QUESTION 1

The plant is operating at 100% power when the following events occur:

On December 1st at 1000, ESW Pump A is declared INOPERABLE due to incorrect oil installed in the motor bearings.

On December 1st at 1800, RHR B TEST VALVE TO SUPR POOL valve, 1E12-F024B, is declared INOPERABLE when the control power transformer fails.

Technical Specification LCOs 3.6.1.3, 3.6.2.3, and 3.7.1 are provided for reference.

If neither one of these conditions can be corrected, when must the plant be placed in Cold Shutdown?

_____ A. December 2nd at 0600

_____ B. December 3rd at 0600

_____ C. December 3rd at 0700

_____ D. December 3rd at 1800

QUESTION 2

Compensatory measures dealing with valve alignments and maintenance that have the potential to drain the RPV will be in effect with any reference leg backfill system out of service.

The Shift Manager or Unit Supervisor shall supervise valve alignments and system manipulations on the RHR System when the 1E12-F008 and 1E12-F009 valves are open. Valve alignments and system manipulations on the RWCU system during MODE 3 shall also be supervised by the Shift Manager or Unit Supervisor.

The Shift Manager and Unit Supervisor shall ensure that all other valve alignments and maintenance activities that have the potential to drain the RPV are <u>not</u> performed during MODE _(1)_. Any exceptions to this restriction requires approval of the _(2)_?

	(1)	(2)
_____ A.	3	Operations Manager
_____ B.	3	Plant Manager
_____ C.	4	Operations Manager
_____ D.	4	Plant Manager

QUESTION 3

When the procedure owner is not available during off-hours, the _(1)_ may sign for final approval of a _(2)_ change needed to maintain plant safety, plant operability, or critical plant schedules.

	(1)	(2)
_____ A.	Unit Supervisor	procedure correction
_____ B.	Unit Supervisor	simple
_____ C.	Shift Manager	procedure correction
_____ D.	Shift Manager	simple

QUESTION 4

The following plant conditions exist:

- The plant is in MODE 5.
- Core reload is in progress.

Which one of the following conditions requires the Unit Supervisor to IMMEDIATELY suspend CORE ALTERATIONS?

____ A. One control rod displays a notch position indication of 02.

____ B. Two fully inserted control rods have inoperable scram accumulators.

____ C. RPV Water Level is 22 feet 10 inches above the top of the RPV flange.

____ D. Direct communications is lost between the Control Room and Fuel Handling Building.

QUESTION 5

The Reactor has been shutdown in order to replace a defective fuel bundle. RPV Pressure is 100 psig with a cooldown in progress.

Radiation Protection reports that a Containment atmosphere air sample indicates iodine levels are at 0.5 DAC.

The Unit Supervisor directs the Containment Vessel and Drywell Purge System to be:

_____ A. started in the Refuel Mode.

_____ B. started in the Intermittent Mode.

_____ C. placed in Containment Venting.

_____ D. started in Single Train Drywell Ventilation Operation.

QUESTION 6

A Site Area Emergency has been declared. Activation of site emergency facilities is in progress.

Which one of the following is the Perry Emergency Dose Guideline limit to protect valuable property and who can authorize this dose level <u>at this time</u> during the emergency?

_____ A. 10,000 mrem TEDE authorized by the Shift Manager.

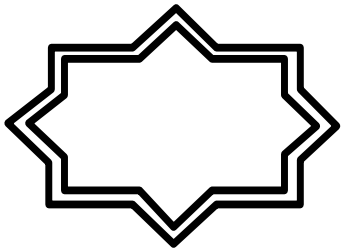
_____ B. 10,000 mrem TEDE authorized by the General Manager, PNPP.

_____ C. 25,000 mrem TEDE authorized by the Shift Manager.

_____ D. 25,000 mrem TEDE authorized by the General Manager, PNPP.

QUESTION 7

When executing PEI Flowcharts, a double lined eight pointed text box, as shown below, indicates a(n):



_____ A. Decision Step

_____ B. Hold/Wait Step

_____ C. Override Step

_____ D. Transition Step

QUESTION 8

The plant is operating at 100% power and a 100% loadline.

Which one of the following conditions would result in entry into the Manual Scram Required Region of the Power-to-Flow Map?

_____ A. Recirculation Flow Control Valves Runback with all OPRM's operable.

_____ B. Recirculation Flow Control Valves Runback with all OPRM's inoperable.

_____ C. Recirculation Pumps downshift to slow speed with all OPRM's operable.

_____ D. Recirculation Pumps downshift to slow speed with all OPRM's inoperable.

QUESTION 9

With the plant operating at 38% power, Main Turbine Bypass Valve #1 begins to open.

The following alarms are received:

- STEAM BYPASS VLV OPEN
- FAST CLOSE & TURB STOP SCRAM BYP

If the Main Turbine Generator trips, then the Reactor will _(1)_ and plant conditions will require entry into _(2)_ .

	(1)	(2)
_____ A.	remain operating	ONLY ONI-N32, Turbine and / or Generator Trip
_____ B.	remain operating	ONI-C85-2, Pressure Regulator Failure Open and ONI-N32, Turbine and / or Generator Trip
_____ C.	scram	ONLY ONI-N32, Turbine and / or Generator Trip and ONI-C71-1, Reactor Scram
_____ D.	scram	ONI-C85-2, Pressure Regulator Failure Open, ONI-N32, Turbine and / or Generator Trip and ONI-C71-1, Reactor Scram

QUESTION 10

Following a Reactor Scram, the following indications exist:

- PEI-B13, RPV Control (Non-ATWS) was entered due to RPV Water Level 3.
- Two (2) Control Rods did <u>not</u> fully insert and are at notch position 02.
- ARI has been initiated and did <u>not</u> result in Control Rod motion.
- Scram Discharge Volume Vent and Drain Valves are closed.

Under these conditions, it is required to:

_____ A. remain in PEI-B13, RPV Control (Non-ATWS). Control Rods will be inserted per PEI-SPI-1.3, Manual Rod Insertion.

_____ B. remain in PEI-B13, RPV Control (Non-ATWS). Control Rods will be inserted per PEI-SPI-1.4, Venting the Scram Air Header.

_____ C. transition to PEI-B13, RPV Control (ATWS). Control Rods will be inserted per PEI-SPI-1.3, Manual Rod Insertion.

_____ D. transition to PEI-B13, RPV Control (ATWS). Control Rods will be inserted per PEI-SPI-1.4, Venting the Scram Air Header.

QUESTION 11

Following an Instrument Air leak in the Drywell the following plant conditions exist:

- Reactor is in Hot Shutdown.
- Drywell Temperature is 140°F.
- Drywell Pressure is 2.1 psig.
- Containment Pressure is 0.0 psig.

Technical Specifications require action to be completed to restore:

_____ A. Drywell to Primary Containment Differential Pressure to within limits to prevent Horizontal Vent clearing at normal Suppression Pool Water Level

_____ B. Drywell to Primary Containment Differential Pressure to within limits to prevent overflowing the Weir Wall following an Upper Pool Dump.

_____ C. Drywell Air Temperature to within limit to prevent peak Drywell Temperature following a LOCA from exceeding 330°F to prevent equipment degradation that is required to mitigate the accident.

_____ D. Drywell Air Temperature to within limit to prevent peak Drywell Temperature following a LOCA from exceeding 330°F to prevent degradation of the Drywell structure under accident loads.

QUESTION 12

With the plant operating at 100% power, the following indications occur:

- Suppression Pool Water Level is 16.5 feet and slowly lowering.
- SUPR POOL LEVEL A(B) HI/LO are in alarm.
- SPMU A(B) DUMP SUPR POOL LEVEL A(B) LOW are in alarm.
- HPCS PUMP ROOM SUMP LEVEL HIGH is in alarm.

As the Unit Supervisor, you would direct entry into __(1)__ and the operator would be directed to __(2)__ the Suppression Pool Makeup System (G43).

_____ A. (1) ONLY PEI-T23, Containment Control
(2) manually initiate

_____ B. (1) ONLY PEI-T23, Containment Control
(2) monitor automatic initiation of

_____ C. (1) PEI-N11, Containment Leakage Control and
PEI-T23, Containment Control
(2) manually initiate

_____ D. (1) PEI-N11, Containment Leakage Control and
PEI-T23, Containment Control
(2) monitor automatic initiation of

QUESTION 13

During execution of PEI-B13 RPV Control (ATWS), the following conditions exist:

- Reactor Power is 6%.
- One Safety Relief Valve is open.
- RPV Water Level is being maintained at 75 inches.
- Drywell Pressure is 2.2 psig.
- Suppression Pool Temperature is 111°F.

These conditions require that:

_____ A. RPV Water Level be maintained between -25 (minus 25) inches and +100 inches to allow preheating of Feedwater to suppress power oscillations.

_____ B. All Injection be Terminated and Prevented until Reactor Power is 4% and all Safety Relief Valves are closed to reduce Suppression Pool heating.

_____ C. All Injection be Terminated and Prevented EXCEPT Boron, CRD, and RCIC until RPV Water Level is no less than 0 inches to reduce Reactor Power.

_____ D. All Injection be Terminated and Prevented EXCEPT Boron, CRD, and RCIC until RPV Water Level is no less than -25 (minus 25) inches to reduce Reactor Power.

QUESTION 14

The plant is operating at full power with fuel inspections in progress in the Fuel Handling Building when numerous Spent Fuel Bundles are damaged.

The following conditions exist:

- FHB HVAC Supply Fan A (M40-C001A) is in operation.
- FHB HVAC Exhaust Fans A and B (M40-C002A(B)) are in operation.
- All FHB Ventilation Exhaust Airborne Radiation Monitor (D17-K710) module indications are offscale high.
- Spent Fuel Pool (D21-K332) and Fuel Prep Pool (D21-K322) Area Radiation Monitor indications are reading 12,000 mR/hr.
- The radiation release rate is at the General Emergency level.

The off-site release path is through the _(1)_. As the Unit Supervisor, you enter PEI-N11, Containment Leakage Control and PEI-D17, Radioactivity Release Control and direct the operator to _(2)_.

	(1)	(2)
_____ A.	Unit 1 Plant Vent	verify FHB HVAC Supply Fan A is tripped.
_____ B.	Unit 1 Plant Vent	scram the Reactor and Emergency Depressurize.
_____ C.	Unit 2 Plant Vent	verify FHB HVAC Supply Fan A is tripped.
_____ D.	Unit 2 Plant Vent	scram the Reactor and Emergency Depressurize.

QUESTION 15

The Reactor Coolant System Pressure Safety Limit is __(1)__ measured at the Steam Dome. This Safety Limit is based on the most limiting component in the Reactor Coolant System which is the Reactor Recirculation Loop __(2)__ Piping.

	(1)	(2)
_____ A.	1250 psig	Discharge
_____ B.	1250 psig	Suction
_____ C.	1325 psig	Discharge
_____ D.	1325 psig	Suction

QUESTION 16

The Reactor is operating at 75% power when the following alarms occur:

- DRYWELL PRESS A HIGH
- DRYWELL PRESS B HIGH
- DRYWELL AIR COOLERS DRAIN FLOW HI
- DW UNIDENTIFIED RATE OF CHANGE HIGH

The operator reports:

- DW Floor Drain Sump Level/Rate Recorder 1E31R618 is pegged high at 10 GPM.
- Drywell pressure is 0.6 psig.

A / An _(1)_ would be the cause of <u>all</u> of these alarms and require the Emergency Coordinator to declare an _(2)_.

EPI-A1, Attachment 2 (EAL Entry Criteria) is provided for reference.

	(1)	(2)
_____ A.	RPV Condensing Pot leak	Unusual Event
_____ B.	RPV Condensing Pot leak	Alert
_____ C.	Upper Drywell Cooler tube leak	Unusual Event
_____ D.	Upper Drywell Cooler tube leak	Alert

QUESTION 17

The plant is in a refueling outage.

- Containment Vessel and Drywell Purge Exhaust System (M14) is operating in the Refuel Mode.
- Steam Separator lift is in progress.
- Containment Ventilation Exhaust Radiation High alarms are expected during the Steam Separator lift.

The following alarm is received:

- CNTMT VENT EXH RAD HI on D17-K609 channels A and C

M14 _(1)_ and entry into ONI-D17, High Radiation Levels Within Plant _(2)_ required.

	(1)	(2)
_____ A.	has isolated	is
_____ B.	has isolated	is not
_____ C.	continues to operate in the Refuel Mode	is
_____ D.	continues to operate in the Refuel Mode	is not

QUESTION 18

The plant is operating at 100% power with RHR Loop A in Standby Readiness.

RHR PUMP A DISCHARGE PRESSURE HI/LO alarm is momentarily received on panel H13-P601.

The operator reports RHR Pump A Discharge Pressure indication was low at 25 psig and has returned to normal at 45 psig on panel H13-P629.

This condition is indicative of potential leakage from the _(1)_ and the Unit Supervisor will _(2)_.

_____ A. (1) RHR Pump A, 1E12-C001A pump seals
(2) direct performance of RHR A High Point Vent per SOI-E12, Residual Heat Removal System to confirm the system is OPERABLE.

_____ B. (1) RHR Pump A, 1E12-C001A pump seals
(2) declare the system inoperable IMMEDIATELY.

_____ C. (1) LPCS & RHR A Water Leg Pump, 1E21-C002 pump seals
(2) direct performance of RHR A High Point Vent per SOI-E12, Residual Heat Removal System to confirm the system is OPERABLE.

_____ D. (1) LPCS & RHR A Water Leg Pump, 1E21-C002 pump seals
(2) declare the system inoperable IMMEDIATELY.

QUESTION 19

The plant is operating at 100% power in Loop Manual Flow Control mode when the following occurs:

- RCIRC Loop A Flow Transmitter 1B33-N014C fails upscale to 125%.
- RCIRC Loop B Flow Transmitter 1B33-N024C fails upscale to 125%.

This will result in __(1)__ and the Unit Supervisor will declare__(2)__inoperable.

PDB Tab I0002, Transmitter to Trip Unit Cross Reference and PDB Tab I0003, Trip Unit to Technical Specifications Cross Reference are provided for reference.

	(1)	(2)
_____ A.	ONLY a Rod Block	ONLY APRM Channel C
_____ B.	ONLY a Rod Block	BOTH APRM Channels C and G
_____ C.	a Rod Block and Half Scram	ONLY APRM Channel C
_____ D.	a Rod Block and Half Scram	BOTH APRM Channels C and G

QUESTION 20

The plant is in MODE 1 with AEGT Fan A (1M15-C001A) in operation and AEGT Fan B (1M15-C001B) in Standby.

Following a transient, plant conditions are as follows:

- Drywell Pressure is 1.50 psig.
- RPV Water Level is +10 inches.
- AEGT Fan A is in operation.
- AEGT Fan B is in Standby.
- ANNULUS DIFF PRESS A and B LOW are in alarm.
- No operator actions have been taken.

In this condition, the Unit Supervisor should direct the operator to verify_(1)_ is /are in operation. Entry into PEI-N11, Containment Leakage Control __(2)__ required.

		(1)	(2)
_____	A.	ONLY one train of AEGT	is
_____	B.	ONLY one train of AEGT	is not
_____	C.	BOTH trains of AEGT	is
_____	D.	BOTH trains of AEGT	is not

QUESTION 21

Per Technical Specification 3.8.4, DC Sources Operating, a subsytem can be considered OPERABLE if you have _(1)__ and __(2)__ .

	(1)	(2)
_____ A.	ONLY the Unit 1 Battery	Unit 1 or 2 Normal Charger
_____ B.	ONLY the Unit 1 Battery	Unit 1 Normal or Reserve Charger
_____ C.	the Unit 1 or Unit 2 Battery	Unit 1 or 2 Normal Charger
_____ D.	the Unit 1 or Unit 2 Battery	Unit 1 Normal or Reserve Charger

QUESTION 22

Control of the Division 1 Emergency Diesel Generator (EDG) has been placed in LOCAL at panel 1H51-P055A in preparation for a local-manual start following completion of preventive maintenance.

The Division 2 and 3 EDG's are in Standby Readiness.

Following a plant transient, the following conditions exist:

- RPV Water Level is 195 inches.
- Drywell Pressure is 1.8 psig.
- DG TRIP LUBE OIL PRESSURE LOW is in alarm for the Division 3 EDG.

Which one of the following correctly describes the effect(s) on the Emergency Diesel Generators (EDG's) and the operator action the Unit Supervisor will direct?

_____ A. ONLY Division 2 and 3 EDG's automatically started.
The operator is directed to secure the Division 3 EDG.

_____ B. ONLY Division 2 and 3 EDG's automatically started.
The operator is directed to confirm the Division 3 EDG has tripped.

_____ C. ALL EDG's automatically started.
The operator is directed to secure the Division 3 EDG.

_____ D. ALL EDG's automatically started.
The operator is directed to confirm the Division 3 EDG has tripped.

QUESTION 23

Operators are performing a plant startup and heatup to 150 psig per IOI-0001, Cold Startup.

The following sequence of events occurs as noted in the Plant Narrative Log:

11:15 C11 - CRDH Pump A trips. Operator sent to investigate.

11:20 RO Attempted to start CRDH Pump B. Pump failed to start.

11:25 C11 - Accumulator fault on rod 10-31. Rod at position 00. Operator sent to investigate.

11:27 C11 - Accumulator fault on rod 30-31. Rod at position 12. Operator sent to investigate.

11:35 Operator investigating C11 Accumulator faults reports back that rod 10-31 Accumulator is 1500 psig and rod 30-31 Accumulator is 1480 psig.

Based on these log entries, the Reactor Mode Switch was / is required to be placed in SHUTDOWN at / by:

_____ A. 11:25

_____ B. 11:27

_____ C. 11:35

_____ D. 11:47

QUESTION 24

The plant is operating at 100% power with a high load line and FMEOD (Fraction of Maximum Extended Operating Domain) at 0.985.

During a planned power decrease to 80% using the Recirc Flow Control Valves, the SCC Operator requests Perry to hold power at 90%.

A short time later, the operator reports that FMEOD is 0.992.

The Unit Supervisor is required to restore FMEOD to ≤ 0.990 by:

_____ A. entering ONI-C51, Unplanned Change in Reactor Power or Reactivity <u>and</u> inserting control rods per Reactor Engineering direction.

_____ B. entering ONI-C51, Unplanned Change in Reactor Power or Reactivity <u>and</u> inserting Cram Rods.

_____ C. ONLY inserting control rods per Reactor Engineering direction.

_____ D. ONLY inserting Cram Rods.

QUESTION 25

A plant is startup is in progress. The plant is currently at 275 Mwe with two Circulating Water Pumps in operation when the following occurs:

- One Circulating Water Pump trips

Which one of the following correctly describes the effect of this condition and the appropriate procedural action(s) required?

_____ A. With degraded vacuum at 5.0”, manually trip the Main Turbine and then enter ONI-N32, Turbine and/or Generator Trip.

_____ B. With degraded vacuum at 5.0”, enter IOI-0014, Fast Unload and Trip of Main Turbine and perform a fast unload and trip of the Main Turbine.

_____ C. With exhaust hood temperature > 200°F, verify the automatic trip of the Main Turbine and then enter ONI-N32, Turbine and/or Generator Trip.

_____ D. With exhaust hood temperature > 125°F, reduce Main Turbine load to 125 Mwe per IOI-0003, Power Changes.

QUESTION 1

The plant is initially operating at 100% Rated Thermal Power when a positive reactivity addition occurs and thermal power increases to 3815 MWt.

IOI-3, Power Changes allows operation at this power level for how long?

_____ A. NEVER

_____ B. 15 minutes

_____ C. 30 minutes

_____ D. 1 hour

QUESTION 2

Plant conditions are as follows:

- Reactor Power is 3%.
- Suppression Pool Average Temperature is 111°F.
- Suppression Pool Level is 18 feet 2 inches.
- Safety Relief Valve 1B21-F047B is OPEN for testing.

Regarding Technical Specifications, which one of the following actions is correct?

_____ A. Place the Reactor Mode Switch in SHUTDOWN and depressurize the RPV to below 200 psig.

_____ B. Continue testing and record Suppression Pool Average Temperature every 5 minutes.

_____ C. Immediately suspend testing and place the Reactor Mode Switch in SHUTDOWN.

_____ D. Immediately suspend testing and restore Suppression Pool Average Temperature below 95°F.

QUESTION 3

The plant is in a Refueling Outage and plant conditions are as follows:

- The Reactor Mode Switch is in SHUTDOWN.
- RPV Head Bolt tensioning is in progress.
- Reactor Coolant System Temperature is 190°F.

Presently, the plant is in:

_____ A. MODE 2

_____ B. MODE 3

_____ C. MODE 4

_____ D. MODE 5

QUESTION 4

Turbine Building Closed Cooling (TBCC) Pump B is Red Danger Tagged for electrical maintenance.

A loss of TBCC Pump A has occurred and the Plant Operator reports that TBCC Pump B appears fully reassembled and no work is currently in progress.

The Electrical Maintenance Supervisor, who accepted the Clearance, has left the site and cannot be contacted.

Which one of the following can authorize clearance release removal for TBCC Pump B?

_____ A. Operations Representative

_____ B. Operations Superintendent

_____ C. Lead Electrician

_____ D. Electrical Maintenance Superintendent

QUESTION 5

A surveillance test that will cause the system to become inoperable is scheduled to be performed.

Unless otherwise noted in the surveillance test, the system is considered to be <u>inoperable</u> when the:

_____ A. the Reactor Operator signs the ‘Test Start Approval’ block on the Surveillance Order Cover Sheet.

_____ B. the Unit Supervisor signs the ‘Work Start (Prerequisite) Approval’ block on the Surveillance Order Cover Sheet.

_____ C. the Lead Test Performer annotates the start date/time in the Test Tracking Log.

_____ D. the first surveillance step is actually performed which will make the system inoperable, such as installing a jumper or turning a switch.

QUESTION 6

The plant is shutdown for a Refueling Outage with plant conditions as follows:

- The Reactor Mode Switch is in REFUEL.
- Core Alterations are in progress.
- All Control Rods are inserted with a Control Rod selected on P680.
- The Refuel Bridge is over the core preparing to lower a new fuel assembly.

A Control Rod Withdrawal Block is:

_____ A. <u>not</u> expected because the Reactor Mode Switch is in REFUEL.

_____ B. <u>not</u> expected because all Control Rods are fully inserted.

_____ C. expected because the Refuel Bridge is over the core and loaded.

_____ D. expected because a Control Rod is selected.

QUESTION 7

A mechanic needs to perform work on a valve in the Drywell. His current annual exposure is 900 mrem (TEDE). The area dose rate is 100 mrem/hr and it will take 2 hours to perform the work.

Whose authorization is needed, if any, to perform the work?

_____ A. No authorization is needed.

_____ B. authorized by RPS Manager

_____ C. authorized by General Manager

_____ D. authorized by VP Nuclear

QUESTION 8

In accordance with NOP-WM-7003, Radiation Work Permit (RWP), which one of the following types of radiological briefing is required for a high-risk activity?

_____ A. ALARA Brief

_____ B. Pre-Job Brief

_____ C. Radiation Protection (RP) Brief

_____ D. Self-Brief

QUESTION 9

Which one of the following is an Entry Condition for PEI-M51/56, Hydrogen Control?

_____ A. RPV Water Level is +25 inches.

_____ B. Drywell Hydrogen Concentration is 0.05%

_____ C. Containment Hydrogen Concentration is 0.3%.

_____ D. Drywell Temperature is in excess of RPV Saturation Temperature.

QUESTION 10

As defined in the PEI Bases, the Minimum Zero Injection RPV Water Level is the lowest RPV Water Level at which the covered portion of the reactor core will generate sufficient steam to prevent any clad temperature in the uncovered portion of the core from exceeding:

_____ A. 1500°F

_____ B. 1700°F

_____ C. 1800°F

_____ D. 2200°F

QUESTION 11

The plant is operating at 100% reactor power when one Reactor Recirculation Pump trips. All systems respond as designed to this event.

How will RPV Water Level initially respond and what is the reason for this response?

RPV Water Level will:

_____ A. INCREASE due to the displacement of water into the downcomer by increased steam voiding.

_____ B. INCREASE due to the continuing addition of feedwater at 100% rated feedwater flow.

_____ C. DECREASE due to the lack of coolant velocity to sweep voids into the steam separator.

_____ D. DECREASE due to the runback of feedwater pumps to minimum speed.

QUESTION 12

The plant is operating at 100% power with the following electrical lineup:

- Busses EH11 and EH13 are on their Preferred Source.
- Bus EH12 is on its Alternate Preferred Source.

INTERBUS XFMR LH-2-A LOCKOUT RELAY alarm is received.

What is the current status of the Emergency Diesel Generators (EDG's) two minutes after INTERBUS XFMR LH-2-A LOCKOUT RELAY alarm is received?

_____ A. All three EDG's are running and loaded.

_____ B. All three EDG's remain in standby status.

_____ C. Division 2 EDG is running loaded and Division 1 and 3 EDG's remain in standby status.

_____ D. Division 2 EDG remains in standby status and Division 1 and 3 EDG's are running loaded.

QUESTION 13

Control Power for Reactor Recirculation Pump Breakers 4A and 4B has been lost.

The loss of which one of the following 125 VDC busses would account for this?

_____ A. D-1-A

_____ B. D-1-B

_____ C. ED-1-A

_____ D. ED-1-B

QUESTION 14

With the plant at 96% power, the RCIC START SIGNAL RECEIVED annunciator alarms and the RCIC System initiates inadvertently.

The Main Turbine will trip:

_____ A. immediately and Scram Hardcard actions are required.

_____ B. in 4.5 minutes unless the operator closes RCIC STEAM SHUTOFF VALVE 1E51F045.

_____ C. in 4.5 minutes unless the operator closes RCIC TURBINE TRIP THROTTLE VALVE LATCH 1E51F510.

_____ D. in 4.5 minutes unless the HIGH POWER RCIC SETPOINT Switch E51-S49 is taken to DISABLED.

QUESTION 15

A Reactor Startup is in progress with reactor power at 20% when an electrical malfunction causes all Turbine Control Valves to fully open.

The reactor automatically scrams. No operator action is taken.

Which one of the following describes the methods of decay heat removal available?

_____ A. Safety Relief Valves and Reactor Water Cleanup.

_____ B. Safety Relief Valves, Main Turbine Bypass Valves, and Main Steam Line Drains.

_____ C. Safety Relief Valves, Main Steam Line Drains, and Reactor Water Cleanup.

_____ D. Safety Relief Valves, Main Turbine Bypass Valves, Main Steam Line Drains, and Reactor Water Cleanup.

QUESTION 16

The Control Room has been evacuated per ONI-C61, Evacuation of the Control Room.

Which of the following describes the PREFERRED method of maintaining RPV Water Level and performing a plant cooldown from the Remote Shutdown Panel?

Maintain RPV Water Level by using _(1)_ and perform a plant cooldown by using _(2)_:

	(1)	(2)
_____ A.	High Pressure Core Spray	Main Turbine Bypass Valves.
_____ B.	High Pressure Core Spray	Safety Relief Valves 1B21-F051C, F051D and F051G.
_____ C.	Reactor Core Isolation Cooling	Main Turbine Bypass Valves.
_____ D.	Reactor Core Isolation Cooling	Safety Relief Valves 1B21-F051C, F051D and F051G.

QUESTION 17

The plant is operating at 100% power when a complete loss of the Nuclear Closed Cooling System occurs. ONI-P43, Loss of Nuclear Closed Cooling is entered and a Fast Reactor Shutdown is performed.

Which one of the following actions is directed by ONI-P43, including the reason for the action?

_____ A. Bypass the RWCU Filter Demineralizers to prevent an isolation on high temperature.

_____ B. Secure the Safety-Related Air Compressor prior to exceeding high discharge air temperature.

_____ C. Shift the Control Rod Drive Pumps prior to exceeding high motor temperatures.

_____ D. Shutdown the Reactor Recirculation Pumps prior to exceeding high bearing temperatures.

QUESTION 18

Following a loss of Bus H12, which one of the following describes the impact on the Service and Instrument Air Compressors?

_____ A. ONLY Unit 1 Service Air Compressor 1P51-C001 is <u>un</u>available.

_____ B. ONLY Unit 1 Instrument Air Compressor 1P52-C001 is <u>un</u>available.

_____ C. BOTH Unit 1 Service Air Compressor 1P51-C001 and Unit 1 Instrument Air Compressor 1P52-C001 are <u>un</u>available.

_____ D. BOTH Unit 2 Service Air Compressor 2P51-C001 and Unit 2 Instrument Air Compressor 2P52-C001 are <u>un</u>available.

QUESTION 19

The plant is in MODE 4 with the following plant conditions.

- RHR B is operating in the Shutdown Cooling Mode when the pump trips.
- RHR A is not available.
- No Reactor Recirculation Pumps are operating.
- No RWCU Pumps are operating.
- RPV Water Level is currently 230 inches on SHUTDOWN RANGE

ONI-E12-2, Loss of Decay Heat Removal would require __(1)__ and reactor water temperature monitoring would be from __(2)__ per IOI-12 Maintaining Cold Shutdown.

_____ A. (1) raising RPV Water Level to greater than 250 inches
(2) bottom head drain

_____ B. (1) starting a Reactor Recirculation Pump
(2) recirc suction

_____ C. (1) starting a Reactor Water Cleanup Pump
(2) bottom head drain

_____ D. (1) starting a Reactor Water Cleanup Pump
(2) recirc suction

QUESTION 20

CORE ALTERATIONS are in progress with M14 Containment Vessel and Drywell Purge System in the Refuel mode.

A HIGH alarm occurs on the GAS channel for 1D17-K686, Containment Atmosphere Radiation Monitor.

The Refueling Supervisor informs the Control Room that bubbles are observed while withdrawing a fuel bundle from the core.

Entry into __(1)__ is required and the operator would verify that __(2)__ :

	(1)	(2)
_____ A.	ONLY ONI-J11-2, Fuel Handling Accidents	M14 Containment Vessel and Drywell Purge has isolated.
_____ B.	ONI-J11-2, Fuel Handling Accidents and ONI-D17, High Radiation Levels Within Plant	M14 Containment Vessel and Drywell Purge has isolated.
_____ C.	ONLY ONI-J11-2, Fuel Handling Accidents	Containment Evacuation Alarm has activated.
_____ D.	ONI-J11-2, Fuel Handling Accidents and ONI-D17, High Radiation Levels Within Plant	Containment Evacuation Alarm has activated.

QUESTION 21

The bases for entering PEI-T23, Containment Control on high Drywell Pressure is to prevent the loss of:

_____ A. Drywell integrity due to over-pressurization.

_____ B. Containment integrity due to over-pressurization.

_____ C. Safety-related equipment in the Drywell due to environmental conditions.

_____ D. Safety-related equipment in the Containment due to environmental conditions.

QUESTION 22

With the reactor operating at 100% power the Main Steam Isolation Valves closed.

No Control Rod motion occurred. No operator actions have been taken.

Which one of the following correctly describes the initiating signal and actuation(s) produced by the Redundant Reactivity Control System (C22) which will reduce reactor power?

Based on given conditions which will occur first?

_____ A. High Reactor Pressure will immediately trip the Reactor Recirculation Pumps off.

_____ B. High Reactor Pressure will downshift the Reactor Recirculation Pumps to Slow Speed and then trip the Reactor Recirculation Pumps off.

_____ C. RPV Water Level 2 will immediately trip the Reactor Recirculation Pumps off.

_____ D. RPV Water Level 2 will downshift the Reactor Recirculation Pumps to Slow Speed and then trip the Reactor Recirculation Pumps off.

QUESTION 23

The Suppression Pool Temperature Control leg in PEI-T23, Containment Control specifies operator actions to control and maintain Suppression Pool temperature.

In accordance with PEI bases the failure to maintain Suppression Pool temperature within the prescribed limits could result in all of the following EXCEPT:

_____ A. Exceeding Suppression Pool / Containment design limits.

_____ B. Loss of pressure suppression function of the Containment.

_____ C. Exceeding NPSH limits for pumps that take a suction on the Suppression Pool.

_____ D. Failure of the Primary Containment due to excessive static and / or dynamic loads.

QUESTION 24

PEI-T23, Containment Control has been entered due to a scram discharge volume rupture.

Containment Sprays have been initiated due to rising Containment temperature and pressure.

Containment Spray operation is required to be terminated:

_____ A. before Containment Pressure is reduced below 0.0 psig.

_____ B. before Containment Pressure is reduced below 0.5 psig.

_____ C. after Containment Temperature is reduced below 95°F.

_____ D. after Containment Temperature is reduced below 185°F.

QUESTION 25

A plant event occurred resulting in the following plant conditions:

- Drywell Temperature is 230°F.
- Primary Containment Temperature is 200°F.
- RPV Pressure is 10 psig.
- Narrow Range Level indicates 185 inches.
- Shutdown Range Level indicates 190 inches.
- Upset Range Level indicates 215 inches.

PEI-SPI Supplement Figures 1a and 2c are provided for reference.

Based on these indications:

_____ A. RPV Water Level is UNKNOWN.

_____ B. ONLY Shutdown Range Instrument accurately indicates level.

_____ C. ONLY Upset Range Instrument accurately indicates level.

_____ D. BOTH Shutdown and Upset Range Instruments accurately indicate level.

QUESTION 26

The plant is operating at 100% power. The operators are required to pump down the Suppression Pool every 24 hours due to leaking SRVs.

Following completion of the last Suppression Pool pump down, plant conditions are:

- Suppression Pool Level (average) is 17.83 feet
- DW/CNMT differential pressure (average) is 0.30 psid
- Suppression Pool Temperature (average) is 91°F.

PRI-TSR Sheet 26 and Figure 3, TSR Suppression Pool Level Correction are provided for reference.

With these plant conditions:

_____ A. No Suppression Pool Average Temperature or Water Level LCO has been exceeded.

_____ B. Suppression Pool Average Temperature LCO has been exceeded.

_____ C. Suppression Pool Water Level LCO for low water level has been exceeded.

_____ D. Suppression Pool Water Level LCO for high water level has been exceeded.

QUESTION 27

For Perry, evaluated mechanism(s) to ensure adequate core cooling is(are):

_____ A. spray cooling.

_____ B. ONLY steam cooling with injection.

_____ C. ONLY steam cooling without injection.

_____ D. BOTH steam cooling with injection and without injection.

QUESTION 28

Certain ATWS conditions require the operators to deliberately lower RPV Water Level in order to lower Reactor Power.

Which of the following describes why Reactor Power decreases as RPV Water Level is lowered?

_____ A. Reducing natural circulation causes increased void formation in the core.

_____ B. Uncovering the feedwater spargers reduces the core inlet subcooling to the core.

_____ C. Equalizing the density of the water inside and outside the shroud lowers the void distribution throughout the core.

_____ D. Reducing the NPSH available to the Jet Pumps reduces the natural circulation flow the Jet Pumps deliver to the core.

QUESTION 29

What is the bases for performing an Emergency Depressurization during the execution of PEI-D17, Radioactivity Release Control?

Performing an Emergency Depressurization ensures the:

_____ A. availability of safe shutdown equipment in the plant that is necessary to mitigate the event is <u>not</u> challenged.

_____ B. energy level of the radiation and the atmospheric dispersion factors fall within the bounds of the accident analysis.

_____ C. isotopic mixture of radioactive materials deposited off-site is within the bounds of the accident analysis.

_____ D. driving head and flow of primary systems that are unisolated and discharging outside of containment is the lowest possible.

QUESTION 30

The plant is operating at 100% power. SAS reports that Zone 1 and Zone 2 heat detectors for Recirculation Pump A are in alarm.

The Unit Supervisor enters ONI-P54, Fire.

Which one of the following actions is required for a fire in Recirculation Pump A per ONI-P54, Fire?

_____ A. Operator will confirm the CO_2 System has automatically initiated and dumped CO_2.

_____ B. Operator opens DW CO2 SUPPLY OTBD ISOL 1P54-F395 to commence CO_2 dump.

_____ C. Operator opens CTMT CO2 SUPPLY OTBD ISOL 1P54-F340 to commence CO_2 dump.

_____ D. Fire Brigade member opens RX RCIRC PMP A SELECTOR VLV 1P54-F3590 to commence CO_2 dump.

QUESTION 31

The plant is operating at 100% power with RFPT A and B in Automatic. The Motor Feed Pump is Out of Service. Bypass Valve #1 has failed full open.

The following additional plant conditions exist:

- RPV Water Level is 190 inches and slowly lowering.
- Main Condenser Pressure is 5.7 inches HgA and slowly degrading.

What is the expected plant response and the reason for that response?

_____ A. ONLY a Flow Control Valve Runback; to lower power within the capacity of the Feedwater System.

_____ B. ONLY a Load Limit Setback; to reduce turbine load in order to reduce moisture erosion of latter stage buckets.

_____ C. Flow Control Valve Runback and Load Limit Setback; to lower power and reduce turbine load to prevent a turbine trip on low vacuum.

_____ D. Flow Control Valve Runback and Load Limit Setback; to lower power and reduce turbine load in order to reduce moisture erosion of latter stage buckets.

QUESTION 32

Given the following configuration of the Reactor Recirculation Pump motor breakers after a plant transient occurred, select the ONE plant condition that would cause this breaker configuration:

- Breaker 1 A/B: closed
- Breaker 2 A/B: closed
- Breaker 3 A/B: closed
- Breaker 4 A/B: closed
- Breaker 5 A/B: open

_____ A. Turbine Control Valves ‘fast closed’.

_____ B. RPV Water Level decreased to 135 inches.

_____ C. RPV Pressure increased to 1100 psig.

_____ D. Feedwater Flow decreased to 4.35 Mlbm/hr for 20 seconds.

QUESTION 33

With the plant initially operating at 100% power, a Loss of Feedwater Heating occurred. The Reactor Engineer checks the Periodic Log and reports that Minimum Critical Power Ratio (MCPR) is 1.06.

This value of MCPR is:

_____ A. within the Safety Limit, no operator actions are required.

_____ B. in violation of the Safety Limit, it is required to insert Cram Rods immediately.

_____ C. in violation of the Safety Limit, it is required to insert all insertable Control Rods within two hours.

_____ D. in violation of the Safety Limit, it is required to insert all insertable Control Rods within four hours.

QUESTION 34

While performing subsequent actions following a scram, the Reactor Operator notices his SCRAM VALVES pushbutton on P680 is backlit red. While depressing the SCRAM VALVES pushbutton all control rods have green LEDs on the full core display except for control rod 30-19.

Based on the above information, which one of the following is the correct status of the scram valves?

_____ A. Control rod 30-19 is the only rod that has both scram valves open.

_____ B. Control rod 30-19 is the only rod that does not have both scram valves open.

_____ C. Control rod 30-19 has one scram valve open while all other control rod scram valves are closed.

_____ D. All scram valves are open since the SCRAM VALVE pushbutton is backlit red.

QUESTION 35

Which one of the following Emergency Plan Action Levels is the lowest action level which can be an entry condition for PEI-D17, Radioactivity Release Control based on an abnormal radiological condition?

_____ A. Unusual Event

_____ B. Alert

_____ C. Site Area Emergency

_____ D. General Emergency

QUESTION 36

The reactor is operating at 100% power with the following indications present on panel 1H13-P601-22 (Control Rod Drive):

- 1C11-R602 CRD Diff Press Drive 0 PSID
- 1C11-R606 CRD Flow Total System 0 GPM
- 1C11-R605 CRD Flow Cooling Wtr 0 GPM
- 1C11-R603 CRD Diff Press Cooling 0 PSID

Which one of the following is the reason for these indications?

_____ A The operating Control Rod Drive Pump has tripped.

_____ B. In-service CRD FLOW CONTROL VALVE 1C11-F002A (or B) has failed closed.

_____ C. CRD DRIVE PRESS CONTROL VALVE 1C11-F003 has been closed.

_____ D. CHARGING WATER SUPP HEADER ISOLATION 1C11-F034 has been closed.

QUESTION 37

PEI-N11 Containment Leakage Control has been entered due to a Suppression Pool leak in the LPCS Pump Room that cannot be isolated.

You have been dispatched to monitor water levels in the Auxiliary Bldg.

Two Maximum Safe Operating 'Water Level' Values will be exceeded at the __(1)__. This is a concern due to __(2)__.

_____ A. (1) LPCS Pump Room sump high level alarm and 2 inches above the floor in the Aux. 568' hallway.
(2) personnel access to the affected area(s).

_____ B. (1) LPCS Pump Room sump high level alarm and 2 inches above the floor in the Aux. 568' hallway.
(2) equipment qualifications in the affected area(s).

_____ C. (1) top of the floor grating in the LPCS Pump Room and 18 inches above the floor in the Aux. 568' hallway.
(2) personnel access to the affected area(s).

_____ D. (1) top of the floor grating in the LPCS Pump Room and 18 inches above the floor in the Aux. 568' hallway.
(2) equipment qualifications in the affected area(s).

QUESTION 38

While executing PEI-B13, RPV Control (Non-ATWS), plant conditions are as follows:

- The ADS A LOGIC INHIBIT Switch B21-S34A has been placed in INHIBIT.
- RHR Pumps B and C have failed to start.
- LPCS Pump and RHR Pump A have started and are lined up for injection.

When RPV Water Level lowers to +16 inches:

_____ A. BOTH Divisions 1 and 2 ADS logic will actuate in 105 seconds.

_____ B. ONLY Division 1 ADS logic operation is prevented.

_____ C. ONLY Division 2 ADS logic operation is prevented.

_____ D. BOTH Divisions 1 and 2 ADS logic operation is prevented.

QUESTION 39

While operating the plant in RHR Shutdown Cooling from the Division 1 Remote Shutdown Panel, RPV Pressure increases above 140 psig.

What is the current status of RHR Shutdown Cooling?

_____ A. SHUTDOWN COOLING OTBD SUCT ISOL 1E12-F008 closed
SHUTDOWN COOLING INBD SUCT ISOL 1E12-F009 closed
RHR Pump A tripped

_____ B. SHUTDOWN COOLING OTBD SUCT ISOL 1E12-F008 closed
SHUTDOWN COOLING INBD SUCT ISOL 1E12-F009 is open
RHR Pump A tripped

_____ C. SHUTDOWN COOLING OTBD SUCT ISOL 1E12-F008 is open
SHUTDOWN COOLING INBD SUCT ISOL 1E12-F009 closed
RHR Pump A remains operating

_____ D. SHUTDOWN COOLING OTBD SUCT ISOL 1E12-F008 is open
SHUTDOWN COOLING INBD SUCT ISOL 1E12-F009 is open
RHR Pump A remains operating

QUESTION 40

The following plant conditions exist:

- A DBA Loss of Coolant Accident has occurred and the RPV is depressurized.
- All control rods are fully inserted.
- LPCS and all LPCI subsystems are injecting into the RPV at 6,000 gpm each.
- RPV Water Level is -20 inches and lowering.

An operator subsequently notes that LPCS System flow, pump amps and discharge pressure are fluctuating significantly. All LPCI System parameters are steady within their normal indications.

Which one of the following describes the condition of the LPCS Pump, including guidance for continued operation?

The LPCS Pump is:

_____ A. cavitating and would <u>not</u> be secured since adequate core cooling <u>cannot</u> be maintained.

_____ B. running out and would <u>not</u> be secured since adequate core cooling <u>cannot</u> be maintained.

_____ C. cavitating and may be secured since adequate core cooling can be maintained.

_____ D. running out and may be secured since adequate core cooling can be maintained.

QUESTION 41

The High Pressure Core Spray (HPCS) Pump is being operated in the CST to CST mode for testing. During the test, the CST Level Instruments failed low.

Which one of the following statements correctly describes the effect on HPCS operation?

_____ A. HPCS operation will be unaffected.

_____ B. HPCS Pump pumps the suppression pool to the CST.

_____ C. HPCS Pump operates on minimum flow CST to suppression pool.

_____ D. HPCS Pump operates on minimum flow suppression pool to suppression pool.

QUESTION 42

To verify indications of Standby Liquid Control Injection flow into the reactor, SLC Squib Valve 1C41-F004A and B CONTINUITY LIGHTS are __(1)__ and SLC Pump Discharge pressure should be __(2)__.

	(1)	(2)
_____ A.	ON	slightly above Reactor Pressure
_____ B.	ON	fluctuating 300 to 400 psig above Reactor Pressure
_____ C.	OFF	slightly above Reactor Pressure
_____ D.	OFF	fluctuating 300 to 400 psig above Reactor Pressure

QUESTION 43

The plant is operating at 70% power when Main Steam Isolation Valves 1B21-F022C and 1B21-F028C inadvertently close.

Which one of the following describes the direct impact to the Reactor Protection System due to the MSIV closures and what is the maximum reactor power limitation with one Main Steam Line out of service?

_____ A. No RPS actuation
Limit maximum reactor power to 75%

_____ B. No RPS actuation
Limit maximum reactor power to 80%

_____ C. RPS Half Scram
Limit maximum reactor power to 75%

_____ D. RPS Half Scram
Limit maximum reactor power to 80%

QUESTION 44

A reactor startup is in progress.

All IRMs are 60/125 on Range 3 when only the following alarms are received:

- ROD BLOCK IRM DOWNSCALE
- ROD WITHDRAWAL BLOCK

A calculator is provided.

These indications were caused by IRM E:

_____ A. ranged to Range 2.

_____ B. ranged to Range 4.

_____ C. power supply failure.

_____ D. detector withdrawing from the core.

QUESTION 45

During a reactor startup, the following conditions exist:

- ALL Source Range Monitor (SRM) detectors are fully inserted.
- ALL SRM Channels indicate 9 x 10^4 cps.

Per IOI-1, Cold Startup, which one of the following describes the correct operation of Source Range Monitor detectors?

SRM detectors are:

_____ A. fully inserted until the reactor is at the Point of Adding Heat. Then the SRM detectors are fully withdrawn.

_____ B. fully inserted until IRM overlap is confirmed. When IRMs are on Range 2, then the SRM detectors are fully withdrawn.

_____ C. fully inserted until IRM overlap is confirmed. When IRMs are on Range 3, then the SRM detectors are fully withdrawn.

_____ D. partially withdrawn to maintain 10^2 to 10^5 cps until IRM overlap is confirmed and the reactor is at the Point of Adding Heat. Then the SRM detectors are fully withdrawn.

QUESTION 46

Which trip function utilizes an electronic time constant filtered signal designed to initiate scram protection in response to slow reactor power increases, such as a Loss of Feedwater Heating?

_____ A. OPRM (Period Based Algorithm)

_____ B. APRM Fixed Neutron Flux - High

_____ C. APRM Neutron Flux - High, Setdown

_____ D. APRM Flow Biased Simulated Thermal Power - High

QUESTION 47

Following a Loss of Feedwater transient, plant conditions are as follows:

- Reactor Core Isolation Cooling (RCIC) system automatically initiated.
- RPV Water Level is 220 inches.

Which of the following RCIC system valve(s) would receive a close signal directly from RPV level instruments?

_____ A. RCIC STEAM SHUTOFF 1E51-F045

_____ B. RCIC INJECTION VALVE 1E51-F013

_____ C. RCIC TURBINE TRIP THRT V LATCH 1E51-F510

_____ D. RCIC STEAM SUPPLY INBD and OUTBD ISOLATION VALVES, 1E51-F063 and 1E51-F064

QUESTION 48

Which one of the following is the power source to the Division 1 ADS solenoid valves?

_____ A. D-1-A

_____ B. D-1-B

_____ C. ED-1-A

_____ D. ED-1-B

QUESTION 49

The plant has been Emergency Depressurized following a LOCA.

Current plant indications are:

- Drywell Pressure is 2.5 psig.
- RPV Pressure is 40 psig.
- RCIC Steam Supply Pressure-Low instrument 1E31-N685A has failed high.
- RCIC Steam Supply Pressure-Low instrument 1E31-N685B indicates 40 psig.

What is the current status of the following RCIC System Valve(s):

_____ A. <u>ONLY</u> RCIC EXH VAC BRKR FIRST ISOL 1E51-F078 is closed.

_____ B. <u>ONLY</u> RCIC TURB EXH SHUTOFF 1E51-F068 and
RCIC EXH VAC BRKR SECOND 1E51-F077 are closed.

_____ C. RCIC TURB EXH SHUTOFF 1E51-F068,
RCIC EXH VAC BRKR SECOND 1E51-F077, and
RCIC EXH VAC BRKR FIRST ISOL 1E51-F078 are closed.

_____ D. RCIC TURB EXH SHUTOFF 1E51-F068,
RCIC EXH VAC BRKR SECOND 1E51-F077, and
RCIC EXH VAC BRKR FIRST ISOL 1E51-F078 remained open.

QUESTION 50

Each SRV is equipped with __(1)__ vacuum breaker(s) and they draw air from the__(2)__ to prevent siphoning of water into the SRV discharge piping.

	(1)	(2)
_____ A.	one	Drywell
_____ B.	one	Containment
_____ C.	two	Drywell
_____ D.	two	Containment

QUESTION 51

Following a reactor scram the following conditions exist:

- The Reactor Mode Switch is in SHUTDOWN.
- RFPT's A and B are in Auto on Setpoint Setdown.
- RPV Water Level is +195 inches and slowly lowering.
- RPV Pressure is at 930 psig on bypass valves.

When RPV Pressure lowers to 800 psig, the RFPT's are:

_____ A. feeding with speed stable.

_____ B. feeding with speed decreasing.

_____ C. <u>not</u> feeding with speed stable.

_____ D. <u>not</u> feeding with speed decreasing.

QUESTION 52

The plant is operating at 100% power with AEGTS Fan B, 1M15-C001B running when 120 VAC Bus EK-1-B1 is lost.

Which one of the following describes the effect of this power loss on the dampers for AEGTS Train B?

	Recirculation Damper	Exhaust Damper
_____ A.	Fails Open	Fails Open
_____ B.	Fails Open	Fails Closed
_____ C.	Fails Closed	Fails Open
_____ D.	Fails Closed	Fails Closed

QUESTION 53

The plant is operating at 100% power with Busses EH11 and EH13 powered from the preferred source and Bus EH12 powered from the alternate preferred source when the following occurs:

- Preferred source breaker to Bus EH11 inadvertently opens.
- Division 1 Emergency Diesel Generator (EDG) fails to start.

The Unit Supervisor directs Bus EH11 to be re-energized from the alternate preferred source per ONI-R22-1, Loss of an Essential and/or a Stub 4.16 KV Bus.

What is the expected plant response when Bus EH11 is re-energized?

_____ A. ESW Pump A will start on Loss of Off-Site Power (LOOP) Logic.

_____ B. ESW Pump A will start on Division 1 EDG Start Logic.

_____ C. Division 1 NS4 isolation valves will remain in their unisolated position.

_____ D. Division 1 NS4 valves will re-position to their isolated position.

QUESTION 54

The 120VAC Bus EV-1-A will automatically transfer to the alternate AC source when the Division 1 ATWS-UPS Inverter __(1)__ is low. The procedural guidance for recovery of this inverter is located in __(2)__ .

	(1)	(2)
_____ A.	Output Voltage	ONI-R25-1, Loss of an Essential 120V Bus
_____ B.	Output Voltage	SOI-R14, 120 VAC Vital Inverters
_____ C.	Input Voltage	ONI-R25-1, Loss of an Essential 120V Bus
_____ D.	Input Voltage	SOI-R14, 120 VAC Vital Inverters

QUESTION 55

Following a Loss of Offsite Power, conditions are as follows:

- Drywell Pressure is 3 psig.
- HPCS and RCIC are maintaining RPV Water Level at 190 inches.
- RHR Loop B is operating in Suppression Pool Cooling.

With ED-1-A Bus Voltage indicating 0 VDC, which one of the following conditions will result?

_____ A. ESW A Pump will trip immediately.

_____ B. Pre-existing Division 1 alarms will extinguish.

_____ C. Division 1 Emergency Diesel Generator will trip.

_____ D. Feedwater Leakage Outboard System Shutoff Valve 1N27-F740 cannot be operated from the Control Room.

QUESTION 56

Bus EH13 is in the process of being transferred from the Division 3 Emergency Diesel Generator (EDG) back to the grid. The SYNC SEL SWITCH is in the TH1 position for the Preferred Source (Breaker EH1303).

The following indications are observed on panel H13-P601-22:

- BUS EH13 VOLTS RUNNING 1R22-R022C 4200 VAC
- BUS EH13 VOLTS INCOMING 1R22R021C 4100 VAC
- Synchroscope is rotating fast is the FAST direction

Before the Preferred Source Breaker (EH1303) can be closed, the operator must match BUS EH13 RUNNING and INCOMING VOLTS by __(1)___the Voltage Regulator and by __(2)___ the Diesel Generator Governor until the Synchroscope is moving slowly in the FAST direction.

	(1)	(2)
_____ A.	lowering	lowering

_____ B.	lowering	raising
_____ C.	raising	lowering
_____ D.	raising	raising

QUESTION 57

The plant is operating at 58 mlbm/hr and reactor power is 63%. RFPT B is operating on 3 Element control in AUTO. RFPT B is operating at the suction flow limit of 23.1 Kgpm per SOI-N27, Feedwater. The Motor Feed Pump is shutdown in warmup and RFPT A is shutdown on the turning gear.

The plant has entered ONI-P52, Loss of Service and/or Instrument Air. The source of the air leak has been isolated from the instrument air header by closing INSTRUMENT AIR TO HEATER BAY ISOL 1P52-F591. Instrument air pressure in the Heater Bay is 50 psig and steadily dropping.

Which one of the following describes the required operator response, if any, to the above conditions?

_____ A. No response is required. RFPT B will automatically recover RPV water level.

_____ B. Start the Motor Feed Pump and maintain RPV water level.

_____ C. Take RFPT B Recirc Flow Controller output to 0% to close RFPT B Recirc Control Valve, N27-F160B and maintain RPV water level.

_____ D. Scram the Reactor due to lowering RPV water level.

QUESTION 58

The Nuclear Closed Cooling System (P43) is continuously monitored for radioactivity by a Process Radiation Monitor that samples from which one of the following points in the NCC system flow path?

_____ A. NCC Pump Suction

_____ B. NCC Heat Exchanger Inlet

_____ C. NCC Heat Exchanger Outlet

_____ D. NCC Containment Return Header

QUESTION 59

Breaker EH1104, 4.16KV TO 480V XFMR EHF-1-A TO BUS EF-1-A, tripped on overcurrent.

Which one of the following pumps has lost power?

_____ A. Control Rod Drive Pump A, 1C11-C001A

_____ B. Low Pressure Core Spray Pump, 1E21-C001

_____ C. Standby Liquid Control Pump A, 1C41-C001A

_____ D. Emergency Service Water Pump A, 1P45 C001A

QUESTION 60

A plant startup is in progress per IOI-1, Cold Startup.

- APRM DOWNSCALE lights on panel P680 have just cleared.
- IRM / APRM overlap checks are in progress.
- Main Turbine Shell warmup has just been completed.
- Main Turbine Chest warming is in progress.
- Main Turbine first stage pressure is 180 psig.

Which scram signal is active based on current plant conditions?

_____ A. RPV Level 8

_____ B. MSIV Closure

_____ C. IRM Neutron Flux High

_____ D. Turbine Control Valve Fast Closure

QUESTION 61

The following plant conditions exist:

- A reactor startup is in progress following a refueling outage in which one-third (1/3) of the fuel bundles were replaced with new fuel.
- Reactor power is increasing with a stable positive period of 150 seconds.
- SRM Channel B detector is stuck and will not withdraw.
- SRM Channel B indication increases to 2×10^5 cps.

Which one of the following describes indicated reactor power and reactor period?

Indicated reactor power will:

_____ A. decrease and reactor period will be negative.

_____ B. decrease and reactor period will remain stable.

_____ C. continue to increase and reactor period will remain stable.

_____ D. continue to increase and reactor period will become shorter.

QUESTION 62

Which one of the following conditions will immediately trip the RCIC Turbine to prevent turbine damage?

_____ A. RCIC Steam Tunnel high temperature

_____ B. RCIC Room high-high delta temperature

_____ C. RCIC Turbine Lube Oil low pressure

_____ D. RCIC Turbine Exhaust high pressure

QUESTION 63

Following a transient, INST AIR CNTMT ISOL 1P52-F200 and INST AIR DRYWELL ISOL 1P52-F646 have isolated.

Which one of the following describes the effect of this isolation on the Safety Relief Valves (SRVs)?

_____ A. ONLY the ADS SRVs can be opened.

_____ B. ALL SRVs can be opened at least once in the Relief Mode.

_____ C. ALL SRVs will open ONLY in the Safety Mode.

_____ D. ALL SRVs <u>cannot</u> be opened.

QUESTION 64

The plant is in MODE 5 with the following conditions:

- INST VOL NOT DRAINED and RPS INST VOL LEVEL HI are in alarm due to maintenance on the Division 1 and 2 trip units for SDV high level.
- INST VOL LEVEL HI SCRAM BYPASS CH A(B,C,D) Switches 1C71A-S4A(B,C,D) are in BYPASS.
- RPS Trip Systems A and B are reset.

Which one of the following describes the plant response when the Reactor Mode Switch is placed in the STARTUP/STANDBY position?

_____ A. The SDV Valves remain open and <u>no</u> RPS actuation occurs.

_____ B. The SDV Valves close and <u>no</u> RPS actuation occurs.

_____ C. The SDV Valves remain open and a full RPS actuation occurs.

_____ D. The SDV Valves close and a full RPS actuation occurs.

QUESTION 65

FTI-B0002, Control Rod Movements, requires the operator to attempt to withdraw any control rod that has been withdrawn to position 48 past position 48.

Why do we perform this action?

_____ A. To test the operability of the ROD OVERTRAVEL alarm by observing the actuation of an expected alarm.

_____ B. To ensure the control rod is coupled to its drive mechanism by observing that the ROD OVERTRAVEL alarm does <u>not</u> alarm.

_____ C. To test the condition of the control rod drive mechanism seals by observing the value of Drive Water Header Flow.

_____ D. To purge air from the control rod mechanism hydraulic lines by observing the value of Drive Water Header Flow.

QUESTION 66

Following a transponder card failure, Control Rod 22-55 had its rod drive transponder bypassed in the Rod Gang Drive Cabinet.

In this condition, Control Rod 22-55 __(1)__ be moved in the Individual Drive Mode and __(2)__ be moved in the Gang Drive Mode when moving the same gang with a Control Rod other than 22-55 selected on panel H13-P680.

	(1)	(2)
_____ A.	can	cannot
_____ B.	can	can
_____ C.	cannot	cannot
_____ D.	cannot	can

QUESTION 67

Select the one statement that describes the effect on the Reactor Recirculation System for an actuation of the End-of-Cycle Recirculation Pump Trip (EOC-RPT) logic.

_____ A. At less than 38% rated power; the low frequency motor generator and CB3 and CB4 breakers will trip for each pump.

_____ B. At less than 38% rated power; only the CB5 breaker will trip, the low frequency motor generator will start, and the CB2 breaker will close for each pump.

_____ C. At greater than 38% rated power; only the CB5 breaker will trip, the low frequency motor generator will start, and the CB2 breaker will close for each pump.

_____ D. At greater than 38% rated power; the CB3, CB4, and CB5 breakers will trip, the low frequency motor generator will start, and the CB2 breaker will close for each pump.

QUESTION 68

With the plant in MODE 4, the Reactor Water Cleanup (RWCU) System is being started per SOI-G33, Section 4.1 Cold Startup (Rx Water Temp < 212°F) to Normal Recirculation Mode.

Immediately upon starting the first RWCU Pump, the operator observes the following indications:

- RWCU INLET FLOW G33-R609 0 gpm

To prevent a trip of the operating RWCU Pump, the operator must:

_____ A. throttle open RWCU BLWDN TO CNDR/RW VALVE 1G33F033 before 2 minutes has elapsed.

_____ B. throttle open RWCU BLWDN TO CNDR/RW VALVE 1G33F033 before 3 minutes has elapsed.

_____ C. throttle open RWCU FILTER/DEMIN BYPASS VALVE 1G33F044 before 2 minutes has elapsed.

_____ D. throttle open RWCU FILTER/DEMIN BYPASS VALVE 1G33F044 before 3 minutes has elapsed.

QUESTION 69

With the plant operating at 30% power, alarm MSL ISOL MAIN STEAM LINE FLOW HIGH is received. The operator reports the reactor has scrammed.

Select the ONE statement that describes how the Low-Low Set (LLS) function of the Safety Relief Valves (SRVs) automatically operates following a main steam isolation to maintain RPV Pressure?

_____ A. 1B21-F051D opens at 1103 psig arming LLS which opens 1B21-F051C. Four LLS SRVs cycle between 1113 psig and 946 psig. 1B21-F051C closes at 936 psig. 1B21-F051D cycles between 1033 psig and 926 psig.

_____ B. 1B21-F051D opens at 1103 psig arming LLS which opens 1B21-F051C. Four LLS SRVs cycle between 1113 psig and 946 psig. 1B21-F051C and 1B21-F051D cycle between 1033 psig and 976 psig.

_____ C. 1B21-F051C and 1B21-F051D open at 1103 psig arming LLS. Four LLS SRVs cycle between 1113 psig and 936 psig. 1B21F051C and 1B21-F051D cycle between 1073 psig and 926 psig.

_____ D. 1B21-F051C opens at 1103 psig arming LLS which opens five LLS SRVs at 1113 psig. 1B21F051C cycles between 1073 psig and 936 psig.

QUESTION 70

The plant is in Single Loop operation at 40% power.

Reactor Recirculation Pump B is operating in Fast Speed with a loop flow rate of 20%.

Which one of the following sets of conditions will allow starting Reactor Recirculation Pump A?

	Temperature Loop A	Temperature Loop B	Temperature Bottom Head Drain	Temperature Steam Dome
_____ A.	465°F	515°F	428°F	544°F
_____ B.	495°F	535°F	458°F	542°F
_____ C.	475°F	530°F	474°F	534°F
_____ D.	480°F	525°F	438°F	540°F

QUESTION 71

Following a transient, plant conditions are as follows:

- All Control Rods are fully inserted.
- Main Steam Isolation Valves are closed.
- RPV Water Level is 180 inches and stable.
- RPV Pressure is 400 psig and lowering.
- Containment Pressure is 2.1 psig and rising.
- Suppression Pool Average Temperature is 100°F and rising.

At this time, RHR is required to be:

_____ A. terminated and prevented.

_____ B. operated in the Containment Spray mode.

_____ C. operated in the Suppression Pool Cooling mode.

_____ D. operated with one loop in the Containment Spray mode and the other loop in the Suppression Pool Cooling mode.

QUESTION 72

The plant is operating at 100% power. Hotwell Pumps A and C and Condensate Booster Pumps B and C are in operation.

Upon a loss of Bus H11, which Condensate System Pumps will remain in operation?

_____ A. Hotwell Pump A and Condensate Booster Pump B.

_____ B. Hotwell Pump A and Condensate Booster Pump C.

_____ C. Hotwell Pump C and Condensate Booster Pump B.

_____ D. Hotwell Pump C and Condensate Booster Pump C.

,QUESTION 73

The plant has been scrammed following a complete loss of Turbine Building Closed Cooling.

Why does ONI-P44, Loss of Turbine Building Closed Cooling require starting the Reactor Core Isolation Cooling (RCIC) System?

_____ A. Main Steam Isolation Valves may close due to the loss of Instrument Air requiring RCIC for RPV Pressure control.

_____ B. Main Steam Isolation Valves will close due to high Main Steam Tunnel Temperature requiring RCIC for RPV Pressure control.

_____ C. Reactor Feedwater Pumps may become unavailable due to high bearing temperatures requiring RCIC as a makeup source of water to the RPV.

_____ D. Reactor Feedwater Pumps will become unavailable due to high seal water temperatures requiring RCIC as a makeup source of water to the RPV.

QUESTION 74

The Control Room HVAC System (M25/26) is operating in the Normal mode when a radiological release from an unisolable Main Steam leak in the Turbine Building occurs.

The operator reports the following:

- CR AIRBORNE PARTICULATE D17-K778 has a HIGH alarm.
- CR AIRBORNE IODINE D17-K777 has a HIGH alarm.
- CR AIRBORNE GAS D17-K776 has an ALERT alarm.

Under these conditions, the Control Room HVAC System is operating in the:

_____ A. Normal mode with one train operating and the other train in standby.

_____ B. Normal mode with both trains operating.

_____ C. Emergency Recirculation mode with one train operating and the other train in standby.

_____ D. Emergency Recirculation mode with both trains operating.

QUESTION 75

The plant is operating at 50% reactor power when the following indications occur:

- A rapid increase in Main Steam Line Radiation Monitor indications
- A rapid increase in Off-Gas Pre-Treatment Radiation Monitor indication
- A rapid increase in Off-Gas Post Treatment Radiation Monitor indications
- An increase in Main Generator output of 20 Mwe

This was caused by a (an) __(1)__ and the appropriate procedure(s) to enter is (are) __(2)__.

	(1)	(2)
_____ A.	Organic Intrusion	ONI-N61, Condenser Tube Leak/Organic Intrusion
_____ B.	Organic Intrusion	ONI-N61, Condenser Tube Leak/Organic Intrusion and ONI-J11-1, Gross Fuel Cladding Failure
_____ C.	Control Rod Drop	ONI-C11-3, Control Rod Drop
_____ D.	Control Rod Drop	ONI-C11-3, Control Rod Drop and ONI-J11-1, Gross Fuel Cladding Failure

RO EXAM ANSWERS

1. b
2. c
3. d
4. d
5. b
6. c
7. b
8. a
9. d
10. c
11. a
12. c
13. d
14. c
15. a
16. d
17. d
18. c
19. b
20. d
21. b
22. b
23. d
24. a
25. c
26. c
27. d
28. a
29. d
30. c
31. c
32. b
33. c
34. b
35. b
36. a
37. d
38. d
39. d
40. a
41. d
42. c
43. a
44. d
45. c
46. d
47. a
48. c
49. a
50. c
51. a
52. c
53. d
54. d
55. b
56. c
57. d
58. c
59. c
60. c
61. c
62. d
63. b
64. d
65. b
66 c&d
67. d
68. c
69. a
70. b
71. c
72. c
73. c
74. a
75. d

SRO EXAM ANSWERS

1. b
2. b
3. d
4. a
5. b
6. a
7. c
8. d
9. d
10. c
11. a
12. c
13. c
14. a
15. d
16. a
17. d
18. c
19. b
20. c
21. d
22. a
23. b
24. c
25. a