

QUESTION 1

The following conditions exist:

- The plant scrammed from 100% RTP due to a Generator Load Reject
- Both Recirc pumps are tripped
- All immediate and follow-up scram actions of OT 3100 and EOP-1 are complete
- A normal RPV depressurization is in progress
- No other actions have been taken
- The crew is planning to restart a Recirc pump

Which ONE of the following systems or actions is currently minimizing the difference between the RPV steam dome saturation temperature and RPV bottom drain temperature?

- A. CRD
- B. RWCU
- C. Drywell cooling
- D. RPV depressurization

Ability to determine and/or interpret the following as they apply to
PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW
CIRCULATION: **AA2.06** Nuclear boiler instrumentation

CFR: 41.10/
43.5 / 45.13

QUESTION 2

A Loss of Normal Power (LNP) has occurred.
All equipment operated as expected post LNP.
The reactor building is NOT accessible due to high airborne activity.
Which ONE of the following identifies the correct action to take concerning the Vital MG Set?

- A. Transfer Vital AC to its alternate source.
- B. Secure the Vital MG.
- C. Restore the Vital MG to AC drive.
- D. Verify Vital MG returns to AC automatically.

QUESTION 3

RHR pumps 'A' and 'C' are running in the LPCI mode of operation when a loss of DC-2 and DC-3 occurs.

Assuming no operator action, which ONE of the following is correct?

- A. The 'A' RHR pump breaker cannot be operated from the control room and will NOT trip given an overcurrent condition.
- B. The 'A' RHR pump breaker cannot be operated from the control room but WILL trip given an overcurrent condition.
- C. The 'C' RHR pump breaker cannot be operated from the control room and will NOT trip given an overcurrent condition.
- D. The 'C' RHR pump breaker cannot be operated from the control room but WILL trip given an overcurrent condition.

Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER :

QUESTION 4

Given the following conditions:

- Reactor power is 60% and steady
- Main Generator output indicates 330 MWe and steady

An MHC hydraulic failure then occurs resulting in the sequential opening of several Turbine Bypass Valves over a 3 minute period that cannot be controlled or stopped.

Current plant conditions now include the following:

- Reactor power is 60% and steady
- Main Generator output indicates 100 MWe and steady

If the Main Generator then experienced a Generator Load Reject, which ONE of the following would be responsible for initiating the reactor scram?

- A. MSIV position.
- B. Turbine acceleration relay.
- C. Turbine stop valve position.
- D. Reactor pressure or neutron monitoring.

QUESTION 5

A plant startup is in progress with the main turbine synched to the grid and loaded.

Reactor power is steady at 300 MWt, when the main turbine trips due to low bearing lube oil pressure.

Which ONE of the following is correct for the above conditions?

- A. A Reactor SCRAM will NOT occur and the EPR WILL maintain control of reactor pressure regulation.
- B. A Reactor SCRAM will NOT occur and the MPR WILL take control of reactor pressure regulation.
- C. A Reactor SCRAM WILL occur when 3 or more Turbine Stop Valves reach the <90% full open position.
- D. A Reactor SCRAM WILL occur when RPV pressure reaches the reactor high pressure trip setpoint.

Knowledge of the interrelations between SCRAM and the following: Turbine trip logic - Plant-Specific

QUESTION 6

With the plant operating at 50% power, the control room became uninhabitable because of toxic gas.

Evacuation was ordered and only the INITIAL actions of OPOP-ALTSD-3126, SHUTDOWN USING ALTERNATE SHUTDOWN METHODS, were carried out.

At this point reactor water level supply is being maintained by which of the following systems?

- A. Reactor Feed Pumps and CRD.
- B. RCIC and CRD.
- C. HPCI and CRD.
- D. CRD Only

QUESTION 7

The plant is operating at full power.

The following control room annunciators are alarming:

- FUEL POOL CLG SYS TEMP HI (4-H-7)
- DWL EQMT DRN SUMP TEMP HI (4-L-3)
- RX BLDG EQMT DRN SUMP SOUTH TEMP HI (4-L-5)

Which ONE of the following indication(s) would also be expected?

- A. Recirc MG SET A/B BRG/OIL TEMP HI (4-D-4) control room annunciator alarming.
- B. Recirc PUMP A INNER SEAL LKG HI/LO (4-C-2) and PUMP B INNER SEAL LKG HI/LO (4-G-2) control room annunciators alarming.
- C. Drywell temperature rising.
- D. RRU 10, RRU 11, and RRU 12 tripped.

Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER and the following:

QUESTION 8

During an Instrument Air system leak the following air system response will occur:

Air compressors that are in LAG position will attempt to maintain air header pressure ____1____ psig and PCV-1, air header pressure control valve, will reach its full closure position at ____2____ psig inlet pressure.

- | | <u>1</u> | <u>2</u> |
|----|----------|----------|
| A. | 95 – 100 | 75 |
| B. | 95 – 100 | 80 |
| C. | 90 – 95 | 75 |
| D. | 90 – 95 | 80 |

QUESTION 9

VY is in a refueling outage.

Plant conditions are as follows:

- Reactor cavity is flooded
- Reactor pressure vessel head is removed

A loss of Shut Down Cooling occurs.

It is NOT possible to restart the RHR system in SDC mode.

Which ONE of the following is correct IAW ON 3156, 'Loss of Shutdown Cooling'?

- A. Establish a feed and bleed either by raising CRD flow and RCU letdown OR utilizing Condensate Transfer through the Core Spray system.
- B. Reactor Cavity fill should commence utilizing the Condensate Transfer system through the Fuel Pool Cooling system.
- C. Initiate Torus Cooling, per the Torus Cooling section of OPOP-RHR- 2124, 'Residual Heat Removal System'.
- D. Start a recirc pump per OP 2110, 'Reactor Recirculation System'.

QUESTION 10

The radiological consequences of the DBA Refueling Accident are limited by which of the following assumptions?

- A. Only a small number of fuel pins within the dropped fuel assembly are damaged and Normal Reactor Building Ventilation elevates the release pathway.
- B. Fuel pins in multiple fuel assemblies are damaged but Normal Reactor Building Ventilation elevates the release pathway.
- C. Only a small number of fuel pins within the dropped fuel assembly are damaged and the SBGT System filters and elevates the release pathway.
- D. Fuel pins in multiple fuel assemblies are damaged but SBGT System filters and elevates the release pathway.

2.4.6 Knowledge of EOP mitigation strategies.

|
Incorrect -According to the FSAR anywhere between 125-140 fuel pins will be damaged in multiple assemblies due to the dropped fuel element's impact.

Normal RB Ventilation will shutdown and SBTG will auto start on high Refuel Floor Rads.

Incorrect -Normal RB Ventilation will shutdown and SBTG will auto start on high Refuel Floor Rads.

Incorrect - According to the FSAR anywhere between 125-140 fuel pins will be damaged in multiple assemblies due to the dropped fuel element's impact.

Normal RB Ventilation will shutdown and SBTG will auto start on high Refuel Floor Rads.

Correct Response- According to the FSAR anywhere between 125-140 fuel pins will be damaged in multiple assemblies due to the dropped fuel element's impact.

Normal RB Ventilation will shutdown and SBTG will auto start on high Refuel Floor Rads.

41.10 /

43.5/45.13

QUESTION 11

Which ONE of the following correctly states the purpose of the Reactor Building to Torus vacuum breakers?

- A. To maintain the suppression chamber to Drywell differential pressure during post accident cooling operations to less than the design limit of 4 psid.
- B. To maintain the Reactor Building to primary containment differential pressure less than the 4 psid Drywell external design pressure limit.
- C. To maintain the suppression chamber to Drywell differential pressure during post accident cooling operations to less than the design limit of 2 psid.
- D. To maintain the Reactor Building to primary containment differential pressure less than the 2 psid Drywell external design pressure limit.

QUESTION 12

The crew has entered EOP-1, RPV Control, following a SCRAM and Loss of Normal Power (LNP) during a reactor startup.

The following conditions exist:

- Reactor pressure is 1045 psig and rising slowly
- Entry conditions for EOP-3 "Primary Containment Control" have NOT been satisfied
- The CRS is in the RPV Pressure Control "leg" of EOP-1 and has indicated that he intends to use SRVs to stabilize RPV pressure control

The Control Room Supervisor requests that you confirm that Torus Level is above 5.5 ft.

What is the basis for the 5.5 ft. torus level?

- A. This is the Torus Load Limit above which chugging is avoided.
- B. This is the Heat Capacity Temperature Limit at 1055 psig reactor pressure.
- C. This level is required to provide submergence of the SRV T-quencher.
- D. This level is required to ensure adequate NPSH for the Core Spray pumps.

Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE:

The Heat Capacity Temperature Limit is both a function of Torus level and Reactor pressure.

Operation of the SRVs is limited to torus water levels above 5.5 feet, the elevation of the top of the SRV T-quencher. If torus water level is below 5.5 feet, steam discharged through the SRVs would pass directly into the torus airspace.

Adequate NPSH for the Core Spray Pumps is directly related to Torus Level.

Part 55 Content: 55.41 X

QUESTION 13

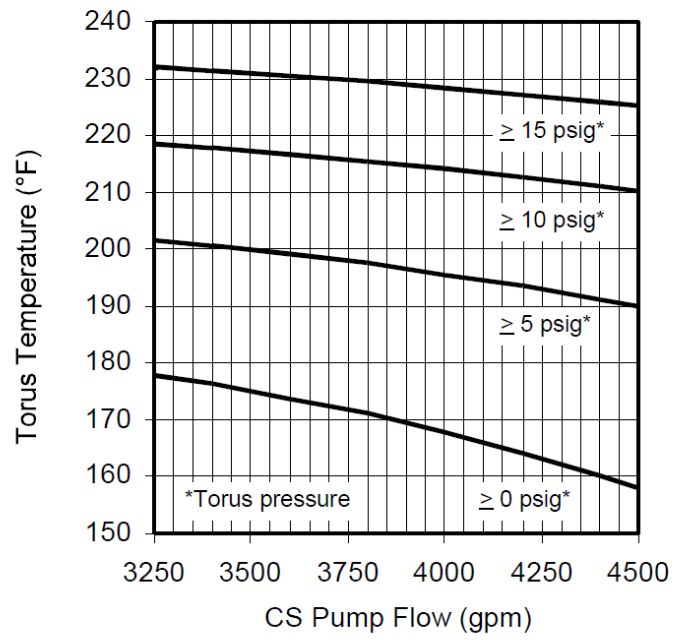
A loss of coolant accident has occurred, with the following conditions:

- The RPV has been depressurized
- Core spray is injecting and maintaining RPV level
- Torus water temperature is 195 °F
- Torus pressure is 6 psig
- Drywell pressure is 9 psig

Which ONE of the following states the maximum Core Spray flow (gpm) that may be used for RPV injection:

- A. 3400
- B. 3750
- C. 4050
- D. 4350

CS NPSH Limit



QUESTION 14

The plant is operating at power when the following occurs:

- A small steam leak occurs in the drywell
- Drywell temperature is 160 °F and rising slowly

EOP-3, Primary Containment Control, directs “When drywell temperature cannot be maintained below 160 °F”, then maximize drywell cooling, defeating interlocks if necessary.

The reason to maximize drywell cooling at this time is to prevent exceeding ____?____.

- A. Heat Capacity Temperature Limit.
- B. Component Environmental Qualification.
- C. Drywell Design Temperature.
- D. Drywell Spray Initiation Limit.

Inc

he maximum normal operating temperature assumed in the drywell environmental qualification program analysis is 160F.

The Drywell Spray Initiation Limit (DWSIL) is the highest drywell temperature at which initiation of drywell sprays will not result in an evaporative cooling pressure drop to below atmospheric pressure, 0 psig. However, the limit is based on a second variable, drywell pressure, and NOT drywell temperature alone.

QUESTION 15

An ATWS condition with a Group 1 isolation and SLC failure has occurred with the following current conditions:

- All rods have been inserted
- Torus temperature is 205 °F and rising
- Torus level is 9 ft and lowering
- Reactor pressure is 860 psig and rising slowly

The CRS determines that an RPV-ED is required due to violation of HCTL limits.

This RPV-ED is performed to avoid which ONE of the following?

- A. Exceeding drywell temperature structural design limits.
- B. Damaging SRV downstream piping during RPV Emergency Depressurization
- C. Overpressurizing the Primary Containment during RPV Emergency Depressurization.
- D. Excessive hydrodynamic loading on downcomer piping during RPV Emergency Depressurization.

QUESTION 16

With a LOCA signal present and reactor water level being maintained +30 inches rising slowly, which one of the following MUST be performed to open torus spray valves RHR-38A & RHR-38B?

- A. The RHR LOGIC CTMT SPRAY VLV SHROUD LVL OVRD keylock switch must be taken to MANUAL OVERRIDE.
- B. The RHR LOGIC CTMT SPRAY VLV LPCI SIG BYPASS pistol grip switch must be taken to MANUAL.
- C. The LPCI injection valves must be closed.
- D. The injection valve UPS FDR SIG BLOCK switch must be taken to BLOCK.

his is a position on the key-lock switch will not allow the torus spray valves to be opened with a LOCA signal present.

The RHR LOGIC CTMT SPRAY VLV LPCI SIG BYPASS pistol grip switch must be taken to MANUAL to open Torus spray valves RHR-38-A/B with a LOCA signal present.

LPCI injection valves closed the torus spray valves will not be allowed to be opened with a LOCA signal present. The RHR LOGIC CTMT SPRAY VLV LPCI SIG BYPASS pistol grip switch must be taken to MANUAL.

The RHR LOGIC CTMT SPRAY VLV LPCI SIG BYPASS pistol grip switch must be taken to MANUAL.

QUESTION 17

A failure to SCRAM has occurred and the crew is taking actions per EOP-2, ATWS RPV Control. The following conditions exist:

- RPV pressure is being maintained 800-1000 psig with the SRVs
- RPV level is being maintained -19 inches to +90 inches with feedpumps
- Hot Shutdown Boron Weight has been injected into the RPV
- Rods are being inserted manually, 40 rods are still at position 48

Which ONE of the following statements is correct for the above conditions?

- A. The reactor is NOT shutdown since more than one rod is not fully inserted.
- B. The reactor IS shutdown and operators must commence a plant cooldown.
- C. The reactor is NOT shutdown until the Cold Shutdown Boron Weight has been injected.
- D. The reactor IS shutdown and will remain shutdown only if pressure is maintained within current limits.

QUESTION 18

With the reactor at 100% power, both AOG system outlet radiation monitors reached their High – High alarm setpoints.

Their timer has timed out and isolation valves have automatically closed due to excessive off gas radiation levels.

ON 3152, Off Gas High Radiation, directs the operator to:

- A. Scram the reactor only.
- B. Scram the reactor and close the MSIVs.
- C. Place the shutdown iodine filter in service.
- D. Reduce recirc flow to 28.5-29.5 Mlbm/hr at 10% CTP/minute.

lace the Shutdown Iodine Filter in service per OP 2150.

QUESTION 19

An electrical fire is burning in MCC-89A.
The fire brigade wants to use water to fight the fire.

Which ONE of the following is correct IAW OP 2186, 'Fire Suppression Systems'?

- A. MCC-89A MUST be de-energized.
The Shift Manager's permission is required to use water on an electrical fire.
- B. MCC-89A MUST be de-energized.
The Fire Brigade Commander's permission is required to use water on an electrical fire.
- C. MCC-89A SHOULD be de-energized.
The Shift Manager's permission is required to use water on an electrical fire.
- D. MCC-89A SHOULD be de-energized.
The Fire Brigade Commander's permission is required to use water on an electrical fire.

electrical equipment involved in, or in the vicinity of a fire, should be de-energized if possible, and only when so directed by the Shift Manager.

QUESTION 20

The "A" Emergency Diesel Generator (EDG) has just completed its monthly surveillance test.

While the stopping relay is timing out, a Loss of Normal Power (LNP) occurs.

Which ONE of the following describes the operator actions, if any, for an "A" EDG auto start and loading?

- A. No operator action is required.
The EDG will auto start and load WHILE the stopping relay is timing out.
- B. No operator action is required.
The EDG will auto start and load AFTER the stopping relay times out.
- C. The EDG will auto start and load after the AT ENGINE/REMOTE switch is placed in AT ENGINE, the shutdown relay is reset locally, the stopping relay times out, and the local AT ENGINE/REMOTE switch is returned to REMOTE.
- D. The EDG will auto start and load after the shutdown relay is reset locally and the stopping relay times out.
The position of the AT ENGINE/REMOTE switch has no affect on EDG auto start capabilities under LNP conditions.

No EDG start occurs when the stopping relay is timing out.

The shutdown relay also needs to be reset and the AT ENGINE/REMOTE switch must be in remote.

The shutdown relay needs to be reset and the AT ENGINE/REMOTE switch must be in remote. Additionally the stopping relay must time out.

The AT ENGINE/REMOTE switch must be in remote for an auto start.

QUESTION 21

The plant is operating at 100% power.

The following indications are then observed:

- AOG inlet flow increases
- COND VAC LO (7-H-3) alarm is in
- Steam seal pressure is zero

Which procedure addresses ALL of the above indications?

- A. ON 3151, Off Gas Explosion/Rupture Disc Failure.
- B. OT 3120, Condenser High Back Pressure.
- C. OP 2160, Turbine Generator Support System Operation.
- D. OPOP-AOG-2150, Advanced Off-Gas System and Air Evacuation Equipment.

QUESTION 22

During normal full power operations, the plant suffers a line break which results in the following plant parameters:

Reactor pressure - 700 psig (steady)

Drywell pressure - 2.1 psig (steady)

Reactor water level - 72 inches (steady)

Choose the statement which most accurately describes the present and/or future status of the Core Spray system.

- A. Pumps are running now, and injection will commence when reactor pressure drops to < 350 psig.
- B. Pumps start in 8 minutes and injection valves open when reactor pressure drops to < 350 psig.
- C. Pumps start in 8 minutes and injection valves open 2 minutes later.
- D. Pumps are running now, and injection will commence after the 8 minute timer times out.

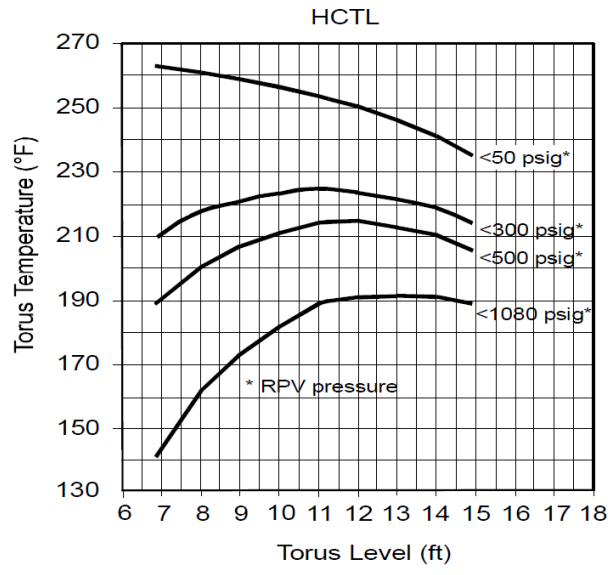
QUESTION 23

A LOCA occurs from power operation causing a reactor SCRAM and the following conditions:

- Torus level is 12 ft and steady
- Torus temperature is 140 °F and rising
- RPV pressure is 800 psig and steady

For the present RPV pressure and Torus level, what is the LOWEST approximate Torus temperature that will require an EOP-5 Emergency Depressurization?

- A. 192 °F
- B. 215 °F
- C. 225 °F
- D. 250 °F



°F

°F is a plausible answer.

°F is a plausible answer.

°F is a plausible answer.

QUESTION 24

A LOCA has occurred and EOP-3, "Primary Containment Control", has been entered. The CRS is about to order you to spray the drywell with RHR but first asks you to verify torus level is below 23 ft.

The concern for this is that if torus level is above 23 feet, then:

- A. Torus level will cause RHR to cavitate.
- B. Torus capacity is insufficient to accept spray water.
- C. Torus-Drywell vacuum breakers may be submerged.
- D. Torus spray header may be submerged.

High torus water level provides increased NPSH and prevents cavitation.
No outside source of water is used to spray the drywell so level won't rise.

Torus water level is verified < 23 feet to ensure Torus-to-Drywell vacuum breakers operability

The torus spray header won't be placed in service.

QUESTION 25

Which ONE of the following describes how the Reactor Building is protected from excess positive differential pressure?

- A. Blowout panels installed at various locations.
- B. Only operator action is available to maintain safe Reactor Building differential pressure.
- C. The Reactor Building door seals will leak sufficiently to prevent excess differential pressure.
- D. The Standby Gas Treatment System is not capable of achieving a differential pressure sufficient to damage the Reactor Building.

QUESTION 26

The following plant conditions exist:

- A seismic event has caused the torus suction lines to both Core Spray loops to crack downstream of the Core Spray Suction (CS-7A, B) valves
- The cracks result in the water level in the NE and SE Corner Rooms to reach 2 inches and 4 inches above the floor respectively
- Except for this leak the plant continues to operate normally at full power
- Efforts to repair the leak have been unsuccessful
- Torus water level is 9.5 ft and lowering slowly

Which ONE of the following actions is required at this time?

- A. Isolate both Core Spray suction lines from the torus.
- B. Maintain both the Core Spray suction lines aligned to the torus.
- C. Transfer the Core Spray suction for both loops to the CST.
- D. Scram reactor and perform an Emergency RPV Depressurization.

EOP-4 Step SC/-1 requires both Core Spray suction lines to be isolated because they are not required to be operated by the EOPs. Candidate may evaluate that criteria is not met to disable an ECCS system.

Transferring the Core Spray suction lines from the Torus to the CST will just allow the CST to drain into the Corner Rooms.

There is no need to scram the plant and RPV-ED assuming the leaks can be isolated by closing CS-7A/B. Torus water level is 9.5'. EOP-3 requires scram & RPV-ED when level cannot be maintained above 7".

QUESTION 27

The subsystems of the Containment Atmosphere Dilution (CAD) system include which ONE of the following:

- A. Three defrostable-fan ambient vaporizers for conversion of liquid nitrogen to gas.
- B. Piping and valves which allow nitrogen from a temporary manifold to flow into the drywell or torus.
- C. A hard piped vent path to allow venting of the drywell and/or torus directly to the main plant exhaust stack.
- D. A 15,000 gallon liquid nitrogen storage tank which contains sufficient volume for a system purge plus several weeks of make-up operation.

QUESTION 28

A ground has been detected on Bus DC-2.

Ground meter indication is +40 VDC.

Under these conditions, DC-2 loads ____1____ operate correctly, and the actions of OP 2145, Section B 'DC Ground Response' ____2____ to be performed.

- A. 1
will 2
is required
- B. will not is required
- C. will is not required
- D. will not is not required

the DC system is designed such that operability is maintained following receipt of a solid ground fault. Any magnitude of ground fault (including a solid fault) can be tolerated without compromising proper operation of the respective 125 VDC circuits, including those associated with relay types most sensitive to the effects of ground faults. Additionally, Precaution 5 of OP 2145 states that Section B, 'DC Ground Response' should be performed when DC-1, DC-2, DC-1AS, or DC-2AS battery ground voltage readings exceed 45VDC..

QUESTION 29

In accordance with OPON-3153-01, Excessive Radiation Levels, which one of the following indications would alert an operator of a possible leak into the Reactor Building Closed Cooling Water (RBCCW) system?

- A. A rise in suction pressure to the RBCCW Pumps and a concurrent lowering of the Fuel Pool water level.
- B. Hi radiation alarm on the RBCCW Process Radiation Monitor and rising level in the RBCCW Surge Tank.
- C. A rise in the radiation levels in the vicinity of RBCCW system piping or components and high temperatures on the operating CRD Pump.
- D. Hi radiation alarm on the Service Water (SW) Process Radiation Monitor with concurrent indication of a RBCCW heat exchanger tube leak.

Knowledge of the physical connections and/or cause-effect relationships between COMPONENT COOLING WATER SYSTEM and the following:
K1.03 Radiation monitoring systems

There is no correlation between a lowering fuel pool level and rising RBCCW suction pressure.

Per ON-3153, If the RBCCW radiation monitor indicates a high radiation level: Isolate the RCU system and check surge tank level indication to determine if the leak has been isolated, If the RBCCW surge tank level continues to increase, shift to the standby fuel pool cooling heat exchanger and continue to monitor surge tank level.

-Rising rad levels around RBCCW piping is a valid indication of a leak per OP-2182, P&L #1 Be aware of normal radiation levels in the vicinity of the system. Any appreciable rise in these radiation levels can indicate a possible leak into the RBCCW system. RBCCW supplies bearing and oil coolers on the CRD Pump, therefore, high CRD pump temperatures could indicate a lower RBCCW flow and not a leak into the RBCCW system.

Incorrect - A high radiation level in the SW system would indicate a leak into the SW system however by OP 2181 App B the SW system is maintained at a higher pressure than the RBCCW system, so leakage would be into the RBCCW system.

CFR 41.2 to 41.9 /
45.7 to 45.8

QUESTION 30

An ADS blowdown is in progress with all RHR and Core Spray pumps running when the pump discharge pressure switches for RHR pumps 'A' & 'C', and Core Spray pump 'A' fail to the low discharge pressure condition.

Which ONE of the following describes how the ADS system will respond?

- A. The blowdown will continue with SRVs RV2-71A, and C only.
- B. The blowdown will continue with SRVs RV2-71B, and D only.
- C. The blowdown will continue with SRVs RV2-71A, B, C, and D.
- D. SRVs RV2-71A, B, C, and D will close and the blowdown will stop.

QUESTION 31

The Mode switch is in "RUN" and the plant is at full power.

APRM downscale alarm has come in and APRM "E" indicates downscale on the CRP 9-5 bench board.

The BOP is sent to the APRM cabinet to investigate.

The BOP inadvertently positions the APRM "E" Mode Switch from the "Operate" to the "Standby" position.

This action will cause which one of the following?

- A. Alarm only.
- B. Alarms and rod block only.
- C. Alarms, rod block and $\frac{1}{2}$ scram on RPS "A".
- D. Alarms, rod block and $\frac{1}{2}$ scram on RPS "B".

rod block (withdrawal) and 1/2 scram received also.

1/2 scram received also.

unction switch out of "OPERATE" causes alarms, rod block (withdrawal) and 1/2 scram on RPS system "A".

APRM "E" is assigned to RPS system "A".

QUESTION 32

The reactor was scrammed from rated power.

EOPs have been entered.

At time 1200, plant conditions are follows:

- Reactor pressure is 430 psig and lowering at 10 psig/minute
- Reactor level is +75 inches and lowering
- Drywell pressure is 1.6 psig and stable
- UPS FDR TRIP keylock switches are in BLOCK

At time 1215, which ONE of the following describes the status of the RHR system?

- A. All RHR pumps are running, LPCI is not injecting.
- B. No RHR pumps are running, LPCI injection valves are open.
- C. RHR is injecting in the LPCI mode, OUTBD INJECTION RHR-27A/B CAN be throttled by the operator to maintain RPV level.
- D. RHR is injecting in the LPCI mode, OUTBD INJECTION RHR-27A/B CANNOT be throttled by the operator to maintain RPV level.

QUESTION 33

Following a transient the following plant conditions exist:

- RHR pumps 'A' and 'C' are injecting to the vessel maintaining RPV level above 127 inches

- with the RHR-27A, Outboard Injection Valve, throttled.
- RHR pump 'B' is in torus cooling.

The operators then determine that the suction strainer for RHR pumps 'A' and 'C' are becoming plugged by debris.

In accordance with the station procedures the operators should:

- A. Secure either RHR pump 'A' or 'C' and leave the idle pump's discharge valve open so that the running pump flow can backwash the filter.
RHR pump 'B' should be left in Torus cooling.
- B. Secure either RHR pump 'A' or 'C' and commence injection to the RPV with RHR pump 'B'.
- C. Secure either RHR pump 'A' or 'C', if not required to maintain adequate core cooling.
- D. If possible, place RHR Loop 'A' in Torus cooling and use RHR pumps 'B' and 'D' to maintain RPV level.

The sequence/steps are not in accordance with procedural direction

The sequence/steps are not in accordance with procedural direction

Correct per the procedure. OPPP-0718, Attachment 9, EOP-1, Section 6, Rev. 15, page 18 & 19 The flowcharts, to ensure compliance with VY's design basis, prohibit exceeding NPSH limits in any procedure steps that would be used during a design basis accident. Both RHR A & C are not required to maintain adequate core cooling. if RHR-27A is throttled.

The sequence/steps are not in accordance with procedural direction.

OPPP-0718, Attachment 9, EOP-1,
Section 6, Rev. 15, page 18 & 19

QUESTION 34

Shutdown cooling is being placed in service IAW OPOP-RHR-2124, Section 7.7.

The simultaneous opening of RHR-56, LOOP B FLUSHING CONN FROM CONDENSATE TRANSFER, and RHR-75, LOOP A FLUSHING CONN FROM CONDENSATE TRANSFER, will cause which ONE of the following to occur?

- A. A cross-tie of the RHR loops.
- B. Reactor water temperature stratification.
- C. A greater than expected reactor water cooldown rate.
- D. A Group 4 PCIS isolation due to a pressure spike caused by steam voids at high points collapsing.

QUESTION 35

HPCI is injecting to the reactor vessel with the flow controller in MANUAL at 1000 GPM. Reactor pressure rises from 850 psig to 950 psig.

Which ONE of the following describes the effect on HPCI, steady state to steady state?

- A. RPM will rise, pump flow will rise.
- B. RPM will rise, pump flow will remain constant.
- C. RPM will remain constant, pump flow will remain constant.
- D. RPM will remain constant, pump flow will lower.

manual control maintains a constant speed

manual control maintains a constant speed

Flow will decrease as pressure rises with speed constant

With the controller in manual it maintains a constant RPM. As RPV pressure rises, with the pump at the same RPM, pump flow drops since the higher RPV pressure offers more resistance.

QUESTION 36

Immediately after a LOCA, the following events also occur:

- Loss of Normal Power (345kv and 115 kV yards lost)
- 'B' EDG fails to start

Two minutes later, the following conditions are present:

- Drywell pressure is 4 psig
- Reactor pressure vessel is 250 psig
- Reactor water level is +80.0 inches
- The 4 kV Bus 3 is re-energized from the Vernon tie

Which ONE of the following describes the events upon Bus 3 re-energization?

- A. Core Spray pump 'B' starts immediately.
CS-12B PUMP DISCHARGE opens immediately.
- B. Core Spray pump 'B' starts immediately.
CS-12B PUMP DISCHARGE opens after a 10 second time delay.
- C. Core Spray pump 'B' starts after a 10 second time delay.
CS-12B PUMP DISCHARGE opens immediately.
- D. Core Spray pump 'B' starts after a 10 second time delay.
CS-12B PUMP DISCHARGE opens after a 10 second time delay.

QUESTION 37

The CRO notices that one of the squib continuity lights is out on CRP 9-5. Which ONE of the following is available to verify the continuity of power to the squib valves?

- A. CRP 9-5 annunciator.
- B. ERFIS computer point.
- C. Indicating lights near the local control switches.
- D. Two ammeters behind CRP 9-5.

Two ammeters behind CRP 9-5 will verify squib valve continuity if meter reads > 0.1 milliamp

QUESTION 38

The SCRAM Discharge Volume (SDV) Water Level Bypass keylock switch was placed in BYPASS to reset a SCRAM, and remains in the BYPASS position.

Which ONE of the following ensures that a SCRAM will still occur on SCRAM DISCH VOL WTR LEVEL HI during the ensuing startup?

- A. The SDV Water Level Bypass switch is active only after a valid RPS SCRAM signal is received.
- B. The SDV high level SCRAM is automatically re-enabled when RPS sub-channels 'A3' and 'B3' are re-energized.
- C. The SDV high level SCRAM is automatically re-enabled when the SDV is drained below the high level SCRAM setpoint.
- D. The SDV Water Level Bypass switch is disabled when the Reactor Mode Switch is placed in STARTUP/HOT STANDBY.

The SDV Water Level Bypass switch is bypassed when the Reactor Mode Switch is placed in STARTUP/HOT STANDBY.

QUESTION 39

Given the following conditions:

- The Mode Switch is in STARTUP
- A 1/2 scram has been inserted on RPS 'B' due to a recirc flow comparator malfunction
- APRM "C" IS BYPASSED

IRM 'C' fails such that annunciator IRM 'A', 'C', or 'E' UPSCALE TRIP OR INOP is received.

Which ONE of the following describes the plant condition after the IRM 'C' malfunction?

- A. A rod block is generated by the Rod Block circuitry but a full Scram is NOT received.
- B. A rod block is generated by the Rod Block circuitry and a full Scram is received.
- C. A rod block is NOT generated by the Rod Block circuitry AND a full Scram is NOT received.
- D. A rod block is NOT generated by the Rod Block circuitry but a full Scram is received.

Knowledge of the effect that a loss or malfunction of the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM will have on following: (CFR 41.7 / 45.4): Reactor manual control

QUESTION 40

Plant conditions are as follows:

- Reactor startup in progress
- Source Range Monitor (SRM) detectors are being withdrawn from the core with the following Intermediate Range Monitor (IRM) system conditions:

<u>IRM</u>	<u>/</u>	<u>Range</u>
A	/	3
B	/	4
C	/	2
D	/	Channel is bypassed
E	/	3
F	/	5

While being withdrawn, the indication for the 'B' SRM Channel drops to 30 CPS.

Which ONE of the following identifies the alarm that will be received and the status of control rod withdrawal block?

<u>Alarm</u>	<u>Control Rod Withdrawal Block</u>
A. 5-P-4, 'SRM DWNSCL'	Active
B. 5-P-4, 'SRM DWNSCL'	Not active
C. 5-P-6, 'SRM RETRACT NOT PERMITTED'	Active
D. 5-P-6, 'SRM RETRACT NOT PERMITTED'	Not Active

QUESTION 41

The reactor is operating at 80% power and APRM C is bypassed on CRP 9-5.

Assuming no operator action, which ONE of the following sets of conditions will initiate a full reactor SCRAM?

- A. APRM A INOP trip AND APRM E- High-High.
- B. APRM B High-High AND APRM D- INOP.
- C. APRM A INOP AND APRM B- INOP.
- D. APRM B High-High AND APRM F- INOP.

Knowledge of AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM design feature(s) and/or interlocks which provide for the following: (CFR 41.7): Reactor SCRAM signals

These conditions only result in a half scram on RPS Channel "A".

These conditions only result in a half scram on RPS Channel "B".

This will result in a full scram.

These conditions only result in a half scram on RPS Channel "B".

QUESTION 42

Due to a security event, the Control Room has been abandoned and RCIC is being used to control RPV level from the Alternate Shutdown Panel IAW OPOP-ALTSD-3126.

RPV level is raised to 180 inches.

Which ONE of the following is correct for these conditions?

- A. An automatic RCIC Shutdown will NOT occur.
- B. RCIC-1 TRIP THROTTLE VALVE, and RCIC-27 MINIMUM FLOW will close.
- C. RCIC-1 TRIP THROTTLE VALVE, RCIC-131 STEAM SUPPLY, and RCIC-132 COOLING WATER will close.
- D. RCIC-1 TRIP THROTTLE VALVE, RCIC-15 STEAM ISOLATION, RCIC-16 STEAM ISOLATION, and RCIC-39 PUMP SUCTION will close.

QUESTION 43

The normal power supply to ADS Logic "A" is 1.

The normal power supply to SRV solenoids is 2.

1 2

- A. DC-1C DC-1C
- B. DC-1C DC-2C
- C. DC-2C DC-1C
- D. DC-2C DC-2C

Knowledge of electrical power supplies to the following: (CFR 41.7): ADS logic

The normal power supply for ADS logic "A" is DC-2C; The normal power supply for the SRVs is DC-2C.

The normal power supply for ADS logic "A" is DC-2C

The normal power supply for the SRVs is DC-2C.

DC-2C; DC-2C The normal power supply for ADS logic "A" is DC-2C; The normal power supply for the SRVs is DC-2C.

QUESTION 44

During normal full power operation, a recirculation system line rupture results in reactor water level dropping to +80 inches.

Which ONE of the following lists all of the expected PCIS Group isolations?

- A. 1, 2, 3, 5, 6.
- B. 2, 3, 4, 5.
- C. 1, 3, 4, 5, 6.
- D. 1, 2, 3, 4, 5.

QUESTION 45

Analyze the following:

- Torus temperature is 73°F and rising 2°F/5 min
- RPV level has dropped about 1 inch
- Generator MWe load has dropped 10 MWe
- Steam flow is 2% LOWER than indicated feed flow
- 'C' SRV tailpipe temperature reads 242°F and rising slowly
- "RX RELIEF VLV OPEN" alarm (CRP 3-A-1) is not illuminated
- "RX RELIEF/SAFETY VLV TEMP HI" alarm (CRP 3-B-4) is illuminated

Your required actions are to:

- A. Place torus cooling in service as required to maintain temperature.
- B. Cycle the 'C' SRV control switch from AUTO to OPEN to AUTO.
- C. Place the ADS APPENDIX R BYPASS Switch in BYPASS.
- D. Pull the associated control power fuses for the 'C' SRV.

: As "C" SRV is leaking, actions are required to place torus cooling in service to maintain torus temperature.

These actions are required for an OPEN SRV.

These actions are performed if cycling the switch for the SRV fails to close the OPEN valve.

This is performed if actions listed in answers B and C fail to work

OT 3121

LOT-00-602

QUESTION 46

HPCI is operating normally, injecting to the RPV, with suction from the CST.

Subsequently, a loss of DC-1B occurs.

Assuming no operator action, which ONE of the following will occur?

- A. HPCI will continue running but will trip when the CST is emptied.
- B. HPCI will immediately trip due to a loss of power to the Aux Oil pump.
- C. HPCI will immediately trip due to a loss of power to the Turbine Governor system.
- D. HPCI will continue operating but will NOT isolate (at least one isolation valve closed) on a subsequent valid line break isolation signal.

QUESTION 47

Which ONE of the following describes the operation of the SBGT system 9 KW Heater?

The heater is on when the ...

- A. SBGT fan is off with high humidity sensed.
- B. SBGT fan is running with high humidity sensed.
- C. SBGT fan is running with normal flow and a low inlet temperature.

D. SBGT fan is running regardless of flow or inlet temperature.

QUESTION 48

The following alarm is the result of an electrical grid transient:

- 8-C-6, TIE LINE K1 LOSS

There are no other alarms in.

Based on this indication, which ONE of the following has been lost?

- A. T-1 Auto Transformer.
- B. T-4 Auto Transformer.
- C. T-1 AND T-4 Auto Transformers.
- D. T-3A AND T-3B Startup Transformers.

QUESTION 49

While operating at 100% power, an electrical transient results in a sustained loss of DC-1.

With no operator action, which ONE of the following is true?

- A. The outboard MSIVs will lose position indication and will close.
- B. The outboard MSIVs will lose position indication and remain open.
- C. The inboard MSIVs will lose position indication and will close.
- D. The inboard MSIVs will lose position indication and remain open.

The outboard MSIVs are not affected by a loss of DC-1.
The outboard MSIVs are not affected by a loss of DC-1.
The valves will not shut since the solenoids still have power from Vital AC.
An indication is lost and the valves remain open since Vital AC power is still available to the solenoids..

QUESTION 50

An electrical transient has occurred resulting in the following:

- VITAL MG SET DC LOSS/DC RUN (8-P-8)
- BUS 8 MCC TROUBLE (8-J-8)
- Bus 8 voltage is 480VAC
- Bus 9 voltage is 480VAC
- FWLC and FRVs remain in automatic

Which ONE of the following electrical power supplies is supplying power to the Vital AC MG?

- A. DC-1 is currently supplying power.
- B. DC-3 is currently supplying power.
- C. MCC-8B is currently supplying power.
- D. MCC-9A is currently supplying power.

QUESTION 51

During power operations, the following occurs:

- Drywell pressure rises to 4 psig
- The 3T1 breaker trips on overload

Which ONE of the following statements accurately describes the load response once the diesel re-energizes the bus?

- A. The RHR and Core Spray pumps start immediately, the SW pump sequences on in 10 seconds.
- B. The SW, RHR, and Core Spray pumps start immediately since their breakers are already closed.
- C. The SW pump and Core Spray pumps start immediately, followed by one RHR pump and finally the second RHR pump.
- D. The SW pump and one RHR pump starts immediately followed by the second RHR pump and finally the Core Spray pump.

**Knowledge of EMERGENCY GENERATORS (DIESEL/JET) design feature(s) and/or interlocks which provide for the following:
K4.05: Load shedding and sequencing**

The SW pump starts immediately, CS pump starts are delayed.

Core spray and one RHR pump starts are delayed by 10 seconds and 5 seconds respectively.

Core Spray pump start is delayed

Correct loading has the SW and one RHR pump start immediately, followed by one RHR pump (5 seconds) and then the Core Spray pump (10 seconds)

QUESTION 52

The 'C' station air compressor is in service in the LEAD mode of operation, with the following conditions present:

- Header air pressure is 100 psig
- Low pressure stage outlet temperature is 480 °F
- Oil pressure is 25 psig

Which ONE of the following correctly describes the status of the 'C' station air compressor?

- A. The compressor tripped on low oil pressure.
- B. The compressor has continued normal operations.
- C. Pressure switch PS-105-39C has actuated to unload the compressor.
- D. The compressor tripped on high outlet temperature on the low pressure stage.

°F. Therefore, a Low Pressure Stage outlet temperature of 480 °F will trip the 'C' Station Air Compressor.

QUESTION 53

The plant is operating at 100% RTP with the 'A' RBCCW pump running and the 'B' RBCCW pump in standby.

An electrical transient results in the sustained loss of Bus 9.

Prior to cross connecting buses 8 and 9, which ONE of the following describes the effect on the RBCCW system?

- A. The Standby RBCCW pump will auto start AND power is lost to RCW-117, Drywell RRU Cooling Water Return.
- B. The Standby RBCCW pump will auto start.
RCW-117, Drywell RRU Cooling Water Return, continues to have power.
- C. Power is lost to the RBCCW pump in standby AND power is lost to RCW-117, Drywell RRU Cooling Water Return.
- D. Power is lost to the RBCCW pump in standby.
RCW-117, Drywell RRU Cooling Water Return, continues to have power.

Knowledge of electrical power supplies to the following: (CFR 41.7):
CCW valves

RCW-117 is powered from MCC-8B and remains energized.

RCW-117 is powered from MCC-8B and remains energized.

RCW-117 is powered from MCC-8B and remains energized.; The "B" RBCCW pump is powered from Bus 8 and remains energized.

The "B" RBCCW pump is powered from Bus 8 and remains energized.

QUESTION 54

Which ONE of the following events requires the Operator to place the NOTCH OVERRIDE switch to the EMERGENCY IN position?

- A. Simultaneous multiple drifting control rods.
- B. Sustained SRM period shorter than 30 seconds.
- C. An outward drifting control rod when there is an RMCS timer malfunction.
- D. A control rod is to be inserted following a double-notching event on a rod withdrawal.

QUESTION 55

Given the following conditions:

- The plant is operating at 90% power
- The Feed Flow Summer has just failed downscale as indicated on the Steam Flow /Feed Flow Recorder (FR 6-97)
- Indicated reactor water level on the selected Narrow Range GEMAC is 164 inches and rising
- Assume no Operator actions are taken

Which of the following describes the expected response of the Recirc Pumps for these conditions?

The Recirc Pumps...

- A. will runback to 20% speed.
- B. scoop tubes will lockup.
- C. will runback to 30% speed.
- D. will be unaffected

Recirc Pump auto runback will occur when the selected feed flow control channel is less than 20% flow with a 15 sec. Time delay.

No condition for scoop tube lock-up has been met. Scoop Tubes will reposition to allow runback to 20% speed

Runback to 20% speed will occur (not 30%)

Unless operators switch the FWLC to single-element control the Recirc Pumps will runback.

QUESTION 56

A full core Local Power Range Monitor (LPRM) calibration is in progress with the Traversing In-Core Probe (TIP) system when the following occurs:

- A fault in the feedwater control system results in the tripping of all feedwater pumps
- RPV level lowers to 75 inches before RCIC and HPCI inject and restore RPV level

Given these conditions, what (if any) AUTOMATIC actions associated with the TIP System will occur?

- A. No automatic actions occur.
- B. The Shear Valve fires when RPV level lowers to 82.5 inches.
- C. The TIP drive retracts the TIP detector when RPV level lowers to 127 inches.
- D. The TIP drive retracts the TIP detector when RPV level lowers to 127 inches AND the Shear Valve fires when RPV level lowers to 82.5 inches.

QUESTION 57

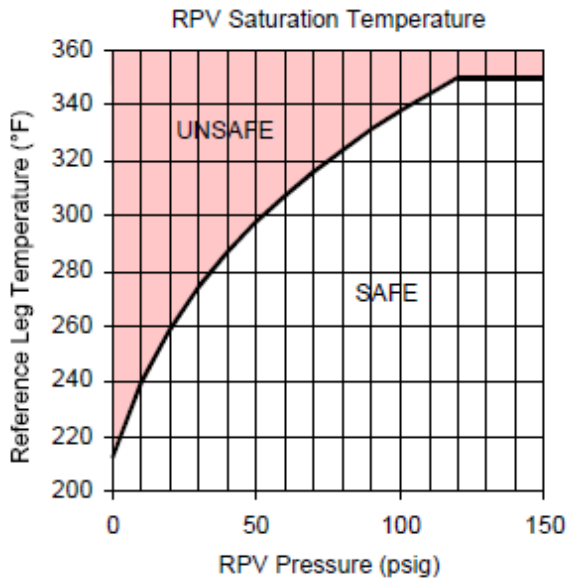
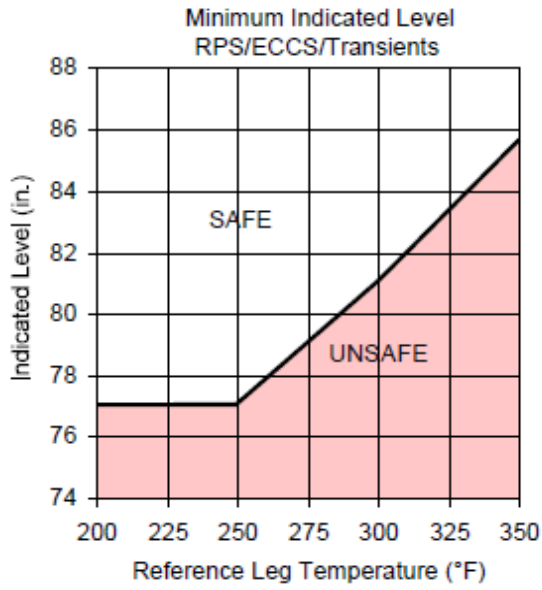
Given the following conditions:

- The plant experienced a small LOCA in which level initially dropped below 82.5 inches
- The reactor is currently shutdown
- The drywell temperature is 300 °F
- The reference leg temperature is 290 °F
- Reactor pressure is 35 psig
- Shroud (LT-2-3-73 A(B)) level is 10 inches and rising
- Wide Range (LT-2-3-70) level is 60 inches and rising

Which ONE of the following describes the reactor vessel water level indication?

(See attached references)

- A. Reactor vessel water level may be unreliable because of degraded containment parameters.
- B. Reactor vessel water level is 10 inches because the Shroud Level instrument is calibrated for these conditions.
- C. Reactor vessel water level is 60 inches because the Wide Range Level instrument is calibrated for these conditions.
- D. Reactor vessel water level is 20 inches because containment parameters and the maximum run temperature calculation requires 40 inches to be subtracted from the Wide Range Refuel indicated level.



Knowledge of the operational implications of the following concepts as they apply to NUCLEAR BOILER INSTRUMENTATION:

Reference leg flashing: Design-Specific

From the steam tables the saturation temperature for 35 psig (50 psia) is 281 °F since the Drywell and the reference legs are both hotter than that it must be concluded that the reference legs could be boiling off and therefore the level instrumentation is unreliable. The EOPs should be entered at the entry condition of LEVEL UNKNOWN.

QUESTION 58

The plant was at rated power with the breaker for RHR Pump 'A' tagged out for maintenance when the following occurs:

- A Reactor coolant leak resulted in a Drywell pressure of 6 psig
- RHR pump 'D' was started and RHR-39B, TORUS SPRAY/CLG was opened to initiate for Torus Spray

No other actions were taken.

A loss of power of Bus 3 subsequently occurs (DG fails to supply the bus and NO buses are cross-tied).

Based on the above information, what is the current status of the RHR loops?

One RHR Pump is available for LPCI injection on the 1 RHR Loop(s).

Torus sprays are 2.

- A. 1
'A' NOT available on either RHR Loop
- B. 'B' NOT available on either RHR Loop
- C. 'A' and 'B' available ONLY on 'A' RHR Loop
- D. 'A' and 'B' available ONLY on 'B' RHR Loop

QUESTION 59

The flow restrictors in the Main Steam Lines function to limit steam flow in the event of a steam line break 1.

With the Mode Switch in RUN, the MSL high flow signal setting that initiates an isolation signal to the Primary Containment Isolation System is 2.

- A. 1) to about 200% of rated flow.
2) 140% of rated
- B. 1) to minimize the thrust loads on the steam dryer.
2) 120% of rated
- C. 1) to minimize the closing time of the MSIVs.
2) 140% of rated
- D. 1) to about 133% of rated flow.
2) 120% of rated

K5.05 Flow indication.

steam flow is limited to less than 200%

Isolation signal is generated when steam flow exceeds 140% of rated.

No impact on MSIV closing time.

Isolation signal is generated when steam flow exceeds 140% of rated.

QUESTION 60

The plant is operating at 30% RTP when a manual Reactor SCRAM is inserted.

Which ONE of the following correctly describes the response of the Main Turbine?

- A. The turbine will not automatically trip.
- B. The turbine acceleration relay will trip the turbine.
- C. The turbine will trip when Reactor water level reaches the high level setpoint.
- D. The turbine will trip when SCRAM air header pressure reaches the low pressure setpoint.

**Ability to monitor automatic operations of the MAIN
TURBINE GENERATOR AND AUXILIARY SYSTEMS including**

QUESTION 61

The station is at 100% power during summer operations.
The plant is operating with elevated condensate temperatures.
The backpressure in the main condenser starts to degrade to > 5 inches Hg.
The Shift Manager orders a power reduction.

Which ONE of the following is the cause of the degraded vacuum?

- A. The AOG recombiner has isolated on high condensate temperature.
- B. The air ejectors are not working adequately due to low condenser backpressure.
- C. The OG 516 valve isolated due to high condenser backpressure.
- D. The air ejectors are not working efficiently due to insufficient cooling of the inter condensers.

The recombiner would only shift on condensate flow or bypass valve position. Inadequate cooling causing "stalling" of first stage air ejector.

Backpressure is an effect, not a cause.

516 isolates on OG-100 line pressure of 7.5 psig which is an indication of hydrogen combustion.

Inadequate cooling causing "stalling" of first stage air ejector

QUESTION 62

While operating at 45% RTP, a reactor coolant leak develops in the drywell. The following Control Room Panel alarm is subsequently observed:

- 4-M-2, DWL FLOOR DRN SUMP LVL HI

Immediately after 4-M-2 annunciated, there will be 1 drywell floor drain pump(s) operating.

Five minutes after 4-M-2 annunciated, Drywell Pressure is 2.7 psig and rising.

Six minutes after 4-M-2 annunciated, the level in the drywell Floor Drain Sump will be 2.

- A. 1 2
one rising
- B. two rising
- C. one lowering
- D. two lowering

QUESTION 63

After a Group III PCIS isolation has occurred, the operator should verify that the reactor building supply and exhaust valves (HVAC 9, 10, 11, & 12) are closed.

Which one of the following describes operator action: 1?

AND

Where are the isolation reset switches for those valves located: 2?

- A. 1) Verify using the PCIS valve position indication status board on CRP 9-3
2) CRP 9-5
- B. 1) Verify using the PCIS valve position indication status board on CRP 9-3
2) CRP 9-3
- C. 1) Verify using the valve position indication on CRP 9-26.
2) CRP 9-5
- D. 1) Verify using the valve position indication on CRP 9-26.
2) CRP 9-3

these valves are not on this status board.

these valves are not on this status board

these valves are not on this status board

LOT-01-288, Rev. 16, page 33 &35

QUESTION 64

An event has occurred that results in the Control Room Supervisor ordering Control Room ventilation placed in the Emergency Mode.

The reason for this is 1 and all control room air will be 2.

- | | | |
|----|---|-----------------------|
| A. | <u>1</u>
for control room habitability | <u>2</u>
exhausted |
| B. | for control room temperature control | exhausted |
| C. | for control room habitability | recirculated |
| D. | for control room temperature control | recirculated |

QUESTION 65

The CRS has entered EOP-1 and EOP-3.

The CRO is directed to initiate Drywell Spray with RHR Loop 'B' 20 minutes after a LOCA with LPCI initiation.

The following conditions are present:

- Drywell and Suppression Chamber pressures are 10 psig
- RPV level is -54 inches on LT-2-3-91A/B (Shroud Level) and slowly rising
- Both RHR Pumps 'A' and 'B' are injecting through the heat exchangers
- RHR Pumps 'C' and 'D' have been secured
- Both loops of Core Spray are injecting

Which one of the following conditions is required to open RHR Containment Spray outboard injection, MOV-26B?

- A. The LPCI initiation signal must be reset.
- B. Thermal expansion accumulator pressure greater than 50 psig.
- C. RHR Heat Exchanger Bypass, MOV-65B must be closed.
- D. S-18B Keylock must be placed in Manual Override.

RHR/LPCI: CTMT Spray Mode

QUESTION 66

The control room must be evacuated.

Other than scrambling the reactor, which ONE of the following are REQUIRED to be executed in accordance with OPOP-ALTSD-3126, 'Shutdown Using Alternate Shutdown Methods', prior to leaving the control room?

- A. Place the 'App. R' ADS bypass switch to BYPASS, place the HPCI aux oil pump control switch in pull-to-lock and place the Reactor Feed pump control switches in Pull-to-Lock.
- B. Place the HPCI aux oil pump control switch in pull-to-lock, place the Reactor Feed pump control switches in Pull-to-Lock and Manually trip the main turbine.
- C. Trip both Recirc pumps, place the 'App. R' ADS bypass switch to BYPASS, and manually trip the main turbine.
- D. Trip both Recirc pumps, place the 'App. R' ADS bypass switch to BYPASS and place HPCI in Inhibit.

QUESTION 67

In accordance with EN-OP-112, "Night and Standing Orders", ...

The 1 or his/her designee is responsible for approving all Operations Department Standing Orders.

The 2 or his/her designee is responsible for approving all Operations Department Night Orders.

3 deal with Day to Day operational requirements of the station, or convey information to the operations crew from Operations Management.

Which ONE of the following is correct?

- | | <u>1</u> | <u>2</u> | <u>3</u> |
|----|-----------------------|-----------------------|-----------------|
| A. | Ops Manager | Assistant Ops Manager | Night Orders |
| B. | Assistant Ops Manager | Ops Manager | Standing Orders |
| C. | Assistant Ops Manager | Ops Manager | Night Orders |
| D. | Ops Manager | Assistant Ops Manager | Standing Orders |

Knowledge of administrative requirements for temporary management directives, such as standing orders, night orders, operations memos, etc.

QUESTION 68

In accordance with procedure AP 0157, Identification of Inoperative Instrumentation and Control of Status Lights, complete the following.

Notify the 1 if a control room instrument is found to be questionable, defective or out of calibration and attach a 2 sticker containing the WR/WO number to the instrument.

- | | <u>1</u> | <u>2</u> |
|----|---------------|----------|
| A. | CRS | Yellow |
| B. | Shift Manager | Yellow |
| C. | Shift Manager | Red |
| D. | CRS | Red |

if a control room instrument
is found to be questionable, defective or out of calibration and to attach a yellow sticker
containing the WR/WO number to the instrument.
yellow sticker not red
a yellow sticker not red.

QUESTION 69

OP 4100, 'ECCS Integrated Automatic Initiation Test' will be performed today and will
take place over two shifts.

IPTE controls 1 required.

A Pre-job brief 2 required for the second shift.

- A. 1 are 2 is
- B. are not is
- C. are is not
- D. are not is not

Knowledge of the process for conducting special or infrequent tests.

QUESTION 70

In accordance with procedure EN-WM-107, Post Maintenance Testing, select the correct definition of an “Operability Test”.

- A. An appropriate test, inspection, or check performed following any type of maintenance activity to ensure a component deficiency has been corrected and no new deficiency has been introduced.
- B. An appropriate test, inspection, or check to ensure a component or system meets its intended design function based on its Technical Specifications requirements or the Technical Requirements Manual (TRM).
- C. An appropriate test performed following maintenance or design change activities to demonstrate and document the capability of a system, device or component. Post maintenance testing further verifies that the original deficiency has been corrected without the introduction of any new deficiencies.
- D. An appropriate test, inspection, or check to ensure component or system meets its In-Service Testing ASME and Technical Requirements Manual (TRM).

Maintenance Testing (PMT) not Operability Test.
Operability Test in accordance with EN-WM-107.
Post Maintenance Testing (PMT) not Operability Test.
ensure a component or system meets its intended design function based on its
Technical Specifications requirements.

QUESTION 71

A 40 year old radiation worker at VY with a lifetime exposure of 1,000 mr requires a dose extension for work at VY.
The individual has all quarters documented for the current year.

In accordance with EN-RP-201, "Dosimetry Administration", a dose extension to between ____ (1) ____ is required to be approved by ____ (2) ____.

- A. (1) 100 mr and 1R
(2) ONLY the Radiation Protection Manager
- B. (1) 3R and 4R
(2) the Radiation Protection Manager and Plant General Manager
- C. (1) 2R and 3R
(2) ONLY the Plant General Manager
- D. (1) 3R and 4R
(2) the Plant General Manager and the Site Vice President

QUESTION 72

While operating at 100% power, a valid off gas Hi-Hi radiation alarm is received on RAN-OG-3127 and 3128 (AOG Inlet to final delay pipe monitors). The alarm remains in for 35 minutes.

In accordance with ON 3152, 'MSL and Off Gas High Radiation', which ONE of the following closures will automatically occur?

- A. OG-101 A & B (Recombiner Lines).
- B. OG-516 A & B (Steam Jet Air Ejector Suction).
- C. OG-FCV-11 and OG-3 (Inlet to Stack and Drain).
- D. OG-FCV-36, OG-FCV-36A, and OG-FCV-37 (Steam Jet Air Ejector Supply).

QUESTION 73

A fire was reported in the East Switchgear Room at 1426 at which time the Automatic Fire Suppression System began discharging.

Which ONE of the following is correct and meets the requirements of OP 2186, 'Fire Suppression Systems'?

- A. Following the discharge of Halon, the earliest that ventilation of the East Switchgear room may commence is 1456, unless directed by the Fire Brigade leader.
- B. Following the discharge of CO₂, the earliest that ventilation of the East Switchgear room may commence is 1456, unless directed by the Fire Brigade leader.
- C. Following the discharge of Halon, the earliest that ventilation of the East Switchgear room may commence is 1511, unless directed by the Fire Brigade leader.
- D. Following the discharge of CO₂, the earliest that ventilation of the East Switchgear room may commence is 1511, unless directed by the Fire Brigade leader.

Knowledge of fire protection procedures. |
(CFR: 41.10 / 43.5 / 45.13)

CO₂

QUESTION 74

Which one of the following provides the bases for inhibiting the automatic initiation of ADS as a priority during an ATWS?

To prevent _____.

- A. power excursion due to low pressure ECCS injection
- B. causing a brittle fracture of the Reactor Vessel
- C. large irregular neutron flux oscillations
- D. exceeding 140°F Suppression Pool temperature prior to boron injection

Further, rapid and uncontrolled injection of large amounts of relatively cold, unborated water from low pressure injection systems may occur as RPV pressure decreases to and below the shutoff heads of these pumps. Such an occurrence would quickly dilute in-core boron concentration and reduce reactor coolant temperature. When the reactor is not shutdown, or when the shutdown margin is small, sufficient positive reactivity might be added in this way to cause a reactor power excursion large enough to severely damage the core.

ADS initiation would NOT cause flux oscillation but rather a rapid reduction in core power due to voids
may or may NOT be true but it is NOT the reason for inhibiting ADS

QUESTION 75

A LOCA with an ATWS occurred.

One hour later the CRS determined that an RPV Emergency Depressurization is required per EOP-2 and EOP-5.

Which ONE of the following actions must now be performed to prevent a power excursion large enough to damage the core and the RPV?

- A. Prevent injection from those Core Spray and RHR pumps not required to assure adequate core cooling.
- B. Terminate and prevent Condensate/Feedwater, Core Spray, HPCI, and LPCI injection.
- C. Wait until RPV pressure is below the value in Table K.
- D. Inhibit ADS.

Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.

QUESTION 76

During a plant startup, the turbine is being brought up to speed using OP 0105, Phase 3 Turbine Startup and Synchronization.

The following conditions exist:

- This is a Cold Startup
- Turbine speed is being raised at 90 rpm/minute
- Turbine speed is 1000 rpm and slowly rising
- 7-E-9, TURBINE SUPERVISORY CABINETS TROUBLE is in alarm
- 7-F-2, TURB EXCESSIVE VIBRATION has just alarmed
- ERFIS indicates the low pressure turbine and generator vibrations are below the turbine trip setpoints

Which ONE of the following actions is required for these conditions?

- A. Continue using OP 0105 to raise turbine speed through the critical speeds, and then verify turbine vibration lowers.
- B. Continue using OP 0105 to raise the rate of speed until above 1200 rpm, then hold speed to allow turbine shell warming and the vibration alarm to clear.
- C. IAW the ARS for 7-F-2, lower turbine speed below 800 rpm and then hold speed steady until the turbine vibration alarm clears.
- D. IAW the ARS for 7-E-9, trip the turbine and if vibrations do not lower below supervisory limits, break vacuum on the main condenser.

While operating at 60% Reactor power, a Reactor Scram on low reactor water level occurs but all rods remain at their pre-trip conditions.

Plant conditions thirty minutes after the transient:

- SLC tank level 2600 gal
- Rx power <4 %
- RPV pressure 900 psig being controlled using SRVs
- RPV level Intentionally lowered to -19 inches and rising slowly
- Suppression pool level 10.5 ft.
- Suppression pool temp 182°F and rising at 1°F/3 min
- Drywell pressure 4.5 psig
- Main steam tunnel temperature 170°F and rising at 1°F/2 min

Which one of the following is required for the conditions above?

(See Question 78 attachment for EOP-3 DWSIL, HCTL, PCPL-A, and PSP curves)

- A. Maintain RPV water level between -19 inches and +95 inches.
- B. Bypass interlocks to open the MSIV's and reduce RPV pressure.
- C. Reduce RPV pressure to prevent exceeding the Heat Capacity Temperature Limit curve.
- D. Emergency Depressurize to prevent exceeding the Pressure Suppression Pressure curve.

Wrong level band. Upper end of band limited to 90 inches with an ATWS.

Incorrect action based on evidence of leak in the Main Steam Tunnel.

HCTL limit is being approached and will reach Action Required line within 15 minutes.

RPV pressure must be reduced to move away from limit.

Action to be taken if RPV pressure cannot be lowered.

SRO
55997

QUESTION 78

A plant transient occurs resulting in a successful Reactor SCRAM and appropriate PCIS isolations.

The crew is currently implementing EOP-3.

The following conditions exist:

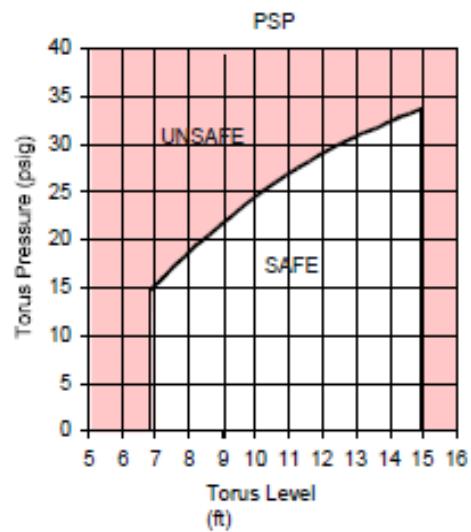
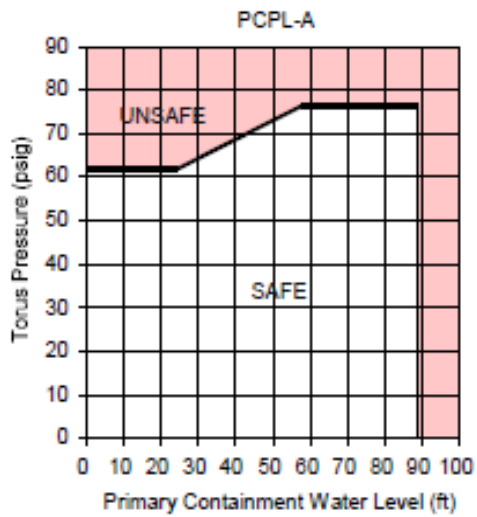
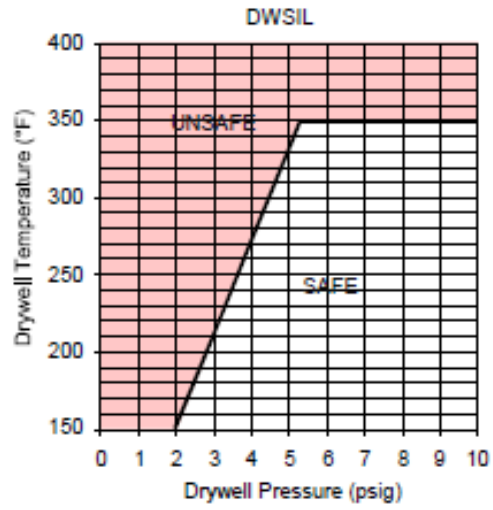
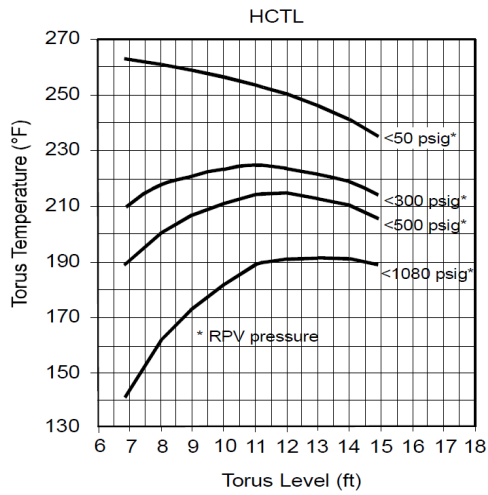
- Reactor pressure is 750 psig
- Reactor water level is being maintained above TAF
- Drywell pressure is 28.0 psig and rising slowly
- Drywell temperature is 250 °F and rising slowly
- Torus pressure is 28.0 psig and rising slowly
- Torus level is 11.0 ft and steady
- Torus water temperature is 183 °F and steady
- Drywell and Torus H₂ is 0.6% and steady
- Drywell and Torus O₂ is 2% and steady

Given the above conditions, the CRS is required to direct which ONE of the following:

(See attached page for EOP-3 DWSIL, HCTL, PCPL-A, and PSP curves.)

- A. Enter EOP-5, RPV-ED and blowdown.

- B. Remain in EOP-3 and direct the initiation of drywell sprays.
- C. Perform post-accident containment nitrogen purge per OP 2125.
- D. Enter SAGs App E, Section 4 to re-assess containment conditions.



QUESTION 79

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

- I&C has just discovered that both torus temperature indicating channels have a calibration error
- Both Torus temperature channels are indicating 82°F
- Actual Torus temperature has just been confirmed as 112°F

Which ONE of the following identifies the Technical Specification required action?

- A. Restore Torus temperature within 12 hours.
- B. Commence a normal plant shutdown with the reactor in cold shutdown within 36 hours of initial discovery.
- C. Restore the Torus temperature within 6 hours or a shutdown shall be initiated with the reactor in cold shutdown within 24 hours of initial discovery.
- D. Initiate an immediate scram with power not to resume until pool temperature is reduced below 90 °F.

110F, initiate an immediate scram of the reactor.”

QUESTION 80

The plant is operating at rated conditions when an unisolable primary rupture occurs inside the drywell.

EOP-1 RPV Control has been entered.

Primary containment conditions subsequently degrade such that the CRS directs entry into EOP-3 Primary Containment Control.

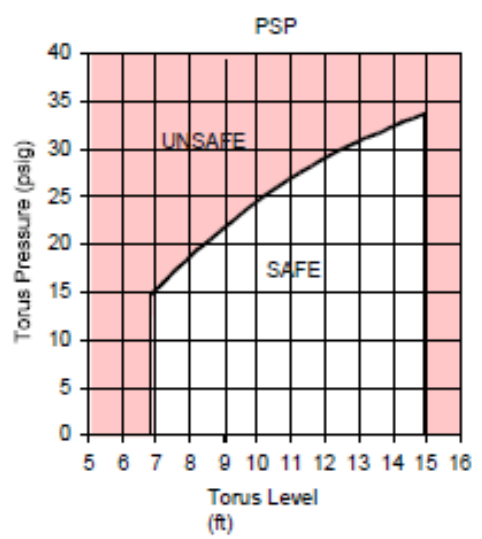
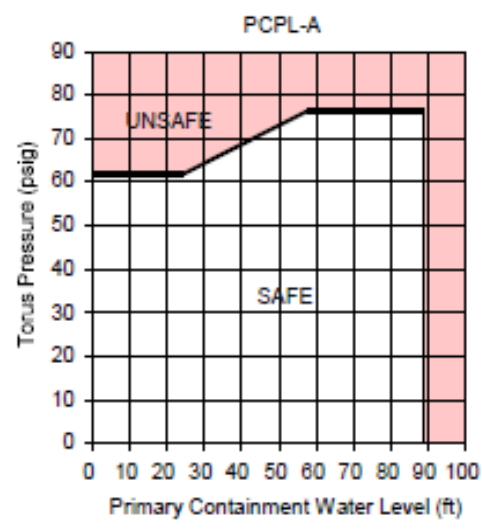
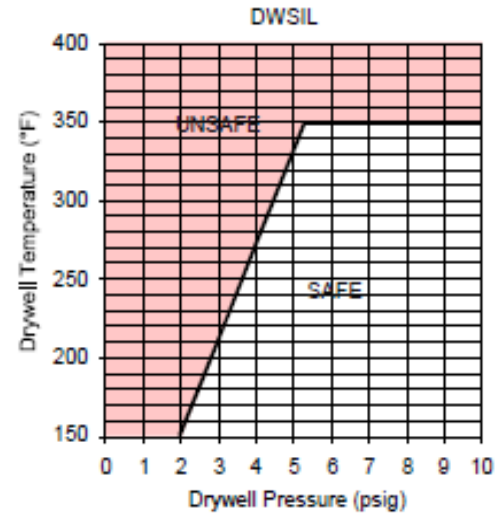
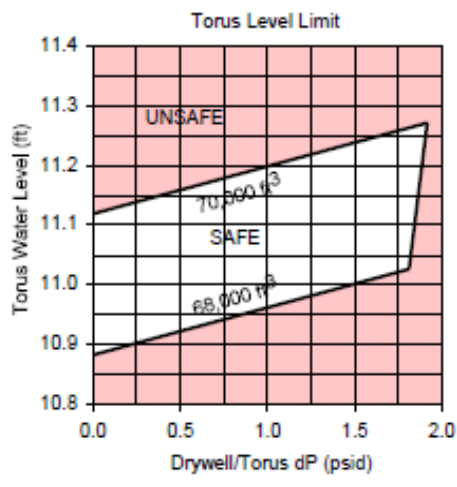
The following indications are observed:

- Torus pressure is 11.0 psig and slowly rising
- Torus level is 11.0 ft and slowly rising
- Drywell pressure is 12.25 psig and slowly rising
- Drywell temperature is 215 °F and steady
- RPV level is 8 inches and steady

Given the above conditions, the CRS is required to direct which ONE of the following:

(See attached page for EOP-3 PCPL-A, DWSIL, Torus Level Limit, and PSP curves)

- A. Enter EOP-5 and RPV-ED.
- B. Line up as many Alternate Injection subsystems as possible and bypass high temperature isolations as necessary.
- C. Shutdown the recirc pumps and drywell RRUs AND spray the drywell using only those pumps not required to maintain adequate core cooling.
- D. Terminate injection into the primary containment from sources external to the primary containment except from sources required to shut down the reactor.



QUESTION 81

The plant was at rated power when an event occurred.

Present plant conditions include the following:

- All control rods indicate full-in
- RPV water level indicates 25 inches and lowering an inch per minute
- RPV pressure indicates 465 psig and lowering slowly
- Drywell pressure indicates 18 psig and is being controlled with Drywell sprays
- Both Startup Transformers have failed to energize their respective busses
- HPCI, RCIC, RHR systems are not available for core injection
- All Core Spray pumps have failed
- Both Standby Liquid Control System squib valves have failed to fire
- Fire water alternate subsystem is lined-up to RHR Loop 'A'

Which ONE of the following shall the SRO direct NEXT?

- A. Rapidly depressurize the RPV using the turbine bypass valves to allow condensate water to inject into RPV.
- B. When RPV water level lowers to +6 inches, direct entry into EOP-5 RPV Emergency Depressurization.
- C. When RPV water level lowers to -19 inches, direct entry into EOP-5 RPV Emergency Depressurization.
- D. When RPV water level lowers to -19 inches, direct entry into SAG-1, Primary Containment Flooding

Not only are the Condensate Pumps not available due to the failure of the Startup Transformers, but Depressurization of the RPV is not allowed until RPV level of -19" is reached with only Alternate Injection Subsystem use anticipated.

Emergency Depressurization at +6" is not authorized unless an Injection Subsystem (from Table E) is lined up with a running pump. Core Spray, RHR and Condensate Systems do not meet this criterion.

Emergency Depressurization of the RPV is required when RPV level of -19" is reached with only Alternate Injection Subsystem(s) use anticipated.

If RPV level cannot be restored and maintained above -19", THEN: an order to direct SAG entry would be appropriate. However, once the RPV is ED'd, both condensate transfer and Fire water will be able to make up an initial inch per minute drop in RPV water level.

QUESTION 82

The plant is operating at rated power with the following conditions present:

- The 3340 Tie Line has been declared inoperable due to a line fault
- During routine electrical maintenance, the Bus 3 Degraded Voltage trip setting was found to be 3800 VAC and reported to the control room 3 hours ago.
- NO additional action was taken.

The following indications are subsequently received in the control room:

- 8-L-4, S/U XFMR T3 DIFF TRIP
- Startup transformer lockout 87/STA is tripped

Assuming no additional actions, which ONE of the following is applicable given the above conditions?

(Note: Technical Specification Sections 3.2.K and 3.10 provided)

- A. The plant must be in cold shutdown within 24 hours.
- B. The plant may continue operations at power indefinitely.
- C. The plant may continue operations at power for 24 hours and then must be in cold shutdown within 24 hours.
- D. The plant may continue operations at power for 7 days and then must be in cold shutdown within 24 hours.

QUESTION 83

EOP-3 has just been entered. Containment conditions are:

- Drywell O₂ is unavailable
- Drywell H₂ is 0.7%
- Torus O₂ is 5%
- Torus H₂ is 0.4%

Based on the above, containment purge with nitrogen IAW OP 2125 is required ...

- A. before Torus H₂ exceeds 0.5%. immediately, based upon current conditions. after sampling results for Drywell O₂ are obtained. after Torus H₂ exceeds 0.5%.

EOP-3 Step PC/H-3 Perform post accident containment nitrogen purge per OP 2125 when drywell OR Torus hydrogen exceed 0.5% AND drywell OR Torus Oxygen exceed 4.0%.

EOP-3 Step PC/H-3 Perform post accident containment nitrogen purge per OP 2125 when drywell OR Torus hydrogen exceed 0.5% AND drywell OR Torus Oxygen exceed 4.0%.

EOP-3 Step PC/H-3 Perform post accident containment nitrogen purge per OP 2125 when drywell OR Torus hydrogen exceed 0.5% AND drywell OR Torus Oxygen exceed 4.0%.

EOP-3 Step PC/H-3 Perform post accident containment nitrogen purge per OP 2125 when drywell OR Torus hydrogen exceed 0.5% AND drywell OR Torus Oxygen exceed 4.0%.

QUESTION 84

Given the following:

- A plant shutdown is in progress IAW OP 0105, 'Reactor Operations'
- Reactor power is 26%
- With these initial conditions, main condenser vacuum begins to degrade
- Main condenser backpressure is now 5.0 inches HgA and rising rapidly

Which ONE of the following is required IAW VY procedures?

Enter OT 3120, Condenser High Back Pressure, and...

- place the P-53-1A mechanical vacuum pump ('hogger') in service to maintain condenser back pressure less than 4.0 inches HgA and prevent possible turbine damage.
- direct the reactor be manually scrammed per OT 3100, Reactor SCRAM. Following the SCRAM, direct that vacuum be manually broken to prevent possible turbine damage.
- direct that the turbine be manually tripped (do not SCRAM the reactor). If time permits, then direct the transfer of station loads to the Start-Up Transformer per OP 2142, 4KV Electrical system.
- if time permits, then direct the transfer of station loads to the Start-Up Transformer per OP 2142, 4KV Electrical system. Then direct the reactor be

manually scrammed per OT 3100, Reactor SCRAM. Following the SCRAM, direct that the turbine be manually tripped.

annunciator STOP/CTRL VLV FAST CLOSURE BYP (5-K-8) is alarmed, then when backpressure exceeds 5.0 inches HgA, direct that the turbine be manually tripped. If time permits, then direct the transfer of station loads to the Start-Up Transformer per OP 2142, 4KV Electrical system. The question stem states that condenser backpressure IS greater than 5.0 inches HgA and increasing rapidly, but that RTP is >25% RTP (26%). Therefore, a reactor SCRAM is required per step 1.b.

QUESTION 85

The plant is at 100% power.
Making up to the drywell is in progress.

Subsequently the "TORUS TROUBLE" alarm comes in.

Control Room Torus indications are as follows:

- Torus pressure 0.2 psig
- Torus level 11.30 ft.
- Torus temperature 86 deg F
- Torus air space temp 96 deg F
- Drywell/Torus DP 1.85 psid

What action is required for the above conditions?

(Note: EOP graphs are available with Questions 78 and 80, if needed)

- A. Commence lowering DW/Torus DP.
- B. Perform the RHR pump discharge check valve test.
- C. Commence cooling down of the torus pool water with all available cooling.
- D. Initiate an orderly shutdown and place the reactor in cold shutdown within 24 hours.

A

QUESTION 86

While operating at 100% power, a main generator load reject occurred requiring a manual reactor SCRAM.

- HPCI and RCIC received an auto start signal during the transient
- EOP-1, RPV Control has been entered
- The reactor is confirmed shutdown
- RPV level is 135 inches, up slow
- RPV pressure is 850 # and steady

Regarding the ventilation systems in the reactor building, after verifying RB Ventilation isolation and SBGT Auto Initiation, which ONE of the following actions is correct IAW VY procedures?

- A. Monitor drywell/torus differential pressure IAW OP 2115, Primary Containment.
- B. Secure both 'A' and 'B' SBGT vent fans per OPOP-SGT 2117, Standby Gas Treatment.
- C. Secure one train of SBGT IAW OPOP-SGT 2117, Standby Gas Treatment to ensure its later availability.
- D. Reset PCIS Signal and OPEN HVAC-9,10,11 and 12 IAW OP 2192, Heating, Ventilating, and Air Conditioning System.

QUESTION 87

The plant is at 100% power when a spurious short fully closes V70-117, Drywell RBCCW cooling return valve.

Numerous Recirc Pump & Motor cooling water low flow alarms annunciate.

The Operating crew enters OPON-3147-01, Loss of RBCCW, and attempts to fully open V70-117. V70-117 does not move.

Select (1) the appropriate combination of additional Control Room alarms consistent with the plant status, and (2) the first abnormal procedure required to be executed in accordance with OPON-3147-01 if RBCCW flow is NOT restored in two minutes.

- | <u>(1)</u> | <u>(2)</u> |
|--|---------------------------------------|
| A. RBCCW HDR PRESS LO
DRYWELL PRESS HI | OT 3100, Reactor Scram |
| B. Recirc Pump Motor vibration high Alarm
DRYWELL TROUBLE | OT 3100, Reactor Scram |
| C. RBCCW HDR PRESS LO
DRYWELL PRESS HI | OPOT-3118-01, Recirculation Pump Trip |
| D. Recirc Pump Motor vibration high Alarm
DRYWELL TROUBLE | OPOT-3118-01, Recirculation Pump Trip |

2.4.46: Ability to verify that the alarms are consistent with the plant conditions.

OPON-3147-01, Rev.00, page 2

OT 3100, Reactor Scram

41.10 and 43.5

45.3 / 45.12

QUESTION 88

A reactor startup is in progress following an outage.

Reactor power is 50/125 scale on Range 7.

IRM detectors 'A' & 'D' were replaced during the outage and both have just failed downscale.

The CRS directs IRMs 'A' & 'D' bypassed.

Under these conditions, what is the status of RPS trip systems and the IRM rod block channel?

- A. Both RPS Trip Systems AND the IRM Rod Block channel is INOP.
- B. Both RPS Trip Systems AND the IRM Rod Block channel is Operable.
- C. Only RPS Trip System 'B' AND the IRM Rod Block channel is INOP.
- D. Only RPS Trip System 'B' AND the IRM Rod Block channel is Operable.

QUESTION 89

Plant Conditions are as follows:

- At 1253 while at power, several Control Room indications extinguish

- At 1254, operators perform an initial Control Room panel walk down and report the following to the CRS:

Loss of breaker position indication for:

- 4KV Buses 2, 4, and 5
- 480V Bus 6, 7, 9, 10 and 11

Loss of position indication for the following valves:

- V2-77
- V10-17
- V10-57
- V12-18
- V13-1
- V13-16
- V13-18
- V13-20
- V13-21
- V13-27
- V13-30
- V13-39
- V13-41
- V13-131
- V13-132
- Outboard MSIVs

- Loss of power to EPR/MPR control “white” lights
 - Reactor Feed Pump suction pressure has dropped by approximately 25 psig
 - The RWCU pump has tripped
 - ERFIS is available and unaffected
- The Shift Manager orders DC-3A transferred to its Alternate power supply
 - At 1309, DC-3A is transferred to its Alternate power supply
 - At 1310, all Reactor critical parameters are generally steady and unchanged

Which ONE of the following describes the correct emergency plan classification for the given conditions?

- A. No EAL is appropriate
- B. Unusual Event
- C. Alert
- D. Site Area Emergency

QUESTION 90

The plant is operating at full power when a turbine trip occurs.
The reactor did not scram automatically or from the manual scram pushbuttons.
Operators inserted all control rods by actuating ARI/RPT.

IAW AP 0156, the soonest that the NRC must be notified would be within 1 hour(s) of the event based on 2.

- A. 1 deviation from plant Technical Specifications
- B. one declaration of an emergency classification
- C. four deviation from plant Technical Specifications
- D. four declaration of an emergency classification

QUESTION 91

The plant is operating at rated conditions when the 121A and 121C steam tunnel temperature switches (both sense temperature from MSL 'A'), fail high due to a common cause failure.

As a result of these failures, a PCIS Group 1 isolation 1 occur.
IAW Technical Specifications, you must 2 .

(Note: Technical Specification Section 3.2.B and TRM Table 6.13.1 provided)

- | | | | |
|----|--------------|---|--|
| | <u> 1 </u> | <u> 2 </u> | |
| A. | did | restore isolation capability within 1 hour | |
| B. | did not | restore isolation capability within 1 hour | |
| C. | did | place the inoperable channels in trip within 24 hours | |
| D. | did not | place the inoperable channels in trip within 24 hours | |

QUESTION 92

The plant is operating at rated power when, during performance of OP 4111, Section A 'Operable Control Rod Check', the following indications are received:

- 5-D-5, Rod Drift alarm
- 5-D-4, Rod Over Travel alarm
- Rod display window is dark

IAW applicable VY procedural guidance, the CRS shall direct which ONE of the following actions?

- A. Contact I&C to have the power supplies to the full core display determined to be operable.
- B. Manual SCRAM of the affected control rod by placing the individual rod SCRAM switch to the FULL DOWN position.
- C. Continuously insert the affected control rod to position 06 by holding the ROD MOVEMENT CONTROL switch to IN.
- D. Reduce recirc flow and verify plant operation is below the MELLLA boundary on the power to flow map.

QUESTION 93

Two fire protection detectors actuate in zone 37, the cable vault.

Which of the below listed actuations will the CP-30 module generate: 1 ?

AND

What procedure contains a checklist of actions to consider if a CO2 discharge were to occur in the vault: 2 ?

1. The CO2 discharge timer starts
2. A Control Room Zone 38 alarm of CO2 timing to discharge is generated
3. Battery Room exhaust damper closure timer starts
4. The Cable Vault air supply damper is closed
5. The Cable Vault West Wall air supply fire damper is closed
6. The Computer Room air supply damper is closed
7. Battery Room exhaust fan is stopped

 1

 2

- | | |
|---------------------|--|
| A. 1 through 7 | OP 2186, Fire Suppression Systems |
| B. 1 through 7 | OP 3020, Fire Emergency Response Procedure |
| C. 1 through 3 ONLY | OP 3020, Fire Emergency Response Procedure |
| D. 1 through 3 ONLY | OP 2186, Fire Suppression Systems |

The Control Room HVAC System as depicted on Drwg G-191237 Sht#2, Rev. 10, distributes conditioned air to the Control Room, cable vault, battery room, and the computer room.

QUESTION 94

It is 0200 during normal full power operation.

The Control Room Supervisor (CRS) needs to leave the site due to a personal emergency.

- At 0205 the CRS departs as directed by the Shift Manager (SM)
- At 0210 the SM calls the Operations Manager to inform him of the reduction in crew composition
- At 0220 the SM reaches a relief for the CRS and directs him to come to work

- At 0415 the CRS relief arrives and completes a turnover with the SM

IAW Technical Specification 6.2, which ONE of the following is correct?

- A. The operating crew has complied fully with shift manning requirements.
- B. The CRS position should have been manned by a relief by 0405.
- C. The CRS should not have left until the Operation Manager gave him permission.
- D. The CRS should not have left until his relief had arrived and turnover was completed.

Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, “no-solo” operation, maintenance of active license status, 10CFR55, etc.

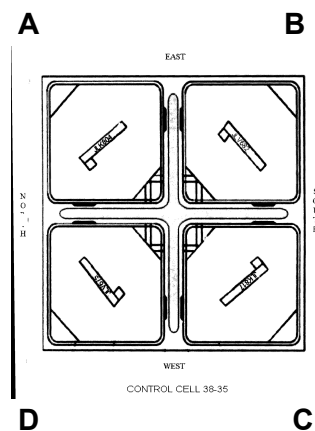
(CFR: 41.10 / 43.2)

QUESTION 95

The plant is shutdown for a refuel outage.

Control rod 38-35 is to be replaced.

Which ONE of the following lists, in the correct order, the steps to prepare the cell to remove the control rod from the core?



- A.
1. Remove fuel bundles A and B
 2. Insert double blade guide
 3. Remove fuel bundles C and D
 4. Uncouple control rod
 5. Withdraw control rod to position 48
 6. Remove double blade guide
 7. Remove fuel support casting

- B.
1. Remove fuel bundles A and C
 2. Insert double blade guide
 3. Remove fuel bundles B and D
 4. Withdraw control rod to position 48
 5. Uncouple control rod
 6. Remove double blade guide

- C.
1. Remove fuel bundles A and B
 2. Remove fuel bundles C and D
 3. Insert double blade guide
 4. Uncouple control rod
 5. Withdraw control rod to position 48
 6. Remove double blade guide
 7. Remove fuel support casting

- D.
1. Remove fuel bundles A and C
 2. Insert double blade guide
 3. Remove fuel bundles B and D
 4. Uncouple control rod
 5. Withdraw control rod to position 48
 6. Remove double blade guide

7. Remove fuel support casting

7. Remove fuel support casting

Conduct of Operations 2.1.36 (3.0/4.1)

2.1.36 Knowledge of procedures and limitations involved in core alterations.

All distractors are Incorrect but plausible if the applicant is not familiar with the control rod removal process during refuel activities.

Correct: 1. remove two opposite bundles; 2. insert blade guide 3. remove last 2 bundles 4. withdraw rod to 48 5. Uncouple. 6. Remove DBG 7. Remove FSC.

All distractors are Incorrect but plausible if the applicant is not familiar with the control rod removal process during refuel activities.

All distractors are Incorrect but plausible if the applicant is not familiar with the control rod removal process during refuel activities.

41.10 / 43.6 / 45.7

QUESTION 96

Troubleshooting the lack of #2 Turbine Bypass Valve indication is planned at the end of your shift.

Which ONE of the following procedures is used to assess the affects of planned troubleshooting activities on Core Damage Frequency (CDF) and determination of mitigation actions?

- A. EN-WM-101, On-Line Work Management Process.
- B. EN-WM-104, On-Line Risk Assessment.
- C. EN-OP-114, Operations interface with the Work Management Process – On-

Line.

D. EN-OP-116, Infrequently Performed Tests or Evolutions.

Core Damage Frequency or list mitigation actions.
Core Damage Frequency and mitigation actions.
Core Damage Frequency or list mitigation actions.
Core Damage Frequency or list mitigation actions.

QUESTION 97

Surveillance OPST-CS-4123-03B, 'Core Spray Pump B Quarterly Operability Test', is scheduled to be performed seven days from now.

The system engineer wants to perform a One-Time Only Temporary Change related to minimum flow valve, CS-5B.

The change will involve cycling MINIMUM FLOW CS-5B with FULL FLOW TEST CS-26B OPEN, and taking readings on discharge pressure and flow.

Which ONE of the following is correct IAW AP-0096, 'Control of Procedures':

- A. The test is NOT allowed to be conducted as a One-Time Only Temporary Change. The procedure changes should be processed as a Limited Revision IAW AP-0096.
- B. The test may be conducted as One-Time Only Temporary Change. A 10CFR50.59 review must be conducted prior to implementation of the change.
- C. The test is NOT allowed to be conducted as a One-Time Only Temporary Change. The procedure changes should be processed as an Editorial Revision IAW AP-0096.
- D. The test may be conducted as a One-Time Only Temporary Change. A 10CFR50.59 review must be conducted within 14 days of implementation of the change.

QUESTION 98

Procedure OP 1101, Management of Refueling Activities and Fuel Assembly Movement, states that the refueling floor shall be evacuated if a fuel assembly is dropped.

Which ONE of the following correctly states the basis for evacuating?

- A. The direct radiation from the dropped fuel bundle could cause unplanned radiation exposure.
- B. The dropped fuel bundle may breach the cavity seal and drain the cavity.
- C. The dropped bundle may release radioactive gasses that will cause unplanned radiation exposure.
- D. The dropped bundle may create a criticality event in the reactor.

The approximately 25 feet of water provide adequate shielding from direct radiation and allow time for action to restore level.

The approximately 25 feet of water provide adequate shielding from direct radiation and allow time for action to restore level.

This is the “classic” fuel handling accident in which the fission product gasses contained within the fuel cladding are released and “bubble up” through the water. Personnel remaining over the cavity can be exposed to doses approximating 10CFR100 limits.

Criticality is avoided by refueling interlocks and refueling patterns. This answer could be considered plausible distractor for someone unfamiliar with refueling interlocks and core design. (Ref: UFSAR 1.6.4.1.4).

QUESTION 99

The plant is operating at 60% power when a Loss of Offsite Power causes a turbine trip. Auto Scram Channel ‘A’ Trips, Channel ‘B’ does not.

The OATC initiates a scram with the manual scram pushbuttons, but 23 control rods do not fully insert.

ARI/RPT is ineffective.

Reactor power is ~ 13%.

Due to a stuck open relief valve, the CRS determines that the Torus temperature and RPV pressure **cannot** be maintained below the Heat Capacity Temperature Limit

(HCTL).

For this situation, the correct AP 3125 classification of this event is _____ ? _____ .

(Note: EAL Hot Condition Classification Matrix provided)

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

Torus temperature and RPV pressure **cannot** be maintained below the Heat Capacity Temperature Limit (HCTL). This alone is an Unusual Event as FU1.1 due to the potential loss of Primary Containment. However, a failure to Scram also occurred. Torus temperature and RPV pressure **cannot** be maintained below the Heat Capacity Temperature Limit (HCTL) a General Emergency must be classified.. Torus temperature and RPV pressure **cannot** be maintained below the Heat Capacity Temperature Limit (HCTL) and the automatic scram (turbine trip at 60% power) and all manual scrams were not successful in reducing reactor power to less than 2% THEN the criteria for a General Emergency SG2.1 is met. .

QUESTION 100

An event occurred at the plant.
The TSC and EOF are manned but NOT yet activated.

IAW OP 3540 'Control Room Actions During an Emergency', which ONE of the following correctly identifies the individual responsible for escalating an emergency event level from a Site Area Emergency to a General Emergency?

- A. The Shift Manager
- B. The Duty On Call Officer
- C. The Emergency Plant Manager
- D. The Site Vice President

Knowledge of SRO responsibilities in emergency plan implementation.