attach parent)
	New _____	

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 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**

Explanation (Why the distractors are incorrect):

A – Per SDM-E51, the RCIC Terry Turbine was chosen because it is <u>not</u> affected by water slugging.

B / D – There is no supporting documentation for either type of damage even though each type of damage is plausible.

Technical Reference(s): SDM-B21(NBPI)	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

SRO 19 / RO 19

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**

Explanation (Why the distractors are incorrect):

A – The Cntmt design temperature limit is 185°F. (330°F is the Drywell design temperature limit).

B – The Cntmt average air temperature LCO limit is 95°F. (145°F is the Drywell average air temperature LCO limit).

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).

Technical Reference(s): PEI-T23, PEI Bases Document	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

SRO 20 / RO 20

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 (not TBCC). Therefore, they will not trip during a loss of TBCC only.

B – The Main Lube Oil Coolers are cooled by SW (not TBCC). Also, there is no 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 no 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: __X__ (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 # _____ (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 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**

Explanation (Why the distractors are incorrect):

A – The control rod associated with the inoperable accumulator must be withdrawn (rod 20-27 is fully inserted).

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.

***Accumulator fault is equivalent to an inoperable accumulator.**

Technical Reference(s): ONI-C11-1

Reference Attached: __X__
(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 # _____ (Note changes or attach parent)
New _____

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 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**

Explanation (Why the distractors are incorrect):

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.

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.

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.

Technical Reference(s): PEI-B13, RPV Control (Non-ATWS), PEI Bases Document	Reference Attached: __X__ (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 #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question): NA

SRO 23 / RO 23

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**

Explanation (Why the distractors are incorrect):

B – One of the bases for PEI-N11 is to protect equipment in the annulus and Secondary Containment, not the Primary Containment.

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).

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.

Technical Reference(s): PEI-N11, PEI Bases Document	Reference Attached: __X__ (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 #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	

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

10 CFR Part 55 Content:		
	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question): NA

SRO 24 / RO 24

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**

Explanation (Why the distractors are incorrect):

A / B – These are legitimate Area Rad Monitor alarms but are not an Entry Condition into PEI-N11.

D – The High-High alarm does not exist for the Area Rad Monitoring System.

Technical Reference(s): PEI-N11, PEI Bases Document	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question): NA

SRO 25 / RO 25

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):

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, not in the Control Room.

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, not in the Control Room.

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.

Technical Reference(s): SDM-M38, ONI-D17	Reference Attached: __X__ (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 #	_____	(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 student to predict the response of the Aux Bldg Vent System based on initial conditions provided for a secondary containment ventilation high radiation problem.

SRO 26 / RO 26

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: __X__ (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 #	_____	
	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 student to predict the response of the Liquid Radwaste Sumps System given initial plant conditions.

SRO 27 / RO 27

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: __X__ (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 #	P-130	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	

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 student to predict the response of the RC&IS System given initial plant conditions.

SRO 28 / RO 28

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**

Explanation (Why the distractors are incorrect):

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.

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.

Technical Reference(s): SDM-B33, ARI-H13-P680-4 (E9)	Reference Attached: __X__ (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 # _____	
	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 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.

SRO 29 / RO 29

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**

Explanation (Why the distractors are incorrect):

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).

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.

D – Cooling water is provided directly by ECC, not ESW (ESW cools ECC via ECC HX).

Technical Reference(s): SDM-M39, B-208-131 Sheet 04

Reference Attached: __X__
(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 # _____
Modified Bank # _____ (Note changes or attach parent)
New __X__

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

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question): NA

SRO 30 / RO 30

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: __X__ (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 # _____	(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 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.

SRO 31 / RO 31

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: __X__ (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 # _____
	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 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**

Explanation (Why the distractors are incorrect):

B – In the REFUEL position, the SDV high level scram bypass is still enabled. Therefore, no RPS actuation occurs due to SDV high level.

C / D – RPS actuation does occur because the SDV high level scram bypass is no longer bypassed when the Reactor Mode Switch is in the STARTUP/STANDBY position.

Technical Reference(s): SDM-C71, SOI-C71, LER 97-012	Reference Attached: __X__ (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 #	P-1342	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	

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 predict the response of the RPS when the position of the Reactor Mode Switch is changed based on initial plant conditions provided.

To go from SHUTDOWN to STARTUP/STANDBY, you must go through REFUEL.

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 only displays the APRM flow-biased rod block setpoint.

Technical Reference(s): SDM-C51(PRM & OPRM), IOI-1	Reference Attached: __X__ (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 #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question): NA

SRO 34 / RO 34

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**

Explanation (Why the distractors are incorrect):

A / B – NS4 relays de-energize to cause an RHR SDC isolation in both isolation trip systems (Inboard and Outboard)

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.

C – Before the Inboard and Outboard isolation signals can be reset, powered 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.

Technical Reference(s): ONI-C71-2	Reference Attached: __X___ (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 #	_____	
	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 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.
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.

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**

Explanation (Why the distractors are incorrect):

A – Both RCIC suction valves are DC-powered (not AC-powered). Since the suction transfer will occur, they will not fail 'as-is'.

B – Since the SP suction valve is DC-powered, it will automatically open on a high SP level signal.

C - Since the CST suction valve is DC-powered, it will automatically close on a high SP level signal.

Technical Reference(s): SDM-E51

Reference Attached: __X__
(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 # _____ (Note changes or attach parent)
New _____

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 predict the response of the RCIC suction valves due to a high SP level condition during a Station Blackout.

SRO 36 / RO 36

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: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

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**

Explanation (Why the distractors are incorrect):

B – It is the design amount of cooling water flow to the oil cooler but is <u>not</u> a compressor trip signal.

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.

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.

Technical Reference(s): SDM-M51	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

SRO 38 / RO 38

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 <u>not</u> 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 <u>not</u> allowed (not even up to HDOL).

Technical Reference(s): PEI-M51/56, PEI Bases Document	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

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

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 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**

Explanation (Why the distractors are incorrect):

A – NCC isolates on a RPV Level 1 isolation signal (<16.5 inches).

B – There are no automatic isolation signals associated with SRIA (even though the Cntmt isolation valves are normally open MOVs).

D – There are no 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.

Technical Reference(s): SDM-B21(NS4)	Reference Attached: __X__ (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 #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	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**

Explanation (Why the distractors are incorrect):

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.

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.

D – The RHR LOCA logic is already sealed-in. The RPV low water level signal would therefore have no further effect.

Technical Reference(s): SDM-E12	Reference Attached: __X__ (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 # _____	
	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 predict the response of the RHR System based on initial conditions provided.

SRO 41 / RO 41

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).

Explanation (Why the distractors are incorrect):

A - Steam is discharged directly into the Drywell airspace, it does not 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 not disable the automatic mode of ADS (which is a pneumatic mode of operation).

B - Steam is discharged directly into the Drywell airspace, it does not discharge directly into the Containment airspace.

C – Placing both of its associated keylock switches in OFF only disables the pneumatic Relief mode of operation, it does not disable the automatic mode of ADS (which is a pneumatic mode of operation).

Technical Reference(s): SDM-B21/N11	Reference Attached: __X__ (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 #	P-1301 (Note changes or attach parent)
	New	____

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 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**

Explanation (Why the distractors are incorrect):

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.

B – The actual acceleration doubles, it does not decrease by one half (to 45 rpm).

C - The actual acceleration doubles, it does not remain the same (90 rpm).

Technical Reference(s): SDM-N32/C85	Reference Attached: __X__ (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 #	_____	
	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 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**

Explanation (Why the distractors are incorrect):

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.

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.

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.

Technical Reference(s): SDM-C34, SDM-N27	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

SRO 44 / RO 44

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**

Explanation (Why the distractors are incorrect):

A / B – RPV water level does not 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.

D – RPV water level will stabilize at 196" as called for by the MLC tapeset (which is set to 196").

At 40% power, there will be no effect on actual RPV water level due to water level programming.

Technical Reference(s): SDM-C34, SOI-C34	Reference Attached: __X__ (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 # _____	
	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 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):

A – This is the expected automatic response of the station loads. However, ONI-N32 does not direct the operator to close the L1006 and L1009 breakers to effect a manual transfer if the station loads fail to properly shift.

C / D – The station loads do not 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.

Technical Reference(s): ONI-N32	Reference Attached: __X__ (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 # P-1084 (Note changes or attach parent) / New _____

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 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**

Explanation (Why the distractors are incorrect):

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).

C – Even though Bus EH11 remains energized, the high jacket water temperature is not bypassed on a LOOP signal. (It is bypassed on a LOCA signal)

On a LOOP concurrent with a LOCA, the DG output bkr will automatically close to provide power to the EH bus.

Technical Reference(s): SDM-R43	Reference Attached: __X__ (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 #	_____	
	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 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**

Explanation (Why the distractors are incorrect):

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.

C / D – RPV water level initially decreases, not increases. Increased neutron moderation and excessive RPV cooldown may be consequences of higher RPV level.

Technical Reference(s): SOI-B33 | Reference Attached: __X__ (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 # _____ Modified Bank # _____ (Note changes or attach parent) New __X__

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

10 CFR Part 55 Content: 55.41 __X__ 55.43 _____

Comments (Why is it an upper level question): NA

SRO 48 / RO 48

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 no 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: __X__ (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 #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	

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

10 CFR Part 55 Content:		
	55.41	__X_
	55.43	_____

Comments (Why is it an upper level question): NA

SRO 49 / RO 49

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: __X__ (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 #	_____	(Note changes or attach parent)
	New	_____	

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

10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

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**

Explanation (Why the distractors are incorrect):

A – This condition will cause a DB-1-A Trouble alarm. It will not cause an automatic shift of the Static Transfer Switch.

B – Undervoltage, not high voltage, will cause an automatic shift of the Static Transfer Switch.

C – A ground fault on Bus V-1-A will not cause an automatic shift of the Static Transfer Switch.

Technical Reference(s): SDM-R14/15

Reference Attached: __X__
(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 # _____
Modified Bank # _____ (Note changes or attach parent)
New __X__

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

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question): NA

SRO 52 / RO 52

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**

Explanation (Why the distractors are incorrect):

B – Ability to close the breaker remotely is lost and manual tripping/closing is still available locally.

C - Manual tripping/closing is still available locally and all circuit breaker automatic functions are disabled.

D - Ability to open and close the breaker remotely is lost.

Technical Reference(s): ONI-R42-5, GP Components Text	Reference Attached: __X__ (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 #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

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, not Instrument Air.

D – The purge air enters at the inlet to the preheaters, not the inlet to the gas dryers.

Technical Reference(s): SDM-N64	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	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**

Explanation (Why the distractors are incorrect):

A – The Motor Fire Service Pump auto started at 120 psig decreasing and must be manually secured.

C – The Fire Service Jockey Pump automatically turned off when header pressure increased to 140 psig. The Diesel Fire Service Pump did not start because header pressure did not decrease to 105 psig.

D - The Motor Fire Service Pump auto started at 120 psig decreasing and the Diesel Fire Service Pump did not start because header pressure did not decrease to 105 psig.

Technical Reference(s): SDM-P54(WTR)	Reference Attached: __X__ (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	__X__
	Comprehension or Analysis	_____

10 CFR Part 55 Content:	55.41	__X__
	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**

Explanation (Why the distractors are incorrect):

A / B – Closure of the chiller guide vanes will cause chill water temperature to increase thereby causing Control Room air temperature to increase, not decrease.

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.

Technical Reference(s): SDM-P47, LCO 3.7.4 Bases, SOI-P47	Reference Attached: __X__ (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 #	_____	(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 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.

SRO 56 / RO 56

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**

Explanation (Why the distractors are incorrect):

A / B malfunctioning IA Dryer refrigeration unit would not 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.

C – Water is the correct contaminant. However, just bypassing the malfunctioning IA Dryer would not correct the problem. It will still cause water to be introduced into the IA System because there would be no drying of the IA as it flows from the IA Receiver out into the IA System.

Technical Reference(s): SDM-P51/P52, SOER 88-01, SOI-P51/52	Reference Attached: __X__ (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 # _____ (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 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).

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**

Explanation (Why the distractors are incorrect):

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).

B - ESW Pump C will auto start due to the HPCS System initiation at RPV level 2 (+130 inches).

D - ESW Pump A will auto start due to the RCIC initiation at RPV level 2 +130 inches).

Technical Reference(s): SDM-P45

Reference Attached: __X__
(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 # _____
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 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**

Explanation (Why the distractors are incorrect):

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 not settle at position 10.

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 not drift into the core. Reactor power and heatup rate will not decrease.

D – the control rod will not remain at position 08, it will drift outward since the collet fingers are stuck in the outward position.

Technical Reference(s): SDM-C11(CRDM)	Reference Attached: __X__ (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 # _____	(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 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.

SRO 59 / RO 59

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**

Explanation (Why the distractors are incorrect):

A – The ESW flowpath will not automatically line up, it must be manually lined up by the Control Room Operator.

C – The NCC flowpath automatically isolates on a LOCA signal.

D - The NCC flowpath automatically isolates on a LOCA signal. The ESW flowpath will not automatically line up, it must be manually lined up by the Control Room Operator.

Technical Reference(s): SDM-G41, SDM-P43, SDM-P42	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	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**

Explanation (Why the distractors are incorrect):

A – No automatic isolation feature; only causes a DW evacuation signal.

B / D - No automatic isolation feature; only causes a Containment evacuation signal.

Technical Reference(s): SDM-M14	Reference Attached: __X__ (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 #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question): NA

SRO 61 / RO 61

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**

Explanation (Why the distractors are incorrect):

B – There is no procedural requirement for the IV to verify the valves in the same order as the initial person.

C – There is no 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 no procedural requirement for the IV to verify the valves in the same order as the initial person.

D - There is no procedural requirement to position valves in the order in which they appear in the VLI (unless specified otherwise by the Unit Supervisor).

Technical Reference(s): PAP-0205, PAP-0528

Reference Attached: __X__
(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 # _____ (Note changes or attach parent)
New _____

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

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

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**

Explanation (Why the distractors are incorrect):

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).

Technical Reference(s): PAP-0126	Reference Attached: __X__ (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 # _____ Modified Bank # P994 (Note changes or attach parent) New _____

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

10 CFR Part 55 Content:	55.41 __X__ 55.43 _____

Comments (Why is it an upper level question): NA

SRO 63 / RO 63

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 not 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 not required to be entered when SP temperature exceeded 95 F because this IPTE is a pre-planned evolution/test.

D - PEI-T23 is not 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 not 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: __X__ (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 # _____ Modified Bank # _____ (Note changes or attach parent) New __X__

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

10 CFR Part 55 Content: 55.41 __X__ 55.43 _____

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).

SRO 64 / RO 64

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 not 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: __X__ (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	__X__
	Comprehension or Analysis	_____

10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question): NA

SRO 65 / RO 65

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', not 'expected'.

Technical Reference(s): OPS Expectation Handbook, SVI-C71-T0042B	Reference Attached: __X__ (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 # _____
	Modified Bank # _____ (Note changes or attach parent)
	New __X__

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

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.

SRO 66 / RO 66

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: __X__ (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 # _____
	Modified Bank # _____ (Note changes or attach parent)
	New __X__

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

10 CFR Part 55 Content:	55.41 _X__
	55.43 _____

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

Proposed Question: See attached

GEN 2.4.1 has two parts. However, at Perry, there are no EOP Immediate Actions. Therefore, this question only addresses EOP entry conditions.

Proposed Answer: **D Only PEI-T23 is entered due to Cntmt temperature exceeding 95 °F**

Explanation (Why the distractors are incorrect):

A - No entry conditions have been met that require entry into PEI-B13, RPV Control (Non-ATWS).

B / C – There are no direct entry conditions into PEI-B13, RPV Control (ATWS); it is entered from PEI-B13, RPV Control (Non-ATWS). In addition, no entry conditions have been met that require entry into PEI-B13, RPV Control (Non-ATWS).

Technical Reference(s): PEI-T23, PEI-B13 RPV Control (Non-ATWS), PEI-B13, RPV Control (ATWS), PEI Bases Document	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3402-005-02 Obj B, OT-3402-005-03 Obj B, OT-3402-004-07 Obj B

Question Source: Bank # P-829
Modified Bank # _____ (Note changes or attach parent)
New _____

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments (Why is it an upper level question): NA

SRO 68 / RO 68

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 not 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 no air-operated dampers located on the discharge of the DW Cooling Fans, therefore, they cannot fail open. (The Containment Vessel Cooling Fans (M11) utilize air-operated discharge dampers).

C – DW temperature will not increase because the ability of the DW Cooling System to cool the Drywell is not affected by the loss of Instrument Air. There are no air-operated dampers located on the discharge of the DW Cooling Fans, therefore, they cannot fail closed. (The Containment Vessel Cooling Fans (M11) utilize air-operated discharge dampers).

D – DW temperature will not increase because the ability of the DW Cooling System to cool the Drywell is not affected by the loss of Instrument Air. The air-operated 3-way NCC supply valves do not fail closed, they fail to the 'B' cooling coil position. Therefore, cooling water flow is never lost.

Technical Reference(s): SDM-M13	Reference Attached: __X__ (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 # P-631 (Note changes or attach parent)
	New _____

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 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.

SRO 69 / RO 69

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):

A – ONI-C51, Attachment 1 quantifies 'power oscillations' as 10% peak-to-peak. Power oscillations of 5% would not require an immediate manual reactor scram.

B – The combination of core flow less than 42 Mlbm/hr and loadline > 95.2% does not 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).

D – There is no ONI-C51 Immediate Action regarding the insertion of a manual reactor scram as directed by Reactor Engineering.

Technical Reference(s): ONI-C51	Reference Attached: __X__ (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 # P-689 (Note changes or attach parent) New ____

Question Cognitive Level: Memory or Fundamental Knowledge __X__ Comprehension or Analysis ____

10 CFR Part 55 Content: 55.41 __X__ 55.43 ____

Comments (Why is it an upper level question): NA

RO 70

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: **C**

Explanation (Why the distractors are incorrect):

A – Incorrect based on misinterpretation of the Containment and Drywell temperatures curves, 150F and 275F respectively.

B - Incorrect based on misinterpretation of the Containment and Drywell temperatures curves, interpolated curves instead of selecting the higher or lower curve respectively.

D – Incorrect based on misinterpretation of the Containment and Drywell temperatures curves, 250F and 250F respectively.

Technical Reference(s): PEI-SPI Figure 2a, PEI Bases Document	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: **PEI-SPI Figure 2a**

Learning Objective (As available): OT-3402-005-01 Obj D

Question Source:	Bank # _____
	Modified Bank # P-B158 (Note changes or attach parent)
	New _____

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): Requires student to solve a graph-reading problem for the minimum indicated Wide Range level based on initial plant conditions provided.

RO 71

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295013 / GEN 2.1.12	
	Importance Rating	2.9	

Proposed Question: See attached

Proposed Answer: **C**

Explanation (Why the distractors are incorrect):

A – 95 F is the LCO entry condition for TS 3.6.2.1 when there is no testing being performed that adds heat to the SP and RTP is > 1%.

B – 105 F is the LCO entry condition for TS 3.6.2.1 when testing is being performed which adds heat to the SP and RTP is >1%.

D – 120 F is a Condition for a Required Action for TS 3.6.2.1.

Technical Reference(s): TS 3.6.2.1	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3037-001-10 Obj C

Question Source:	Bank #	P-501	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	

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

10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question): NA

RO 72

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295014 AA2.01	
	Importance Rating	4.1	

Proposed Question: See attached

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A / B – The SRM and IRM rod block alarms are disabled when the Reactor Mode Switch is in RUN (power is 20%), therefore, these alarms cannot occur.

C – The ROD OVERTRAVEL alarm is based on the CRDM position. A control rod drop can only occur when the control rod is uncoupled from its associated CRDM. This alarm cannot occur solely due to the control rod dropping.

Technical Reference(s): ONI-C11-3, ARI-H13-P680-6 (C6)	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3035-003-11 Obj A, OT-3403-001-09b Obj 3 OT-3401-005-11 Obj D

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 recognize how systems, parts or wholes interact (i.e., what Neutron Monitoring System indications/alarms are available, based on initial plant conditions provided, to provide indication that a control rod drop event has occurred in which reactor power increases).

RO 73

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	3	
	K/A#	295023 AA2.02	
	Importance Rating	3.4	

Proposed Question: See attached

Proposed Answer: **A**

Explanation (Why the distractors are incorrect):

B – The Bottom Out Carrier position is a correct location, however, the Upender must be inclined.

C / D – The Raise Slow Carrier and the Fill / Drain Carrier positions are incorrect carriage location.

Technical Reference(s): ONI-E12-2

Reference Attached: __X__
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-006-G41 Obj E, OT-3035-003-11 Obj A

Question Source:
Bank # P-418
Modified Bank # _____ (Note changes or attach parent)
New _____

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

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question): NA

RO 74

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295025 EA2.03	
	Importance Rating	3.9	

Proposed Question: See attached

Proposed Answer: **B**

Explanation (Why the distractors are incorrect):

A – Lowering SP level is a non-conservative action which reduces the margin to HCL.

C – Raising RPV water level has no effect on HCL.

D – Raising RPV pressure is a non-conservative action which reduces the margin to HCL.

Technical Reference(s): PEI-SPI Figure 4	Reference Attached: __X__ (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 #	_____	(Note changes or attach parent)
	New	__X__	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__A__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question): Requires the student to predict a course of action, based on the initial plant conditions provided, which will improve the margin to HCL.

RO 75

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295026 EA2.01	
	Importance Rating	4.1	

Proposed Question: See attached

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A / B / C – The order of the three different indications is <u>not</u> in the order from most preferred to least preferred.

'SPDS' is synonymous with 'ERIS'.

Technical Reference(s): PEI-Bases Document	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3402-005-01 Obj C

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

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

10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question): NA

RO 76

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295002 AA1.05	
	Importance Rating	3.2	

Proposed Question: See attached

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A / B – A Load Set Runback is incorrect. A Load Set Runback runs back the Load Set potentiometer (not the Load Limit potentiometer) when Stator Cooling Water pressure is < 50.5 psig or temperature is > 81 °C.

C – A Load Limit Setback will occur when Bypass Valve #1 is 100% open and HP condenser pressure is > 5.6' HgA.

Technical Reference(s): ARI-H13-P680-8 (C6), ONI-N62,	Reference Attached: __X__ (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 D and M, OT-3035-001-05 Obj A, OT-3036-003-N62 Obj I

Question Source:	Bank #	_____	
	Modified Bank #	P-B933	(Note changes or attach parent)
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question): NA

RO 77

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	3	
	K/A#	295021 AK1.01	
	Importance Rating	3.6	

Proposed Question: See attached

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A – There is no relationship between the loss of RHR Pump A and monitoring of coolant conductivity.

B – There is no loss of coolant temperature monitoring capability because Recirc Pump A is still running and providing forced circulation through the core.

C - There is no loss of RPV water level control. Other systems are capable of either raising RPV level (ex: C11 CRDH or P11 CT&S) or lowering RPV level (ex: G33 RWCU blowdown or E12 RHR SDC gravity drain).

Technical Reference(s): Mitigating Core Damage Text, TS 3.4.10 Bases	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3401-003-02 Obj D, OT-3037-006-08 Obj C

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 predict the operational impact due to the tripping of RHR Pump A while in the shutdown cooling mode of operation based on initial plant conditions provided.

RO 78

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	201005 A4.01	
	Importance Rating	3.7	

Proposed Question: See attached

Proposed Answer: **B**

Explanation (Why the distractors are incorrect):

A – This condition is allowed. This is the bases for rod position indication data substitution.

C / D – This condition is allowed because position indication substitution is being performed at a different indication position, regardless if it is the same channel for the same rod or the same channel for a different rod.

Technical Reference(s): SDM-C11(RC&IS), SOI-C11(RCIS)	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-004-C11(RC&IS) Obj B

Question Source:	Bank # _____ Modified Bank # P-801 (Note changes or attach parent) New _____

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

10 CFR Part 55 Content:	55.41 __X__ 55.43 _____

Comments (Why is it an upper level question): Requires the student to comprehend the rules for rod position data substitution in order to determine the cause of a SUBST POSITION ERROR light.

RO 79

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	202002 A2.06	
	Importance Rating	3.3	

Proposed Question: See attached

Proposed Answer: **A**

Explanation (Why the distractors are incorrect):

B – No FCV runback logic signal is generated for FCV 'B' since Recirc Pump 'B' is still in slow speed, therefore, resetting of FCV 'B' would not be required.

C - No FCV runback logic signal is generated for FCV 'B' since Recirc Pump 'B' is still in slow speed, therefore, FCV 'B' will not runback and resetting of FCV 'B' would not be required.

D – FCV 'A' will not runback to 0% because it was already at 8-10% valve position for the pump shift. No FCV runback signal is generated for FCV 'B' since Recirc Pump 'B' is still in slow speed, therefore, FCV 'B' will not runback and resetting of FCV 'B' would not be required.

Technical Reference(s): SDM-B33, SOI-B33, ARI-H13-P680-4(B4)	Reference Attached: __X__ (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 # _____	(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 student to predict the response of the Recirc FCVs based on initial conditions provided when a spurious FCV Runback is received for FCV A only during a slow-to-fast speed pump transfer. This response (i.e., FCV runback) would ultimately have to be reset in accordance with SOI-B33.

RO 80

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	209001 K1.14	
	Importance Rating	3.7	

Proposed Question: See attached

Proposed Answer: **C**

Explanation (Why the distractors are incorrect):

The intent of the question is to identify where the break in the LPCS System is, not how the E31 Leak Detection circuitry works.

A / B / D – A LPCS line break in any of these 3 places will not be sensed as a change in the differential pressure between the LPCS and LPCI A injection lines inside the RPV, therefore, the LPCS line break cannot physically exist in any of these places based on the initial conditions provided.

Technical Reference(s): SDM-E21, ARI-H13-P601-21 (D6)	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-006-E21 Obj C and L

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

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

RO 81

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	209002 A3.02	
	Importance Rating	3.8	

Proposed Question: See attached

Proposed Answer: **C**

Explanation (Why the distractors are incorrect):

A – HPCS Pump has a 10 second TD upon receipt of a Div 3 LOCA signal. (RHR Pump C starts immediately upon receipt of a Div 2 LOCA signal).

B - HPCS Pump has a 10 second TD upon receipt of a Div 3 LOCA signal. (RHR Pump A (B) starts after a 5 second TD upon receipt of a Div 1(2) LOCA signal).

D - HPCS Pump has a 10 second TD upon receipt of a Div 3 LOCA signal. There is no bases for a 15 second TD.

Technical Reference(s): SDM-E22A, SOI-E22A	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

RO 82

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	211000 A1.01	
	Importance Rating	3.6	

Proposed Question: See attached

Proposed Answer: **B**

Explanation (Why the distractors are incorrect):

A – There is no PEI action step which requires the SLC Pumps to be shutdown when reactor power is 1%. (4% reactor power is a common % power number used in the PEIs)

C – This is a normal temperature for the SLC storage tank.

D - There is no PEI action step which requires the SLC Pumps to be shutdown when boron concentration is 1000 ppm. (1020 ppm is the boron cold shutdown weight discussed in the PEIs)

Technical Reference(s): SOI-C41, PEI Bases Document, SDM-C41

Reference Attached: __X__
(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 E and G, OT-3402-005-03 Obj D

Question Source:
Bank # P-1180
Modified Bank # _____ (Note changes or attach parent)
New _____

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

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question): NA

RO 83

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	215004 K4.01	
	Importance Rating	3.7	

Proposed Question: See attached

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A – No SRM downscale rod block occurs since SRM A is bypassed.

B – No SRM Not Full In rod block occurs since SRM B indicates > 100 cps (even though its detector is not full in).

C – No SRM high flux rod block occurs since SRM C indicates < 1×10^5 (even though its detector is not full in).

Technical Reference(s): SDM-C51(SRM)

Reference Attached: __X__
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-004-C51 (SRM) Obj D

Question Source:
Bank # P-703
Modified Bank # _____ (Note changes or attach parent)
New _____

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

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question): NA

RO 84

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	261000 A3.03	
	Importance Rating	3.0	

Proposed Question: See attached

Proposed Answer: **A**

Explanation (Why the distractors are incorrect):

B – This is the opposite response. With increased leakage into the Annulus, the exhaust damper must further open to discharge more air from the Annulus and the Recirc damper must throttle further closed in order to maintain the desired Annulus Differential pressure.

C / D – The Exhaust and Recirc dampers are controlled in tandem by the AEGTS differential pressure controller. One damper will not operate by itself to maintain the desired Annulus Differential pressure.

Technical Reference(s): SDM-M15 | Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-005-M15 Obj F

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

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 predict the response of the AEGTS System during a LOCA with increased leakage from the Containment into the Annulus.

RO 85

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	201001 A1.02	
	Importance Rating	2.9	

Proposed Question: See attached

Proposed Answer: **B**

Explanation (Why the distractors are incorrect):

A – The stated purpose is correct but closed is incorrect.

C – Closed is incorrect. Control rods will drive faster but this is not the stated purpose.

D – Open is correct but control rods will not drive faster if this is done.

Technical Reference(s): SDM-C11(CRDH), PEI-SPI 1.6, PEI Bases Document	Reference Attached: __X__ (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 C, OT-3402-007-17 Obj A, OT-3402-005-03 Obj D

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 student to predict the correct position of the CRD Drive Pressure Control Valve in order to maximize the pressure on the underside of the CRDM piston and cause the control rods to drift in. PEI-SPI 1.6 is entered when control rods cannot be inserted manually using RC&IS and the control rods are not otherwise stuck.

RO 86

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	204000 K1.11	
	Importance Rating	3.5	

Proposed Question: See attached

Proposed Answer: **C**

Explanation (Why the distractors are incorrect):

A – SLC Pump B initiation will cause G33-F001 to close but not G33-F004.

B – RWCU high differential flow will cause both G33-F001 and G33-F004 to isolate.

D – RWCU Pump Room B high ambient temperature will cause both G33-F001 and G33-F004 to isolate.

Technical Reference(s): SDM-G33

Reference Attached: __X__
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-005-G33/36 Obj D

Question Source:
Bank # _____
Modified Bank # P-594 (Note changes or attach parent)
New _____

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

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question): NA

RO 87

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	205000 / GEN 2.1.32	
	Importance Rating	3.4	

Proposed Question: See attached

Proposed Answer: **C**

Explanation (Why the distractors are incorrect):

A – Excessive motor current due to low flow is <u>not</u> an RHR Pump concern; it is a concern for the ESW Pumps.

B – RHR Pump damage due to runout is a concern only when the maximum flowrate of 7800 gpm through the RHR HXs is exceeded.

D – Voiding in the high point of the RHR System is a concern only when the minimum flowrate of 6000 gpm is not maintained during SP cooling operation.

Technical Reference(s): SOI-E12	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-004-E12 Obj j and K

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

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

RO 88

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	215003 A2.05	
	Importance Rating	3.3	

Proposed Question: See attached

Proposed Answer: **B**

Explanation (Why the distractors are incorrect):

A – IRM Channel A will fail downscale. However, operator action is required to clear the IRM downscale rod block. The downscale rod block is not bypassed because the Reactor Mode Switch is normally in the Startup position during reactor heatup and pressurization. The downscale rod block is bypassed when the Reactor Mode Switch is in Run.

C / D – IRM Channel A fails downscale, not upscale for this particular detector failure.

Technical Reference(s): SDM-C51(IRM)	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-004-C51(IRM) Obj B & D, OT-3303-004-07 OBJ 21, 22, 24

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 predict the response of IRM Channel A due to the loss of argon gas in the detector, including the subsequent action that the Control Room Operator can take to mitigate this failure (i.e., clear the rod block) in order to continue rod withdrawal for reactor heatup. The student is expected to know that the reactor Mode Switch is in the Startup position during reactor heatup and pressurization.

RO 89

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	259001 / GEN 2.4.6	
	Importance Rating	3.1	

Proposed Question: See attached

Proposed Answer: **C** **This method is not described in PEI-SPI 5.3. If a RFPT is in operation, and its Flow Controller is placed in MAN and min, this will equate to a RFPT speed of 3300 rpm. This speed will produce a discharge pressure of ~ 800 psig. When RPV pressure decreases below 800 psig during ED, the RFPT will commence injecting into the RPV again.**

Explanation (Why the distractors are incorrect):

A / B / D – These are correct methods as described in PEI-SPI 5.3.

Technical Reference(s): PEI-SPI 5.3, PEI-Bases Document	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3402-005-12 Obj C, OT-3402-007-16 Obj E, OT-3039-001-04 Obj A

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

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

RO 90

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	272000 K1.02	
	Importance Rating	3.2	

Proposed Question: See attached

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A – There is no automatic action which will cause the OG Dryers to isolate.

B / C – These are legitimate automatic actions associated with the Off-Gas System but they do not occur on a single OG Post Treat Rad Monitor HIGH alarm. (They require an isolation logic based on a combination of 2 downscale alarms, 2 HIGH-HIGH alarms or a downscale & HIGH-HIGH alarm for both OG Post Treat Rad Monitors.

Technical Reference(s): SDM-N64, SDM-D17A, ARI-H13-P604-1 (D3)	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-004-D17A Obj D, OT-3036-002-N64 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 predict the response of the Off-Gas System during a plant startup due to a HIGH radiation condition on OG Post Treat Rad Monitor A .

RO 91

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	400000 A2.01	
	Importance Rating	3.3	

Proposed Question: See attached

Proposed Answer: **A *The student is expected to know which plant loads cooled by NCC can automatically trip due to a loss of NCC. The high temperature trip setpoint is not required to be memorized, therefore, the correct trip setpoint is provided to the student.**

Explanation (Why the distractors are incorrect):

B – A fast reactor shutdown is not appropriate because a complete loss of NCC has not occurred. (as specified in ONI-P43). The appropriate action is to start the standby NCC Pump C.

C / D -The Reactor Recirculation Pumps do not automatically trip on a seal cavity high temperature condition. At 180 F, an alarm is received. If temperature continues to increase, the Control Room Operators are provided additional guidance which could direct the manual trip of the Reactor Recirculation Pumps.

Technical Reference(s): SDM-P43, ONI-P43, Various ARIs	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-004-P43 Obj B, C & H, OT-3035-002-02B Obj A

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 predict the response of various plant components due to the loss of a single NCC Pump, including the Control Room Operator action to be performed to correct the abnormal condition (as specified in ONI-P43).

RO 92

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	239001 K5.05	
	Importance Rating	2.8	

Proposed Question: See attached

Proposed Answer: **B** **A high steam flow signal from a single MSL will input into all 4 MSIV logic channels and cause a full MSIV isolation.**

Explanation (Why the distractors are incorrect):

A / C / D – A full MSIV isolation occurs (i.e., all inbd and otbd MSIVs isolate); therefore, the remaining answers are incorrect.

Technical Reference(s): SDM-B21/N11, SDM-E31

Reference Attached: __X__
(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 C & E, OT-3036-003-E31 Obj E

Question Source:
Bank # P-736
Modified Bank # _____ (Note changes or attach parent)
New _____

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 predict the response of the MSIVs based upon the initial conditions provided and knowledge of how the main steam line flow signals are generated and their application in the MSIV logic circuitry.

RO 93

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	256000 K1.18	
	Importance Rating	2.9	

Proposed Question: See attached

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A – Condenser absolute pressure and hotwell temperature do not decrease. They increase because less heat is transferred from the steam resulting in a higher absolute pressure and corresponding increase in hotwell (condensate) temperature.

B - Condenser absolute pressure does not decrease. It increases because less heat is transferred from the steam resulting in a higher absolute pressure.

C - Hotwell temperature does not decrease. It increases because less heat is transferred from the steam resulting in a higher absolute pressure and corresponding increase in hotwell (condensate) temperature.

Technical Reference(s): SDM-N21/N61, GP Components Text Chapter 3	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3036-004-N21/N61 Obj B & C, OT-3303-004-03 Obj 18

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 predict the change in Condensate System parameters due to a decrease in cooling water flow through the Main Condenser with the plant operating at power.

RO 94

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	3	
	K/A#	290002 A2.05	
	Importance Rating	3.7	

Proposed Question: See attached

Proposed Answer: **A**

Explanation (Why the distractors are incorrect):

B – MCPR is not the TS limit associated with fuel cladding cracking due to high stress (it is LHGR).

C / D – Fuel cladding cracking due to loss of cooling is not the correct fuel failure mechanism associated with plastic strain exceeding 1%. Fuel cladding cracking due to high stress is associated with plastic strain exceeding 1%.

Technical Reference(s): TS 3.2.3, GP Thermodynamics Text Chapter 9	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3037-006-06 Obj D, OT-3302-004-09 Obj 4, 5, and 6

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 the particular fuel failure mechanism that occurs if the plastic strain of the fuel cladding exceeds 1%, including how the Control Room Operators can prevent this abnormal condition from occurring during power operations.

RO 95

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	Cat 2	
	K/A#	GEN 2.2.27	
	Importance Rating	2.6	

Proposed Question: See attached

Proposed Answer: **D**

Explanation (Why the distractors are incorrect):

A / B – These are considered to be exceptions (i.e., not a Core Alt) per the definition of Core Alterations.

C – A jet pump assembly is <u>not</u> considered to be fuel, source, or reactivity component per the definition of Core Alteration.

Technical Reference(s): TS Definitions

Reference Attached: __X__
(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

Question Source:
Bank # P-1144
Modified Bank # _____ (Note changes or attach parent)
New _____

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

10 CFR Part 55 Content:
55.41 X(10)
55.43 _____

Comments (Why is it an upper level question): NA

RO 96

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	Cat 2	
	K/A#	GEN 2.2.11	
	Importance Rating	2.5	

Proposed Question: See attached

Proposed Answer: **C**

Explanation (Why the distractors are incorrect):

A – The STA (although he may be SRO-licensed) is not authorized to approve the PIC as discussed in PAP-0522.

B - The OPS Manager is not authorized to approve the PIC as discussed in PAP-0522.

D – The US cannot sign in the "SS or US" block on the PIC Form since he has already signed for the review and approval in the "Plant Management Staff" block on the PIC Form.

Technical Reference(s): PAP-0522	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: **PNPP Form No. 7309**

Learning Objective (As available): OT-3039-007-01 Obj A & B

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

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): NA

RO 97

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	Cat 2	
	K/A#	GEN 2.2.13	
	Importance Rating	3.6	

Proposed Question: See attached

Proposed Answer: **C**

Explanation (Why the distractors are incorrect):

A – PAP-1401 directs the Independent Verifier to 'confirm the component is in its specified position'. This is not permission to re-position the valve control switch. The US should be informed first of the discrepancy since he is in charge of all Control Room activities.

B - PAP-1401 directs the Independent Verifier to 'confirm the component is in its specified position'. This is not permission to re-position the valve control switch.

D – The US should be informed first of the discrepancy since he is in charge of all Control Room activities. Then he can make an informed decision as to how to correct the mistake.

Technical Reference(s): PAP-1401, PAP-0528	Reference Attached: __X__ (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-601	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	

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

10 CFR Part 55 Content:		
	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question): Requires the student to analyze the initial conditions provided concerning the placement of a Control Room clearance and then determine the corrective action to be taken.

RO 98

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	Cat 3	
	K/A#	GEN 2.3.4	
	Importance Rating	2.5	

Proposed Question: See attached

Proposed Answer: **B**

Explanation (Why the distractors are incorrect):

A – The operator will exceed his initial Dose Control Level of 1000 mrem as determined in HPI-B0003, Section 6.3.1.

C – The operator will not exceed his federal occupational dose limits as listed in HPI-B0003, Section 6.2.

D – The initial Dose Control Level of 1000 mrem, as listed in HPI-B0003, Section 6.3.1 can be extended as described in Section 6.3.2 and 6.5.

Technical Reference(s): HPI-B0003	Reference Attached: __X__ (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 # _____
	Modified Bank # _____ (Note changes or attach parent)
	New __X__

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): Requires the student to make a decision based on the initial information provided and knowledge of the federal and PNPP administrative exposure guidelines.

RO 99

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	Cat 4	
	K/A#	GEN 2.4.9	
	Importance Rating	3.3	

Proposed Question: See attached

Proposed Answer: **B**

Explanation (Why the distractors are incorrect):

A – HPCS System operation is not an approved alternate decay heat removal method described in ONI-E12-2, Attachment 2.

C – A feed and bleed using the Feedwater System to dump reactor coolant to the Main Condenser via the Main Steam Lines is not an approved alternate decay heat removal method described in ONI-E12-2, Attachment 2.

D – A feed and bleed using the Low Pressure Core Spray System and RWCU dump is not an approved alternate decay heat removal method described in ONI-E12-2, Attachment 2.

Technical Reference(s): ONI-E12-2	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective (As available): OT-3035-001-11A Obj 2, OT-3035-003-11 Obj A

Question Source:			
	Bank #	P-251	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	

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 recognize how systems interact to provide alternate methods of decay heat removal as described in ONI-E12-2.

RO 100

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	Cat 4	
	K/A#	GEN 2.4.25	
	Importance Rating	2.9	

Proposed Question: See attached

Proposed Answer: **A**

Explanation (Why the distractors are incorrect):

B – The FBL position can be left unmanned for up to 2 hours to accommodate the unexpected absence of the on-shift FBL.

C – The FBL position cannot be left unmanned at shift change (i.e., the off-going FBL cannot leave at shift change if the on-coming FBL will be absent).

D – NLOs are not qualified as FBLs. The FBL position is normally manned by a licensed RO.

Technical Reference(s): PAP-1910, PAP-0126	Reference Attached: __X__ (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 # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

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

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question): Requires the student to predict a course of action based on the initial conditions provided and a knowledge of the shift manning requirements for the FBL position.

The FBL position is normally manned by a licensed RO.