RO 2	Tier 3	K/A Number Generic	Statement 2.1.11	IR 3.0	Origin N	Source Question N/A
LOK F (1F)		10 CFR 55.41(b) 10	LOD (1-5) 2.5	Reference Documents Tech Spec 3.8.1		

QUESTION 1

With the plant in **MODE 1**, Emergency Diesel Generator 13 has been declared **INOPERABLE**.

Which one of the following Tech Spec Required Actions has a specified Required Completion Time **WITHIN ONE HOUR**?

_____ A. Verify that CTG 11-1 is AVAILABLE.

_____ B. Verify Offsite Power Sources are OPERABLE.

_____ C. Verify that EDGs 11, 12, and 14 are not also INOPERABLE due to common cause failure.

_____ D. Declare the required features supported by EDG 13 INOPERABLE when the redundant required features are INOPERABLE.

Correct Answer : B 3.8.1 Condition A, Required Action A.1 “Perform SR 3.8.1.1. for OPERABLE offsite circuit(s) within 1 hour.
Plausible Distractors: A is plausible, Completion Time is once per 8 hours. C is plausible, Completion Time is within 4 hours of discovery of inoperable EDG concurrent with inoperability of redundant required features. D is plausible, Completion Time is within 24 hours.
Objective Link: ST-OP-315-0065-001-C012

RO 3	Tier 3	K/A Number Generic	Statement 2.1.29	IR 3.4	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK F (1P)		10 CFR 55.41(b) 10	LOD (1-5) 2.5	Reference Documents MOP02, Rev 8		

QUESTION 2

Performance of a pre-startup valve lineup will involve aligning a valve that is to be **LOCKED CLOSED**. The valve in question is located in a **CONTAMINATED** work area.

In this situation, per MOP02, "Independent Verification", independent verification of valve position ______________________.

_____ A. is accomplished by visual verification that the locking device is properly installed.

_____ B. is performed by removing the locking device, checking the valve position, and re-installing the locking device.

_____ C. should be performed by hands on checking of the valve position without removing or breaking the locking device.

_____ D. may be waived by the CRS to conserve man-rem rather than require two individuals to enter the contaminated area.

Correct Answer : C Second individual performs a hands on independent verification of the component without removing or breaking the locking device per MOP02.
Plausible Distractors: A is plausible, it is required to verify locking device installed properly, in addition to verifying valve position. Procedure requires "hands on" verification. B is plausible, but not procedural per MOP02. D is plausible, supervision may waive verification for radiation dose considerations, NOT contamination conditions.
Objective Link: LP-OP-802-4201-0009

RO 4	Tier 3	K/A Number Generic	Statement 2.2.11	IR 2.5	Origin B	Source Question N/A
LOK F (1B)		10 CFR 55.41(b) 10	LOD (1-5) 2.5	Reference Documents MGA04 Rev 14		

QUESTION 3

A change to a procedure using the Temporary Change Notice process is appropriate in which of the following situations?

_____ A. To correct an incorrect source reference.

_____ B. To revise surveillance acceptance criteria values.

_____ C. To correct an incorrect component identification.

_____ D. To implement changes to administrative procedures.

Correct Answer : C MGA04, "Temporary Change Notices", section 3.3.2 specifically allows use of Temporary Change Notices to correct component identification errors in procedures.
Plausible Distractors: A is plausible, mentioned in MGA04 section 3.4.5 as a condition where Temporary Change Notice use is NOT allowed. B is plausible, mentioned in MGA04 section 3.4.2 as a condition where Temporary Change Notice use is NOT allowed. D is plausible, mentioned in MGA04 section 3.4.1 as a condition where Temporary Change Notice use is NOT allowed.
Objective Link: LP-OP-802-4101-0013

RO 5	Tier 3	K/A Number Generic	Statement 2.2.30	IR 3.5	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK F (1B)		10 CFR 55.41(b) 10	LOD (1-5) 3.0	Reference Documents Technical Specifications Technical Requirements Manual		

QUESTION 4

Which one of the following statements is a Technical Specification/Technical Requirement Manual requirement when moving fuel during Core Alterations?

_____ A. **ALL** SRMs **SHALL** be Operable.

_____ B. The Fuel Preparation Machines **MAY NOT** be used for storing fuel.

_____ C. The Refueling Platform Main Hoist is the **ONLY** lifting device permitted to transport fuel.

_____ D. Direct communications **SHALL** be maintained between the Refueling Platform and the Control Room.

Correct Answer : D Direct communications shall be maintained between the Refueling Platform and the Control Room is required by the Technical Requirements Manual.
Plausible Distractors: A is plausible, during REFUEL, Tech Specs require **only** two SRMs Operable. B is plausible, there is **no** TS or TRM prohibition for the use of the Fuel Preparation Machine. C is plausible, there is **no** TS or TRM restriction requiring use of **ONLY** the Refueling Platform Main Hoist.
Objective Link: LP-OP-802-4101-0030

RO 8	Tier 3	K/A Number Generic	Statement 2.3.2	IR 2.5	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK F (1F)		10 CFR 55.41(b) 12	LOD (1-5) 2.3	Reference Documents MRP10 Rev 3		

QUESTION 5

Which one of the following describes the embryo/fetus Federal Dose Limits and the Fermi - 2 Administrative Dose Guidelines for radiation workers?

_____ A. 100 mrem spread over the term of the pregnancy.

_____ B. 500 mrem spread over the term of the pregnancy.

_____ C. 750 mrem spread over the term of the pregnancy.

_____ D. 1000 mrem spread over the term of the pregnancy.

Correct Answer : B Stated in MRP10, “Fetal Protection Program”.
Plausible Distractors: A is plausible, 100 mrem/year limit for non-radworkers. C is plausible, if 500 mrem limit is not known. D is plausible, Fermi annual limit for radworkers.
Objective Link: LP-GN-508-0001-A017

RO 9	Tier 3	K/A Number Generic	Statement 2.4.11	IR 3.4	Origin N	Source Question N/A
LOK H (3PEO/2RI)		10 CFR 55.41(b) 10	LOD (1-5) 2.7	Reference Documents 20.106.01 Rev 17		

QUESTION 6

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

- 3D96, MOTOR TRIPPED, alarms.
- 3D5, CRD CHARGING H2O PRESSURE LOW, alarms.
- 3D10, CRD ACCUMULATOR TROUBLE, alarms.
- Yellow ACCUM Light is **LIT** for Control Rod 02-31, which is at position 48.
- C1106-C001A, East CRD Pump, White CMC Switch indicating light is **LIT**.

With these conditions, the procedurally required action is to:

_____ A. Place the Reactor Mode Switch in SHUTDOWN **IMMEDIATELY**.

_____ B. Place the Reactor Mode Switch in SHUTDOWN **WITHIN 20 MINUTES**.

_____ C. Close the C1100-F034, CRD Charging Water Isolation Valve, and then start C1106-C001B, West CRD Pump.

_____ D. Place the CRD Flow Controller in MANUAL, close the CRD Flow Control Valve and Pressure Control Valve and then start C1106-C001B, West CRD Pump.

Correct Answer : D Correct actions for a CRD Pump Failure per 20.106.01, “CRD HYDRAULIC SYSTEM FAILURE”.
Plausible Distractors: A is plausible, correct if <900 psig. B is plausible, correct if MORE THAN ONE Accumulator Fault occurs. C is plausible, correct if Standby CRD Pump fails to start when attempted.
Objective Link: SS-OP-802-2001

RO 10	Tier 3	K/A Number Generic	Statement 2.4.20	IR 3.3	Origin N	Source Question N/A
LOK H (2RI)		10 CFR 55.41(b) 10	LOD (1-5) 3.5	Reference Documents 29.100.01 Sheet 1, RPV Control		

QUESTION 7

Following a LOCA, the following conditions exist:

- **ONLY** Division 1 RHR Pumps are running.
- **ALL** other ECCS systems have failed.
- Reactor Pressure is 500 psig.
- Emergency Depressurization has **NOT** occurred.

Per the EOPs, the **LOWEST** stable RPV Water Level which assures Adequate Core Cooling under these conditions is ______ .

_____ A. 0 (zero) inches

_____ B. -20 (minus 20) inches

_____ C. -30 (minus 30) inches

_____ D. -45 (minus 45) inches

Correct Answer : B 29.100.01 Sheet 1 specifies maintaining injection at stable RPV Water Levels > -25 (minus 25) inches. -20 (minus 20) inches is the LOWEST stable RPV Water Level listed which assures adequate core cooling. Candidate must identify Adequate Core Cooling as operational implication of EOP notes.
Plausible Distractors: A is plausible, but not the lowest, Core Submergence is adequate under all conditions, but adequate core cooling is assured at LOWER levels with injection. C is plausible, and is correct prior to Emergency Depressurization WITHOUT Injection (Steam Cooling). D is plausible, and is correct FOLLOWING Emergency Depressurization WITH one full loop of Core Spray injecting.
Objective Link: ST-OP-802-3001-001-008

RO 13	Tier 1	K/A Number 295004	Statement AA1.02	IR 3.8	Origin N	Source Question N/A
LOK H (2RI)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 3.5	Reference Documents 20.300.260VESF, Rev 1		

QUESTION 8

The plant is operating at 100% power with RHR Pump “A” operating in Torus Cooling.
A transient occurs, resulting in the following conditions:

- ALL Control Rods are fully inserted.
- ALL MSIVs are closed.
- RCIC is injecting at 650 gpm.
- 9D17, DIV I ESS 130V BATTERY TROUBLE, alarms.
- 1D6, DIV I CSS LOGIC POWER FAILURE, alarms.
- 1D8, RHR LOGIC A 125V DC BUS POWER FAILURE, alarms.
- **ALL** Division 1 ECCS Pump CMC switches lose indication (no lights).

With the above conditions, which one of the following correctly completes the statement?

RHR Pump “A” is ___________.

_____ A. **RUNNING**, and **CAN** be electrically tripped

_____ B. **RUNNING**, and **CANNOT** be electrically tripped

_____ C. **TRIPPED**, and **WILL** auto start on receipt of a valid signal

_____ D. **TRIPPED**, and **WILL NOT** auto start on receipt of a valid signal

Correct Answer : B RHR Pump “A” has lost control power, indicated by the DC Annunciators. RHR Pump ”A” will continue to run and cannot be electrically tripped.
Plausible Distractors: A is plausible, RHR pump loses control power and will remain running, but **cannot** be electrically tripped. C is plausible, RHR pump loses control power, which is **required** for BOTH trip and start functions.

D is plausible, RHR pump loses control power, which is **required** for BOTH trip and start functions.
Objective Link: ST-OP-315-0045-B008 B007 B000

RO 11	Tier 1	K/A Number 295001	Statement AK2.01	IR 3.6	Origin N	Source Question N/A
LOK H (2RI)	Grp 1	10 CFR 55.41(b) 10	LOD(1-5) 2.25	Reference Documents 20.138.01 Rev 40		

QUESTION 9

The plant is operating in **SINGLE LOOP,** Reactor Power is 55%, and RRMG Set "A" speed is 60%, when the following alarms are received:

- 3D104, RECIRC PMP A MG DRIVE MTR GRD FAULT / OVERCURRENT
- 3D96, MOTOR TRIPPED

With these conditions, which one of the following actions is required?

_____ A. Monitor for neutron flux instabilities.

_____ B. Place the Reactor Mode Switch in SHUTDOWN.

_____ C. Insert control rods in sequence to restore operation outside the EXIT region of the Power to Flow Map.

_____ D. Restart Reactor Recirculation Pump "B" and raise flow to restore operation outside the EXIT region of the Power to Flow Map.

Correct Answer : B Correct actions for loss of BOTH Recirculation Loops.
Plausible Distractors: A is plausible, correct follow up action for loss of ONE Loop with TWO Loops initially operating. C is plausible, also performed for loss of ONE Loop with TWO Loops initially operating. D is plausible, higher core flow will restore operation outside the EXIT region, but pump restarts are prohibited.
Objective Link: SS-OP-802-2001-RO-0002

RO 14	Tier 1	K/A Number 295005	Statement AA2.06	IR 2.6	Origin B	Source Question N/A
LOK H (2RI/ 3PEO)	Grp 1	10 CFR 55.41(b) 5	LOD (1-5) 3.1	Reference Documents 3D91, Rev 9, TS Table 3.3.1.1 ST-OP-315-0045-001, Rev12		

QUESTION 10

The plant is at 18% power when the turbine trips. The reactor will ______________.

_____ A. remain operating **AND** reactor power will remain **CONSTANT**

_____ B. SCRAM **AND** reactor pressure will **INCREASE** due to decay heat

_____ C. SCRAM **AND** reactor pressure will **DECREASE** due to BPV operation

_____ D. remain operating **AND** reactor power will **INCREASE** due to Feedwater Temperature change

Correct Answer : D Justification: Candidate must know that Turbine Trip / Reactor Scram function is bypassed about 30% power. Candidate must know effect of Turbine Trip induced Feedwater Temperature change on Reactor Power. Turbine Trip / Reactor Scram is bypassed below 161.9 psig 1st Stage Turbine Pressure (30% power). Reactor will remain operating on Turbine Bypass Valves. Resulting Feedwater Temperature drop will cause Reactor Power Increase.
Plausible Distractors If candidate does not know that Turbine Trip / Reactor Scram function is bypassed below 30% power, Scram is plausible. Feedwater Temperature will lower and cause reactor pressure to lower. Post scram pressure changes are plausible due to BPV operation and decay heat values.
Objective Link: LP-OP-315-0145-A018

RO 6	Tier 3	K/A Number Generic	Statement 2.2.22	IR 3.4	Origin B	Source Question Fermi-2 2001 NRC Exam
LOK F (1P)		10 CFR 55.41(b) 5	LOD (1-5) 3.2	Reference Documents Technical Specifications 3.4.4		

QUESTION 11

From the given statements select the one that correctly describes the operational leakage allowed from the reactor coolant system in **MODE 1**.

Reactor Coolant System operational LEAKAGE shall be limited to:

_____ A. ≤ 5 gpm TOTAL LEAKAGE.

_____ B. ≤ 2 gpm Pressure Boundary LEAKAGE.

_____ C. ≤ 25 gpm TOTAL LEAKAGE averaged over the previous 24 hours and ≤ 5 gpm increase in unidentified LEAKAGE in the previous 12 hour period.

_____ D. ≤ 25 gpm TOTAL LEAKAGE averaged over the previous 24 hours and ≤ 2 gpm increase in unidentified LEAKAGE in the previous 24 hour period.

Correct Answer : D 25 gpm TOTAL LEAKAGE averaged over the previous 24 hours and 2 gpm increase in unidentified LEAKAGE in the previous 24 hour period. Per LCO 3.4.4, RCS Operational Leakage.
Plausible Distractors: A is plausible, 5 gpm is the UNIDENTIFIED Leakage Limit. B is plausible, NO pressure boundary leakage is permitted. C is plausible, if UNIDENTIFIED Leakage Limit is confused with INCREASE Limit.
Objective Link: QC-OP-725-0100-0101

RO 15	Tier 1	K/A Number 295006	Statement 2.4.4	IR 4	Origin N	Source Question N/A
LOK H (2RI)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 2.8	Reference Documents 20.125.01, Rev 22 20.125.01 Bases, Rev 0		

QUESTION 12

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

- Generator Megawatts indicates 1030 Mwe (lowering).
- 4D108, CONDENSER PRESSURE HIGH, alarms.
- 6D16, OFF GAS SYS MN CONDENSER PRESSURE HIGH, alarms.
- Main Condenser Pressure is 2.5 psia (rising).

How should the operator respond to these conditions?

_____ A. **START** a Mechanical Vacuum Pump.

_____ B. **SWAP** operating Steam Jet Air Ejectors.

_____ C. **PLACE** the Reactor Mode Switch in SHUTDOWN.

_____ D. **PERFORM** a Rapid Power Reduction per 23.623. "Reactor Manual Control System".

Correct Answer : C 20.125.01, "Loss of Condenser Vacuum", Override directs the Mode Switch be placed in SHUTDOWN when condenser vacuum is 2.5 psia.
Plausible Distractors: A is plausible, this is permitted ONLY < 5% Reactor Power. B is plausible, ADDITIONAL SJAEs may be started, SWAPPING is not procedurally permitted. D is plausible, 20.125.01 Subsequent Action C states, If condenser vacuum cannot be maintained in the specified band, then a Rapid Power Reduction is required IAW 23.623, "Reactor Manual Control System".
Objective Link: SS-OP-802-2001-RO-0001

RO 16	Tier 1	K/A Number 295016	Statement AK2.01	IR 4.4	Origin N	Source Question N/A
LOK F (S)	Grp 1	10 CFR 55.41(b) 8	LOD (1-5) 3.6	Reference Documents ST-OP-315-0044-001		

QUESTION 13

Which one of the following correctly identifies the RCIC controls **or** indications available at **BOTH** the Main Control Room **AND** the Remote Shutdown Panel?

_____ A. RCIC Pump Flow indication.

_____ B. RCIC Pump Discharge Pressure indication.

_____ C. E5150-F010, RCIC Pump CST Suction Isolation Valve, control pushbuttons.

_____ D. RCIC Pump Flow controller with Manual and Automatic Setpoint Adjustments.

Correct Answer : A RCIC Pump Flow indication exists at both locations.
Plausible Distractors: ALL listed indications and controls exist in the Main Control Room. B is plausible, E51-R609, RCIC Pump Discharge Pressure exists ONLY in the Main Control Room. C is plausible, E5150-F010, RCIC Pump CST Suction Isolation Valve control exists ONLY in the Main Control Room. D is plausible, E51-K615, RCIC Pump Flow Controller with Manual and Automatic setpoint adjustments exists ONLY in the Main Control Room.
Objective Link: ST-OP-315-0044-A013

RO 17	Tier 1	K/A Number 295018	Statement AK1.01	IR 3.5	Origin N	Source Question N/A
LOK H (2RI/ 3PEO)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 3.0	Reference Documents 20.127.01, Rev 27		

QUESTION 14

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

- RBCCW Heat Exchangers are experiencing fouling.
- 2D120, RBCCW HX DISCH TEMPERATURE HIGH/LOW, alarms.
- RBCCW Heat Exchanger Outlet Temperature is 95 °F (rising).
- RBCCW Cooling **CANNOT** be restored.

If this trend continues, which one of the following will **AUTOMATICALLY** occur?

_____ A. Reactor Water Cleanup Pumps will TRIP on Low Flow.

_____ B. Fuel Pool Cooling and Cleanup Pump will TRIP on Low Flow.

_____ C. Reactor Recirculation Pumps will TRIP on High Motor Winding Temperature.

_____ D. High Pressure Coolant Injection System will ISOLATE on High Area Temperature.

Correct Answer : A Justification: When NRHX High Inlet Temperature is > 140°F, G3352-F119, RWCU Supply Suction Isolation Valve automatically closes. This will cause the operating RWCU Pump to TRIP on Low Flow (< 70 gpm).
Plausible Distractors: B is plausible, FPCCU is an RBCCW Load, but FPCCU Pumps have no Low Flow Trip. C is plausible, RR Pumps are RBCCW Loads, but have no High Motor Winding Temperature Trip. There is a High Recirc Motor Generator Air Temperature Trip. D is plausible, T4100-B022, HPCI Pump Room Cooler receives cooling from RBCCW, but is supplemented by EECW following a complete loss of RBCCW. No steam leak indications, for HPCI, are given in the stem and HPCI is not running to add heat to the room.
Objective Link: ST-OP-315-0067-B004

RO 18	Tier 1	K/A Number 295019	Statement AK3.01	IR 3.3	Origin B	Source Question N/A
LOK H (3SPK)	Grp 1	10 CFR 55.41(b) 5	LOD (1-5) 3.25	Reference Documents 20.129.01, Rev 25; 23.129, Rev 75		

QUESTION 15

A loss of offsite power has occurred. Power has been restored to **ALL** Division 1 Buses.

- The West Station Air Compressor is operating.
- Division 1 Control Air Compressor is running, system pressure is 100 psig.
- Division 2 Control Air Compressor failed to start.
- Division 2 NIAS Header Pressure is 50 psig and steady.

Per 20.129.01, "Loss of Station and/or Control Air", what action is necessary to ensure the Div 2 Non-Interruptible Air System supply is available for continued use?

_____ A. Cross-tie NIAS with Division 1 supplying.

_____ B. DEPRESS the OPEN pushbutton for P5000-F403, IAS to Div 2 NIAS Isolation Valve.

_____ C. Place the P5000-F403, IAS to Div 2 NIAS Isolation Valve, keylock switch in OVRD, valve will re-open.

_____ D. OPEN P5000- F440, Div 1 Control Air Isolation Valve, **AND** P5000- F441, Div 2 Control Air Isolation Valve.

Correct Answer : A Justification: Cross-tie divisions will restore air pressure to Div 2 NIAS.
Plausible Distractors : Associated with other actions listed in 20.129.01, Loss of Station and/or Control Air. Place the keylock control switch on Panel H11-P807 for P5000-F403, IAS to Div 2 NIAS Iso Vlv to OVRD. overrides closure on LOOP or LOCA. P5000-F403 opens or stays open **only** when Control air pressure is above 80 psig. The valve lineup in D will cross tie NIAS but is not in accordance with plant procedure. Crosstie occurs down stream of Receiver check valves.

Objective Link: LP-OP-315-0171-C001

RO 19	Tier 1	K/A Number 295021	Statement AA1.05	IR 3.0	Origin M	Source Question EQ-OP-802-2001-000-0001-002
LOK F (1P)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 2.9	Reference Documents 20.205.01, Rev. 18		

QUESTION 16

The plant has been recently shutdown for a Refueling Outage, with the following conditions:

- The Plant is in MODE 4.
- Reactor Coolant Temperature is 120ºF.
- Decay Heat temperature input is equivalent to a Heat Up Rate (HUR) of 2ºF/min.
- RHR Pump “C” is operating in Shutdown Cooling.
- Div 2 RHR has been isolated, per a Safety Tagging Record (STR), and is draining.
- Reactor Water Level is 230 inches.
- Reactor Pressure is 0 psig.

RHR Pump “C” trips due to a closure of E1150-F008, RHR SDC Otbd Suction Isol Valve, and the valve **cannot** be re-opened electrically or manually.

Which of the following actions is required under these conditions?

_____ A. Start **ONE** Core Spray Pump.

_____ B. Start **ONE** Reactor Recirculation Pump.

_____ C. Start **BOTH** Control Rod Drive Hydraulic Pumps.

_____ D. Shift Fuel Pool Cooling and Cleanup to the Reactor Well.

Correct Answer : B 20.205.01 Condition H requires starting a Reactor Recirculation Pump when SDC cannot be restored in either loop.
Plausible Distractors: A is plausible, a Core Spray Pump is used to raise Water Level in preparation for Refuel Operations, with SDC in service and is also used as an Alternate Decay Heat Removal System (Both pumps).

C is plausible, will raise RPV Water Level for natural circulation, but does not procedurally mitigate Loss of SDC.
D is plausible, if the Reactor Head were removed (MODE 5), this would be the correct action.

Objective Link: ST-OP-315-0041-C012

Source Question showing **MODIFICATIONS**

The plant is in Mode 4. The following conditions exist: **- MODIFIED**

Division 1 RHR……………………………………………Shutdown Cooling (SDC)
Division 2 RHR……………………………………………NOT available. **- MODIFIED**
Reactor Pressure Vessel (RPV) level……………………230 inches
RPV pressure……………………………………………0 psig

Division 1 RHR tripped and can NOT be restarted. **- MODIFIED**

What action will the Reactor Operator be directed to perform? **- MODIFIED**

A Start Reactor Recirculation pumps
B Raise RPV pressure **- MODIFIED**
C Lower RPV level **- MODIFIED**
D Shift Fuel Pool Cleaning to the Reactor Well

RO 20	Tier 1	K/A Number 295023	Statement AA2.01	IR 3.6	Origin B	Source Question Clinton 1/15/2004 NRC Exam
LOK F (1I)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.7	Reference Documents 3D35, Rev 13		

QUESTION 17

A Refueling Accident in the Reactor Cavity resulted in the following conditions:

- 3D31, DIV 1 / 2 FP VENT EXH RADN MONITOR UPSCALE, alarms.
- 3D35, DIV 1 / 2 FP VENT EXH RADN MONITOR UPSCALE TRIP, alarms.
- 17D14, DIV 1 / 2 SGTS AUTO START, alarms.

For the given conditions, Reactor Building HVAC Isolation Dampers __(1)__ and the Reactor Building HVAC Supply and Exhaust Fans __(2)__ .

	(1)	(2)
_____ A.	ISOLATE	TRIP
_____ B.	ISOLATE	CONTINUE TO OPERATE
_____ C.	REMAIN OPEN	TRIP
_____ D.	REMAIN OPEN	CONTINUE TO OPERATE

Correct Answer : A A is correct, RBHVAC Dampers ISOLATE, RB HVAC fans TRIP, and the respective division of SGTS AUTO STARTS, when a FP Vent Exhaust Rad Monitor Upscale Trip occurs.
Plausible Distractors: B is incorrect, fans TRIP. C is incorrect, RBHVAC/Secondary Containment Dampers ISOLATE. Dampers remaining open is plausible if SGTS operation misconception of common flowpath. D is incorrect, fans TRIP, RBHVAC/secondary Containment Dampers ISOLATE. Dampers remaining open is plausible if SGTS operation misconception of common flowpath.
Objective Link: ST-OP-315-0066-A017

RO 70	Tier 2	K/A Number 239001	Statement A3.01	IR 4.2	Origin M	Source Question Fermi-2 2006 NRC Exam
LOK H (3PEO)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 3.4	Reference Documents 20.109.02 Bases, Rev 0		

QUESTION 18

The plant is operating at 85% power, when the **IN SERVICE** Pressure Regulator fails **HIGH**.

With **NO** Operator Actions, which of the following correctly describes the effect of this failure?

_____ A. **ONLY** an automatic Reactor Scram occurs.

_____ B. A Reactor Scram **AND** a Group 1 Isolation occurs.

_____ C. Pressure Control swaps to the BACKUP Pressure Regulator **AND** Reactor Pressure RISES by 3 psig.

_____ D. Pressure Control swaps to the BACKUP Pressure Regulator **AND** Reactor Pressure LOWERS by 3 psig.

Correct Answer : B 52 Manifold Pressure Transmitter failure HIGH causes the Pressure Regulator to OPEN Turbine Control Valves. This LOWERS Main Steam Line Pressure, at 756 psig, a Group 1 Isolation occurs due to Low Main Steam Line Pressure, which causes a Reactor Scram.
Plausible Distractors: A is plausible, if Group 1 Isolation is not known, Rapid RPV Pressure reduction may cause SWELL, which causes a Level 8 Turbine Trip and a Reactor Scram ONLY. C is plausible, this resembles a Pressure Regulator Failure / Automatic Transfer. D is plausible, this resembles a Pressure Regulator Failure / Automatic Transfer.
Objective Link: ST-OP-315-0045-A016
Source Question: The plant is operating at 85% power, when the IN SERVICE 52 inch Manifold Pressure Transmitter Output Signal fails HIGH.

Based on this failure, what action(s) will the operator perform and why? (MODIFICATION)

A. Perform rapid power reduction to reduce power and pressure.
(MODIFICATION)

B. Ensure backup pressure regulator takes control to maintain pressure.
(MODIFICATION)

C. Transfer to backup pressure transmitter to prevent excessive cooldown
(MODIFICATION)

D. Place the Mode Switch in SHUTDOWN and trip the main turbine bypass valves to prevent excessive cooldown.
(MODIFICATION)

RO 12	Tier 1	K/A Number 295003	Statement AK3.05	IR 3.7	Origin N	Source Question N/A
LOK H (2RI)	Grp 1	10 CFR 55.41(b)10	LOD (1-5) 2.5	Reference Documents 4D132, Rev 7, 20.300.Offsite, Rev 6		

QUESTION 19 PRA sensitive issue - 8/2003 Loss of Grid Event

The plant is operating at 90% power when the following occurs:

- 345kV and 120kV mat voltages begin lowering.
- 4D132, GENERATOR FREQUENCY HIGH / LOW, alarms.
- Generator Frequency is 59.4 Hz (lowering).
- 120 kV BUS 101 POWER ON light is **OFF**.
- 120 kV BUS 102 POWER ON light is **OFF**.
- R14-R819, SS Xfmr # 64 Secondary Volt Indicator, reads zero volts.
- 345 kV BUS 301 POWER ON light is **OFF**.
- 345 kV BUS 302 POWER ON light is **OFF**.
- R14-R833, SS Xfmr # 65 Secondary Volt Indicator, reads zero volts.
- R14-R835, SS Xfmr # 65 Secondary Volt Indicator, reads zero volts.

With these conditions, which one of the following actions is required?

_____ A. Place the Reactor Mode Switch in SHUTDOWN due to a **COMPLETE** loss of Offsite Power.

_____ B. Manually start and load **ALL** Emergency Diesel Generators due to loss of Offsite Power to **BOTH** divisions of ESF Buses.

_____ C. Place the Reactor Mode Switch in SHUTDOWN due to loss of Offsite Power to **ONLY ONE** division of ESF Buses **AND** half of the BOP Buses.

_____ D. Verify automatic start and loading of Emergency Diesel Generators 11 **AND** 12 due to loss of Offsite Power source to **ONLY ONE** division of ESF Buses.

Correct Answer : A
Stem conditions indicate complete Loss of Offsite Power, 20.300.Offsite Immediate Action requires placing Reactor Mode Switch in SHUTDOWN.

Plausible Distractors: B is plausible, it is required to verify automatic EDG starts. It is not appropriate to manually start EDGs. C is plausible, if power was lost to only the 345kV system, ONE Division of ESF Buses and Half of the BOP Buses would be lost. Mode switch to shutdown is required. D is plausible, if power were lost to only the 120 kV system, ONE Division of ESF Buses would be affected.
Objective Link: SS-OP-802-2001-RO-0002

RO 21	Tier 1	K/A Number 295024	Statement 2.2.22	IR 3.4	Origin N	Source Question N/A
LOK H (2DS)	Grp 1	10 CFR 55.41(b) 9	LOD (1-5) 3.75	Reference Documents Technical Specification 3.6.1.4 29.100.01 Sheet 2, Rev 9, Primary Containment Control.		

QUESTION 20

In Mode 1, the **UPPER LIMIT** for the **DRYWELL PRESSURE LCO** is __(1)__ the value which requires entry into Emergency Operating Procedures (EOPs).

The Required Action Completion Time to restore Drywell Pressure within limits is __(2)__ .

	(1)	(2)
_____ A.	BELOW	IMMEDIATELY
_____ B.	BELOW	within 1 hour
_____ C.	ABOVE	IMMEDIATELY
_____ D.	ABOVE	within 1 hour

Correct Answer : D ABOVE is correct LCO is 2.0 psig, EOP Entry is 1.68 psig Within 1 hour is the correct Completion Time for 3.6.1.4
Plausible Distractors: A is plausible, if either EOP Entry Condition or LCO is not known. IMMEDIATELY is plausible. B is plausible, if either EOP Entry Condition or LCO is not known. C is plausible, Required Action Completion Time is unknown, IMMEDIATELY is plausible.
Objective Link: LP-OP-804-0002

RO 22	Tier 1	K/A Number 295025	Statement EK1.06	IR 3.5	Origin N	Source Question N/A
LOK H (3PEO)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 3.1	Reference Documents 23.201 Rev. 24		

QUESTION 21

Following a Reactor Scram, the following conditions exist:

- **BOTH** Bypass Valves have failed closed.
- RPV Water Level is being maintained by the North Reactor Feed Pump.
- MANUAL Safety Relief Valve operation is in progress.
- The Drywell is being vented to lower Drywell Pressure.

Under these conditions, Reactor Water Level should be maintained___________________.

_____ A. at 173” to avoid a Reactor Feed Pump Trip

_____ B. at 197” to avoid a Reactor Feed Pump Trip

_____ C. at 197” to avoid a Drywell Vent path isolation

_____ D. at 214” to avoid a Drywell Vent path isolation

Correct Answer : B Precaution 3.5 states: Reactor Water Level should be as near to normal level as possible during manual SRV operation to prevent inadvertent Reactor Hi Level trips due to swell. This condition results in Reactor Feed Pump Trips.
Plausible Distractors: A is plausible, if procedural precaution is not known. C is plausible, if effect of Reactor Pressure induced Reactor Level response from SRV operation is not known. Reactor Low Level Trips result in Drywell Vent Path Isolation.. D is plausible, if procedural precaution and the effect of Reactor Pressure induced Reactor Level response from SRV operation is not known.
Objective Link: ST-OP-315-0005-001-C005

RO 23	Tier 1	K/A Number 295026	Statement EK2.03	IR 3.2	Origin B	Source Question VY 2002 NRC Exam
LOK F (1B)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 3.4	Reference Documents BWROG EPG /SAG B-7-24 29.100.01 Sheet 2 step TWT-5		

QUESTION 22

If Torus Temperature or RPV Pressure cannot be maintained below the Heat Capacity Limit, 29.100.01 Sheet 2, “Primary Containment Control”, requires Emergency Depressurization.

This action is performed to avoid ____________.

_____ A. loss of all RPV Level instruments after RPV Emergency Depressurization

_____ 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

Correct Answer : C The Heat Capacity Temperature Limit (HCTL) is the highest suppression pool temperature from which emergency RPV depressurization will not raise Suppression chamber pressure above Primary Containment Pressure Limit.
Plausible Distractors: A is plausible, High Drywell Temperature challenges RPV Level Instrumentation, addressed in same EOP. B is plausible, High Torus Level challenges SRV Tailpipe Limit, addressed in same EOP. D is plausible, Hydrodynamic loading on downcomers is not addressed by HCTL.
Objective Link: LP-OP-802-3004-0009

RO 7	Tier 3	K/A Number Generic	Statement 2.3.4	IR 2.5	Origin N	Source Question N/A
LOK H (3SPK)		10 CFR 55.41(b) 12	LOD (1-5) 3.5	Reference Documents EP-201-03 Rev 8, Section 6.2		

QUESTION 23

Given the following conditions:

- An accident has occurred which requires life saving measures.
- Radiation levels in the area of the injured person are 20,000 mrem/hr.
- Emergency exposure TEDE (Whole Body) limit for life saving operations has been authorized per EP-201-03, "Variances From Routine Radiological Practice and Procedures During an Emergency".

The **MAXIMUM** stay time for a rescuer under these circumstances is:

_____ A. 15 minutes

_____ B. 60 minutes

_____ C. 75 minutes

_____ D. 150 minutes

Correct Answer : C 25 Rem = 25,000 mrem/20,000 mrem/hr = 75minutes
Plausible Distractors: A is plausible, 5,000 mrem / 20,000 = 15 minutes. B is plausible, 20,000 mrem / 20,000 mrem/hr = 60 minutes. D is plausible, 50,000 mrem / 20,000 mrem/hr = 150 minutes.
Objective Link: LP-GN-508-0001-A015

RO 25	Tier 1	K/A Number 295030	Statement EA1.01	IR 3.6	Origin B	Source Question Fermi-2 2001 NRC Exam
LOK H (3SPR)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 3.5	Reference Documents 29.100.01 Sheet 6 Curves and Cautions Provide RCIC, HPCI, CS, and RHR NPSH Curves and CS, RHR Vortex Curves		

QUESTION 24

The following plant conditions exist following a LOCA event:

- Torus Water Temperature is 180 °F (stable).
- Torus Water Level is -30 (minus 30) inches (stable).
- Torus Pressure is 0 psig (stable).
- Reactor Pressure is 70 psig (stable).

Which one of the following describes **ACCEPTABLE** conditions for the following pumps being used for RPV Level control?

_____ A. RCIC operation at 600 gpm.

_____ B. HPCI operation at 4500 gpm.

_____ C. Single pump LPCI Flow of 12,500 gpm.

_____ D. Total Core Spray Loop Flow of 7000 gpm.

Correct Answer : D CSS NPSH Limit is ~7,600 gpm at -30 (minus 30) inches Torus Level.
Plausible Distractors: A is plausible, RCIC Pump is restricted to 450 gpm NPSH Limit. B is plausible, HPCI Turbine has isolated on Low Steam Pressure and flow is limited to 3700 gpm. C is plausible, RHR Loop Flow over 12,000 gpm exceeds the NPSH Limit.

Objective Link: ST-OP-802-3002-001-007

RO 63	Tier 2	K/A Number 264000	Statement K4.01	IR 3.5	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK H (3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 3.2	Reference Documents 23.307, Rev 90		

QUESTION 25

The plant is in a refueling outage. EDG 11 is running in parallel with Offsite power. 64B-B6, the Normal Offsite Power Feed Breaker, opens spuriously with no faults indicated. How will this affect EDG operation?

_____ A. The EDG will continue to run, Bus 64B will load shed.

_____ B. The EDG will continue to run, **ALL** EDG trips will remain active.

_____ C. The EDG will continue to run, **ONLY** essential trips will remain active.

_____ D. The EDG will trip on under frequency and restart, Bus 64B will load shed, and vital loads will sequence back on.

Correct Answer : C Whenever an EDG output breaker is closed, the Undervoltage Relaying for the associated 4160V ESF busses is disabled. The EDG non-essential trips are removed whenever the Normal Feed Breaker (B6, C6, E6, and F6) and Maintenance Tie Breaker (B9, C9, E9, and F9) for that bus are open.
Plausible Distractors: A is plausible, no Load Shed will occur because Undervoltage Relaying for the associated 4160V ESF buses is disabled. B is plausible, non-essential trips are removed when the B6 and Maintenance Tie Breaker are open. D is plausible for a LOOP, non-essential trips are removed when the B6 and Maintenance Tie Breaker are open. No Load Shed will occur because Undervoltage Relaying for the associated 4160V ESF buses is disabled.
Objective Link: ST-OP-315-0065-A016

RO 27	Tier 1	K/A Number 295037	Statement 2.4.6	IR 3.1	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK F (1P)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 2.9	Reference Documents 29.ESP.11 Rev 8		

QUESTION 26

The plant is in an ATWS. An RO has been assigned to perform 29.ESP.11, "Defeat of RPV Level 1 and High Rad MSIV and Main Steam Line Drain Valve Isolation Signals".
Prior to completing the procedure, the MSIVs automatically close on RPV Level.

Where does the assigned operator perform the defeats for this procedure, and how will the MSIVs be affected by performing this procedure after the MSIVs are closed?

_____ A. H11-P601 and H11-P602, MSIVs automatically open after a 30 second time delay.

_____ B. RR H11-P609 and RR H11-P611, MSIVs automatically open with no operator action.

_____ C. RR H11-P609 and RR H11-P611, MSIVs can be manually opened after the isolation signal is reset.

_____ D. H11-P601 and H11-P602, MSIVs can be manually opened by depressing the Inbd and Otbd MSIV OPEN pushbuttons.

Correct Answer : C Defeats are accomplished with jumper installation at P609 and P611, in the Relay Room. Isolation Reset pushbuttons are performed on P601 and P602, in the Main Control Room. Isolation Reset is required to facilitate reopening MSIVs.
Plausible Distractors: A is plausible, there is no automatic MSIV open function. Could be confused for loss of air operation. B is plausible, correct defeat location, no automatic MSIV open function following an isolation candidate could confuse with loss of air operation. D is plausible, defeat location is incorrect, reset of isolation signal is required to reopen.
Objective Link: LP-OP-802-3006-0018

RO 28	Tier 1	K/A Number 295038	Statement EK1.02	IR 4.2	Origin M	Source Question N/A
LOK F (1B)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 2.7	Reference Documents BWROG EPG Appendix B Section 6		

QUESTION 27

During an accident condition involving fuel damage and a radiation release, the following conditions exist:

- Mode Switch is in SHUTDOWN.
- Reactor Power is 12%.
- Div 1 AXM Channel 4 is 6.0 microCi/cc (rising).
- Div 2 AXM Channel 4 is 5.8 microCi/cc (rising).

Why do the **EPG BASES** permit bypass of the MSIV Level 1 and High Radiation interlocks in this condition?

_____ A. To prevent a threat to Drywell integrity from Hydrogen accumulation.

_____ B. To prevent power oscillations from exceeding the Steam Flow capability of Safety Relief Valves.

_____ C. To allow the Main Condenser in conjunction with the Off Gas System to reduce the dose to the public.

_____ D. To allow Main Steam Line Radiation Monitor data to be used to improve the accuracy of Offsite Dose Calculations.

Correct Answer : C
BWROG EPG states; "If, instead, high radiation interlocks are not bypassed and steam is discharged through the SRVs into the suppression pool, radionuclides not scrubbed in the pool will accumulate in the containment atmosphere, from which they may escape due to normal containment leakage. Even if processed prior to release by the Standby Gas Treatment System, the **public dose will be higher** than if these radionuclides were retained in or processed by the Offgas System.

Plausible Distractors:
A is plausible, Fuel Damage may be accompanied by Hydrogen generation, which can be a long term containment threat.
B is plausible, other ATWS mitigation actions reduce the probability of fuel damage from core power oscillations.
D is plausible, Main Steam Line Radiation Monitor readings are NOT used for offsite dose calculations.

Objective Link: LP-OP-802-3003-0013

Source Question:

During an accident condition involving fuel damage and a radiation release, the following conditions exist:

Mode Switch is in SHUTDOWN.
Reactor Power is 15%. (MINOR MODIFICATION)
Div 1 AXM Channel 4 is 5.0 microCi/cc (rising). (MINOR MODIFICATION)
Div 2 AXM Channel 4 is 4.8 microCi/cc (rising). (MINOR MODIFICATION)

Why do the EPG BASES permit bypass of the MSIV Level 1 and High Radiation interlocks in this condition?
A. The Turbine Building has a hold up time equivalent to SGTS.
(SIGNIFICANT MODIFICATION)
B. The Main Condenser in conjunction with the Off Gas system will result in a lower dose to the public.
C. The walls of the Main Steam piping and Main Condenser provide one tenth-thickness for gamma attenuation.
(SIGNIFICANT MODIFICATION)
D. The Main Condenser provides a long hold up time by entrainment in the condensate and will result in a lower dose to the public.
(SIGNIFICANT MODIFICATION)

RO 29	Tier 1	K/A Number 600000	Statement AK2.04	IR 2.5	Origin N	Source Question N/A
LOK F (1P)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 2.75	Reference Documents 20.000.18 Rev 39 Action B1		

QUESTION 28

Per 20.000.18, "Control of the Plant from the Dedicated Shutdown Panel", when a fire develops causing spurious plant equipment operations, the Reactor Protection System Scram Relays are placed in a scram condition by ________________.

_____ A. depressing the RPS Manual Scram Pushbuttons

_____ B. opening the RPS MG Set Power Supply Breakers

_____ C. placing the Reactor Mode Switch in SHUTDOWN

_____ D. placing the APRM Channel Keylock Switches in INOP

Correct Answer : A 20.000.18 states, "IF Control Room inaccessible as a result of a fire OR actual spurious operation of components or failures of components occur, depress Manual Scram Pushbuttons." Depressing the Manual Scram Pushbuttons is the only manual action performed in the control room that is given credit in the NRC guidance document Generic Letter 86-10, Implementation of Fire Protection Requirements.
Plausible Distractors: B is plausible, will cause a Reactor Scram and PCIS Isolations, NOT procedurally directed. C is plausible, will cause a Reactor Scram and defeat the MSL Low Pressure Group 1 Isolation, NOT procedurally directed. D is plausible, will cause a Reactor Scram, NOT procedurally directed. Plausibility is due to 20.000.19, "Shutdown From Outside The Control Room" directs this method in non-fire situations.
Objective Link: SS-OP-802-2001-001

RO 45	Tier 2	K/A Number 215004	Statement 2.1.30	IR 3.9	Origin B	Source Question Limerick 2002 NRC Exam
LOK H (2DR)	Grp 1	10 CFR 55.41(b) 6	LOD (1-5) 2.3	Reference Documents 23.602, Rev 26		

QUESTION 29

Plant conditions are as follows:

- MODE 2, Reactor Startup is in progress.
- RPS Nuclear Instrumentation shorting links are installed.
- ALL SRM detectors are fully inserted.
- The reactor is CRITICAL.
- ALL IRMs are on Range 2.

SRMs currently indicate:

"A" SRM - 1.4 x 10^5 cps
"B" SRM - 1.1 x 10^5 cps
"C" SRM - 9.2 x 10^4 cps
"D" SRM - 2.3 x 10^5 cps

Per 23.602, "Source Range Monitoring System", which one of the following describes the proper positioning of the SRMs and the correct method for withdrawal using the "DRIVE OUT" pushbutton based on the above conditions?

	SRM position	DRIVE OUT Pushbutton
_____ A.	Withdrawn to maintain 100 to 10^5 cps.	Depress and hold for continuous SRM withdrawal.
_____ B.	Withdrawn to maintain 100 to 10^5 cps.	Depress and release for continuous SRM withdrawal.
_____ C.	Fully withdrawn without regard to count rate.	Depress and hold for continuous SRM withdrawal.
_____ D.	Fully withdrawn without regard to count rate.	Depress and release for continuous SRM withdrawal.

Correct Answer : A 23.602 requires maintaining SRMs on scale between 100 and 10^5 cps. The procedure specifies depressing and holding the DRIVE OUT pushbutton to withdraw detectors.
Plausible Distractors: B is plausible, potential misconception - DRIVE IN seals in, requiring only a momentary depress of the pushbutton. C is plausible, potential misconception - detectors are fully withdrawn only above the Point of Adding Heat, power is given as IRM Range 2. D is plausible and incorrect on BOTH of the above misconceptions.
Objective Link: ST-OP-315-0022-A014

RO 30	Tier 1	K/A Number 295026	Statement EK3.04	IR 3.7	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK F (1B)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 2.7	Reference Documents EPG Bases B-6-68 Rev 2		

QUESTION 30

The plant has experienced a full power ATWS.
The crew failed to initiate boron injection before Torus water temperature reached the Boron Injection Initiation Temperature (BIIT).
Alternate means to shutdown the reactor have been unsuccessful.

The **FIRST** limit violated by delayed boron injection is the...

_____ A. Heat Capacity Limit.

_____ B. RPV Saturation Limit.

_____ C. Primary Containment Pressure Limit.

_____ D. Minimum RPV Flooding Pressure Limit.

Correct Answer : A The basis for the BIIT is to assure Hot Shutdown Boron Weight is injected prior to exceeding the Heat Capacity Limit. The Heat Capacity Limit may be violated by delayed boron injection.
Plausible Distractors: B is plausible, but is simply based on the properties of water. C is plausible, if ED is initiated AFTER the Heat Capacity Limit is exceeded, PCPL may be violated. D is plausible, but is dependent upon (1) the Minimum SRV Reopening Pressure or (2) the lowest differential pressure between the RPV and the suppression chamber at which steam flow through the Minimum Number of SRVs Required for Emergency Depressurization is sufficient to remove all decay heat from the core.
Objective Link: ST-OP-802-3002-001-01-06

RO 31	Tier 1	K/A Number 295007	Statement AK3.04	IR 4	Origin N	Source Question N/A
LOK H (2RI/ 3PEO)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 2.4	Reference Documents 1D38, Rev 13		

QUESTION 31

The plant was operating at 100 % power when the following transient occurred:

- A spurious Group 1 Isolation occurred.
- **ALL** Control Rods are fully inserted.
- RPV pressure is 1000 psig (slowly lowering).
- **NO** operator actions have occurred.
- **ONE** Safety Relief Valve (SRV) is open.

After 5 minutes, Safety Relief Valve (SRV) __(1)__ is open in the __(2)__ mode.

	(1)	(2)
_____ A.	A	Safety
_____ B.	G	Safety
_____ C.	A	Low-Low Set
_____ D.	G	Low-Low Set

Correct Answer : C Candidate must know plant response to Full Power Group 1 Isolation. This includes RPV Pressure exceeding High Pressure Scram Setpoint with an SRV Open. This activates Low-Low Set, which reduces Lift Setpoint of Lowest SRV to 1017 psig.
Plausible Distractors: A/B is plausible, immediately following a MSIV closure scram, these valves could be open due to exceeding their safety relief setpoints (1135 psig). D is plausible, but is NOT the LOWEST Low-Low Set Lift Setpoint (1047 psig).
Objective Link: ST-OP-315-005-B003

RO 32	Tier 1	K/A Number 295008	Statement AK1.02	IR 2.8	Origin M	Source Question 1999 Duane Arnold NRC Exam
LOK F (1D)	Grp 2	10 CFR 55.41(b) 5	LOD (1-5) 2.3	Reference Documents Technical Specification Basis 3.3.2.2		

QUESTION 32

With the plant operating at 100% power, if Feedwater Flow **EXCEEDS** Steam Flow, this condition may result in:

_____ A. CARRYOVER, which reduces NPSH to Jet Pumps.

_____ B. CARRYOVER, which increases erosion of Main Turbine Blades.

_____ C. CARRYUNDER, which reduces NPSH to Reactor Recirculation Pumps.

_____ D. CARRYUNDER, which increases erosion of Steam Separators and Dryers.

Correct Answer : B Candidate must diagnose a condition which produces a HIGH RPV Water Level and select the associated damaging mechanism and susceptible component.
Plausible Distractors: A is plausible, CARRYOVER does not reduce NPSH to Jet Pumps (wrong effect). C is plausible, CARRYUNDER (wrong mechanism) can reduce Downcomer Subcooling, which reduces NPSH to Reactor Recirculation Pumps. D is plausible, Steam Separators and Dryers are designed to operate in a wet steam environment and are not susceptible to moisture erosion.
Objective Link: LP-OP-804-001
Source Question: One of the running Reactor Feed Pumps was inadvertently TRIPPED while the plant was at 90% power. (SIGNIFICANT MODIFICATION) 1)Does the resultant transient result in CARRYOVER or CARRYUNDER ? 2)What is the primary concern associated with this condition? A 1) CARRYUNDER 2) Reduction in Recirc Pump Net Positive Suction Head. B. 1) CARRYOVER 2) Excess moisture impinging the blades of the Main Turbine. C. 1) CARRYOVER 2) Reduction in Recirc Pump Net Positive Suction Head

D. 1) CARRYUNDER 2) Excess moisture impinging the blades of the Main Turbine

RO 34	Tier 1	K/A Number 295012	Statement AK2.02	IR 3.6	Origin B	Source Question Fermi-2 2001 NRC Exam
LOK F (1P)	Grp 2	10 CFR 55.41(b) 10	LOD (1-5) 2.4	Reference Documents ARP 8D41 Rev 14		

QUESTION 33

The plant is operating at full power with all DW Cooling Fans in operation. SCCW is Out of Service. Panel H11-P808 annunciator 8D41, DIV 1 DRYWELL TEMPERATURE HIGH, alarms. The operator observes that T47-R803A, Drywell Cooling System Area Temperatures Div 1, point 16 indicates 158°F (alarm setpoint is 155°F).

If the **AVERAGE** drywell temperature has risen from 132°F to 135°F during the last 8 hours, which one of the following actions is appropriate?

_____ A. Start an additional RBCCW Pump.

_____ B. Increase GSW cooling to RBCCW.

_____ C. Manually initiate EECW and EESW Systems.

_____ D. Enter 29.100.01 Sheet 2, “Primary Containment Control”.

Correct Answer : B ARP 8D41, directs starting all DW Cooling Fans (stem condition), INCREASING GSW to RBCCW HXs, and Starting RBCCW Supplemental Cooling. (stem condition)
Plausible Distractors: A is plausible, no symptoms are given for inadequate RBCCW Cooling of RBCCW Loads. C is plausible, EECW is not required for the given conditions. D is plausible, Primary Containment Control EOP is entered on High Drywell Pressure (1.68 psig) **or** Drywell Avg Temp > 145ºF. This small amount of temperature increase would not cause the PC to exceed 1.68 psig. The candidate could confuse temperature setpoint and might think pressure would increase greatly.
Objective Link: ST-OP-315-0017-C010

RO 24	Tier 1	K/A Number 295028	Statement EK3.01	IR 3.6	Origin N	Source Question N/A
LOK F (1B)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 2.9	Reference Documents BWROG EPG/SAG B-7-24 EPG DIFF DOC		

QUESTION 34

Per 29.100.01, Sheet 2, "Primary Containment Control", when Drywell Temperature cannot be restored and maintained below 340 °F, what action is required, and why?

_____ A. Initiate Drywell Sprays to maintain RPV Water Level Instrument Accuracy.

_____ B. Emergency Depressurize because Drywell Design Temperature has been exceeded.

_____ C. Initiate Drywell Sprays prior to reaching conditions which will result in exceeding evaporative cooling limits.

_____ D. Emergency Depressurize to maintain the isolation capability of the Main Steam Isolation Valves (MSIVs).

Correct Answer : B BWROG EPG Basis is the lesser of Drywell Design Temperature or ADS Qualification Temperature, at Fermi-2, these values are BOTH 340°F.
Plausible Distractors: A is plausible, but the RPV Saturation Curve coupled with erratic level instrument behavior are the criteria for "Level Unknown" Emergency Depressurization – not 340°F without regard to RPV Pressure. Example, DW=350°F, RPV pressure = 1000 psig, SAT CURVE is not violated. C is plausible, and is the correct basis for the Drywell Spray Initiation Limit Curve, (DWSIL), which is also a Drywell Temperature consideration and required at lower Drywell Temperatures. D is plausible, Containment Integrity is the basis, MSIVs include Outboard Valves which are not subject to DW Temperature and provide isolation capability.
Objective Link: LP-OP-802-3004-009

RO 35	Tier 1	K/A Number 295013	Statement AA2.01	IR 3.8	Origin M	Source Question 2001 Quad Cities NRC Exam
LOK F (1P)	Grp 2	10 CFR 55.41(b) 10	LOD (1-5) 2.5	Reference Documents 1D61 Rev 19, 20.000.25 Rev 20		

QUESTION 35

The plant is operating at 80% power when the following occurs:

- 1D61, SRV OPEN, alarms.
- Red OPEN light for Safety Relief Valve B2104-F013H (COP H11-P601) is LIT.
- Reactor Pressure is 1025 psig (stable).

Given these conditions, when would the crew be **REQUIRED** to initiate a manual reactor scram per 20.000.25, “Failed Safety Relief Valve” ?

_____ A. When Torus Water Average Temperature reaches 95°F.

_____ B. When Torus Water Average Temperature reaches 110°F.

_____ C. Immediately, IF the SRV CANNOT be closed with the pushbuttons.

_____ D. Immediately, IF the SRV CANNOT be closed by pulling control power fuses.

Correct Answer : B AOP 20.000.25, Failed Safety Relief Valve requires manual scram at 110°F Torus Average Water Temperature.
Plausible Distractors: A is plausible, EOP Entry Condition for 29.100.01, Sheet 2, “Primary Containment Control”. C is plausible, 20.000.25 requires Rapid Downpower when pushbuttons fail to close the SRV. D is plausible, 20.000.25 directs pulling control power fuses, but does not require immediate scram when this is unsuccessful.
Objective Link: SS-OP-802-2001-RO-0003
Source Question: Unit 2 was operating at 60% power with a HPCI surveillance in progress when the following annunciator was received: **(MODIFICATION)** - 3A TARGET ROCK RELIEF VLV OPEN

Assuming reactor pressure is normal, when would the crew be REQUIRED to initiate a manual reactor scram?

A. When Torus Bulk Water Temperature reaches 95°F.
B. When Torus Bulk Water Temperature reaches 105°F. **(MODIFICATION)**
C. Immediately AFTER verifying the safety relief valve (SRV) is actually open.
D. Immediately, IF the SRV is actually open and it CANNOT be closed with the
keylock switch. **(MODIFICATION)**

RO 36	Tier 1	K/A Number 295032	Statement EK2.04	IR 3.6	Origin N	Source Question N/A
LOK H (2RI/ 3PEO)	Grp 2	10 CFR 55.41(b) 10	LOD (1-5) 3.0	Reference Documents 1D66, Rev 12		

QUESTION 36

Following a plant transient, the following conditions exist:

- ALL Control Rods are fully inserted.
- RPV Water Level is +190 inches (stable).
- 1D66, STEAM LEAK DETECTION AMBIENT TEMP HIGH, alarms.
- 1D70, STEAM LEAK DETECTION DIFF TEMP HIGH, alarms.
- B21-N600, Main Steam Tunnel Ambient Temperature, reads 160°F.
- E51-N600, RCIC Ambient (RCIC and CS Room) Temperature, reads 160°F.
- E41-N600, HPCI Ambient (HPCI and CRD Pump Area) Temperature, reads 135°F.

With these conditions, which one of the following conditions describes the status of Primary Containment Isolation System Valves?

_____ A. **ONLY** HPCI Valves have received an Isolation Signal.

_____ B. **ONLY** RCIC Valves have received an Isolation Signal.

_____ C. **ONLY** Main Steam Isolation Valves **AND** HPCI Valves have received an Isolation Signal.

_____ D. **ONLY** Main Steam Isolation Valves **AND** RCIC Valves have received an Isolation Signal.

Correct Answer : B Since RCIC Equipment Room Temperature exceeds 154°F, a Group 8 Isolation will occur. Candidate must know PCIS setpoints.
Plausible Distractors: A is wrong, HPCI Equipment Room is 135°F, Group 6 occurs at 154°F. C is wrong, MSL Tunnel Temperature is 160°F – Group 1 occurs at 200°F, HPCI Equipment

Room is 135°F, Group 6 occurs at 154°F.. D is wrong,, MSL Tunnel Temperature is 160°F – Group 1 occurs at 200°F.
Objective Link: ST-OP-315-0048-B000

RO 33	Tier 1	K/A Number 295010	Statement 2.4.31	IR 3.3	Origin N	Source Question N/A
LOK F (1I)	Grp 2	10 CFR 55.41(b) 10	LOD (1-5) 2.2	Reference Documents ARP 3D81, Rev 11		

QUESTION 37

The plant is operating at 100% power, when the following alarms and indications are received:

- 3D81, PRIMARY CONTAINMENT PRESSURE HIGH/LOW, alarms.

When Primary Containment Pressure is at the **HIGH** alarm setpoint, _______ should occur.

_____ A. **NO** actuations

_____ B. **ONLY** a Primary Containment Isolation System (PCIS) actuation

_____ C. **ONLY** a Reactor Scram AND Emergency Core Cooling System actuation

_____ D. a Reactor Scram **AND** Emergency Core Cooling System (ECCS) **AND** Primary Containment Isolation System (PCIS) actuations

Correct Answer : A Annunciator Response Procedure 3D81 provides the High (1.50 psig) and Low (0.10) setpoints. The HIGH setpoint is BELOW the 1.68 psig Reactor Scram, ECCS, and PCIS actuation setpoint.
Plausible Distractors: B is plausible, PCIS actuations occurs at 1.68 psig. C is plausible, Reactor Scram (RPS) trip and ECCS actuation occurs at 1.68 psig. D is plausible, Reactor Scram (RPS) trip, ECCS actuation, and PCIS actuation occurs at 1.68 psig.
Objective Link: ST-OP-315-0016-B007

RO 37	Tier 1	K/A Number 295034	Statement EA1.04	IR 4.1	Origin M	Source Question Fermi-2 2001 NRC Exam
LOK F (1I)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 2.4	Reference Documents 3D36, Rev 13		

QUESTION 38

The following actions automatically occurred:

- Reactor Building HVAC automatically tripped.
- SGTS automatically started.
- Control Center HVAC automatically aligned to Recirculation Mode.

Which one of the following annunciators is associated with **ALL** of these actuations?

_____ A. 3D12, DIV 1/2 OFF GAS RADN MONITOR HIGH HIGH

_____ B. 3D36, DIV 1/2 RB VENT EXH RADN MONITOR UPSCALE TRIP

_____ C. 3D46, RW BLDG VENT EXHAUST RADN MONITOR UPSCALE / INOP

_____ D. 3D45, CONT CENTER MAKEUP AIR RADN MONITOR UPSCALE TRIP

Correct Answer : B RB Vent Exhaust High Radiation Upscale Trip causes SBGT to initiate, Reactor Building HVAC fans trip and isolate, and Control Center HVAC to shift to the Recirculation Mode.
Plausible Distractors: A is plausible, Off Gas exits via RB Exhaust Stack. C is plausible, and is expected during a RW Bldg radiation release, ONLY trips RW Bldg HVAC. D is plausible, and is expected during a plant radiation release, but ONLY shifts Control Center HVAC to the Recirculation Mode.
Objective Link: ST-OP-315-0066-B003
Source Question: The following actions automatically occurred as the result of high radiation: (MODIFICATION)

- Reactor Building HVAC tripped
- SGTS started
- Control Center HVAC aligned to recirculation mode

Based on the information provided above, CHOOSE the radiation monitor and indicated radiation level that caused the automatic actions. **(MODIFICATION)**

A Fuel Pool Vent Exhaust = 7.3 mRem. **(MODIFICATION)**
B Reactor Building Vent Exhaust = 14,500 cpm. **(MODIFICATION)**
C Turbine Building Vent Exhaust = 11,500 cpm. **(MODIFICATION)**
D Radwaste Building Vent Exhaust = 14.5 mRem. **(MODIFICATION)**

RO 1	Tier 3	K/A Number Generic	Statement 2.1.22	IR 2.8	Origin B	Source Question N/A
LOK F (1D)		10 CFR 55.41(b) 10	LOD (1-5) 3.0	Reference Documents Tech Spec Table 1.1-1		

QUESTION 39

Plant conditions are as follows:

Reactor Mode Switch is in the SHUTDOWN position.
Reactor Coolant System Temperature is 120°F.
ALL Control Rods are fully inserted.
ALL Reactor Vessel Head Closure Bolts are **NOT** fully tensioned.

Per Technical Specifications, which operating **MODE** is the plant in?

_____ A. MODE 2 (STARTUP)

_____ B. MODE 3 (HOT SHUTDOWN)

_____ C. MODE 4 (COLD SHUTDOWN)

_____ D. MODE 5 (REFUEL)

Correct Answer : D Per Table 1.1-1, MODE 5 (REFUEL) exists when the Reactor Mode Switch is in Shutdown or Refuel at ANY Temperature with one or more Reactor Vessel Head Closure Bolts not fully tensioned.
Plausible Distractors: A is plausible if candidate incorrectly associates the requirements for MODE 2. B/C is plausible if candidate does not know the allowance for the Mode Switch to be in SHUTDOWN for MODE 5.
Objective Link: LP-OP-804-0002

RO 38	Tier 2	K/A Number 203000	Statement K4.01	IR 4.2	Origin B	Source Question N/A
LOK H (2RI)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.8	Reference Documents 23.205, Rev 94		

QUESTION 40

Two minutes after a **STEAM** leak develops inside the drywell the following conditions exist:

- Drywell pressure is 13 psig (rising).
- Reactor pressure is 400 psig (lowering at 10 psig per minute).
- RPV level is 170 inches (rising).
- B3105-F031B, Reactor Recirc Pump B Discharge Valve, is CLOSED.

Recirculation Loop __(1)__ has been selected for injection **AND** on the selected loop, __(2)__.

_____ A. (1) A
(2) **BOTH** LPCI Injection Valves are OPEN

_____ B. (1) B
(2) **BOTH** LPCI Injection Valves are OPEN

_____ C. (1) A
(2) **ONE** LPCI Injection Valve is CLOSED

_____ D. (1) B
(2) **ONE** LPCI Injection Valve is CLOSED

Correct Answer : B The candidate must know that BOTH injection valves are open when RPV Pressure is < 461 psig AND that B is the default Loop Selection when NO Recirculation Loop break is sensed.
Plausible Distractors: A is plausible, A Loop would be selected if the break was in B Recirculation Loop. C is plausible, A Loop would be selected if the break was in B Recirculation Loop, ONE valve would be CLOSED if RPV Pressure were > 461 psig. D is plausible, ONE valve would be CLOSED if RPV Pressure were > 461 psig.

Objective Link: ST-OP-315-0041-B000, B003

RO 39	Tier 2	K/A Number 205000	Statement K5.02	IR 2.8	Origin B	Source Question N/A
LOK H (2DR/3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.7	Reference Documents ST-OP-315-0041 Rev 14, 23.205 Rev 94		

QUESTION 41

The plant is in **MODE 4** with the following conditions:

- Division 1 Residual Heat Removal (RHR) System is ALIGNED in the Shutdown Cooling Mode with RHR Pump "C" in service.
- RHR Pump "C" is temporarily shutdown to perform Post Maintenance Testing and I&C SDC Surveillances.

The PMT requires E1150-F004C, Division I RHR Pump C Torus Suction Isolation Valve, to be manually opened and closed using the handwheel.

What is the consequence of operating this valve, in this configuration?

_____ A. The Reactor Well and Fuel Pool will drain to the Torus.

_____ B. RHR Pump C will trip on loss of suction flow path when re-started.

_____ C. Water hammer will occur when RHR Pump C is re-started due to loss of fill and vent.

_____ D. RPV level will lower via a drain path from the Reactor Pressure Vessel to the Torus.

Correct Answer : D Suction Path is aligned to the RPV, parallel path would be to the Torus, resulting in an inadvertent RPV drain path to the Torus.
Plausible Distractors: A is plausible, (MODE 5) If the RPV Head were removed, RPV was Flooded Up, and the FP Gates removed, when the Torus Suction Valve was opened – Reactor Well and Fuel Pool Level would LOWER.

B is plausible, if the F004 were closed (Torus Suction Valve) and either the F006 or F008 or F009 (SDC Suction Valves) were closed. Candidate confusion. C is plausible, if the discharge side of the RHR piping were drained, but this is prevented by an installed check valve.
Objective Link: ST-OP-315-0041-C005

RO 40	Tier 2	K/A Number 206000	Statement K6.02	IR 3.3	Origin B	Source Question N/A
LOK F (1I)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.9	Reference Documents 23.202, Rev 89		

QUESTION 42

Div 2 ESF DC Distribution 2PB is lost. From the following list, select which response contains the HPCI system steam supply valve(s) that has (have) **LOST** power.

- E4150-F002, HPCI Steam Supply Inboard Isolation Valve
- E4150-F003, HPCI Steam Supply Outboard Isolation Valve
- E4150-F600, HPCI Steam Supply Outboard Isolation Bypass Valve

_____ A. E4150-F002, HPCI Steam Supply Inboard Isolation Valve **ONLY**

_____ B. E4150-F003, HPCI Steam Supply Outboard Isolation Valve **ONLY**

_____ C. **BOTH** E4150-F002, HPCI Steam Supply Inboard Isolation Valve **AND** E4150-F003, HPCI Steam Supply Outboard Isolation Valve

_____ D. **BOTH** E4150-F003, HPCI Steam Supply Outboard Isolation Valve **AND** E4150-F600, HPCI Steam Supply Outboard Isolation Bypass Valve

Correct Answer : D Justification: E4150-F003 and E4150-F600 are powered from MCC 2PB-1.
Plausible Distractors A is plausible, E4150-F002 is powered from MCC 72C-3A. B is plausible, E4150-F003 is powered from MCC 2PB-1 but is not the only listed valve losing power. C is plausible, E4150-F002 is powered from MCC 72C-3A, E4150-F003 is powered from MCC 2PB-1.
Objective Link: LP-OP-315-0139-A014

RO 41	Tier 2	K/A Number 209001	Statement A1.07	IR 3.0	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK H (2RI/ 3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.3	Reference Documents ST-OP-315-0040-001, Rev 14		

QUESTION 43

With the plant operating at 100% power, a **SIMULTANEOUS** Loss of Offsite Power **AND** Loss of Coolant Accident occurred.

Assuming no other failures, how will the Core Spray system pumps respond?

_____ A. Pumps must be started manually as power is restored to the ESF buses.

_____ B. All pumps automatically start 5 seconds after the EDGs energize the ESF buses.

_____ C. All pumps automatically start immediately after the EDGs energize the ESF buses.

_____ D. Division 1 pumps automatically start 5 seconds after CTG 11-1 energizes the Division 1 ESF buses.

Correct Answer : B Pumps start automatically (5secs) after ESF busses energize on Level 1 or High Drywell Pressure.
Plausible Distractors: A is plausible, if pump starts were disabled due to Bus Lockout condition. C is plausible, if candidate doesn't understand logic and basis. D is plausible, if misconception between Station Blackout and Loss of Offsite Power occurs.
Objective Link: ST-OP-315-0040-B002

RO 42	Tier 2	K/A Number 211000	Statement A2.06	IR 3.1	Origin M	Source Question Fermi-2 2003 NRC Exam
LOK H (3SPK)	Grp 1	10 CFR 55.41(b) 8	LOD (1-5) 3.0	Reference Documents 23.139 Rev 40		

QUESTION 44

The SLC Initiation Keylock Switch, C4100- M004, has been placed in the PMP A RUN position. The following indications are noted 30 seconds later:

- Reactor Pressure is 1000 psig.
- C41-R601, SLC Tank Level Indicator, is steady.
- SLC Continuity Lights A and B are ON.
- SLC Pump A CMC Switch, red light is ON, green light is OFF.
- C41-R600, SLC Pump Discharge Pressure Indicator, is oscillating between 1370 and 1320 psig.

These are indications of what condition, and what should the operator do?

_____ A. SLC Explosive Valves failed to fire; start SLC Pump B.

_____ B. Normal operation for the SLC System; monitor SLC Tank level.

_____ C. C41-F001, SLC Storage Tank Outlet Valve, is shut; dispatch an operator to open C41-F001.

_____ D. C41-F029A, SLC Pump A Discharge Relief Valve, failed open; dispatch an operator to gag shut C41-F029A.

Correct Answer : A
If the C41-F004A & B, failed to fire, positive displacement SLC Pump A will OPEN C41-F029A, SLC Pump A Discharge Relief Valve, which causes pressure oscillations between 1370 and 1320 psig. These are the lift and reseat pressures for C41-F029A. Starting SLC Pump B will fire the other primer in both valves.

Plausible Distractors: B is plausible, Normal Indication would be Discharge Pressure slightly higher than Reactor Pressure AND lowering SLC Tank Level. C is plausible, the Tank Level would remain steady if the Storage Tank Outlet were shut, but discharge pressure would be low. D is plausible, Relief Valve has opened, but has not failed.
Objective Link: LP-OP-315-0114-C010
Source Question: On direction from the CRS, an operator has placed the SLC Initiation Keylock Switch (C4100 M004) in the PMP A Run position. The following indications are noted 30 seconds later: "C41 LIR601 (SLC Tank Level) steady "Primer circuit continuity indicators OFF "SLC pump A red light ON, green light OFF "C41 PI R600 (SLC Pump Discharge Pressure) pulsating at **1400 psig (MODIFICATION)** These are indications of what condition, and what should the operator do? A Normal operation for the SLC System; monitor SLC Tank level. B C41-F004A, Pump A Squib Valve, failed to fire; start SLC pump B. C C41-F001, SLC Storage Tank Outlet Valve, is **open**; dispatch operator to **close** C41-F001. **(MODIFICATION)** D C41-F029A, SLC Pump A Discharge Relief Valve, failed open; dispatch operator to gag **open** C41-F029A. **(MODIFICATION)**

<table>
<tr><td>RO
43</td><td>Tier
2</td><td>K/A Number
212000</td><td>Statement
A3.05</td><td>IR
3.9</td><td>Origin
B</td><td>Source Question
Clinton 2001 NRC Exam</td></tr>
<tr><td>LOK
H
(2DR/
3PEO)</td><td>Grp
1</td><td>10 CFR 55.41(b) 7</td><td>LOD (1-5)
2.5</td><td colspan="3">Reference Documents
3D94, Rev 7; 3D113, Rev 20; 3D6, Rev 9</td></tr>
</table>

QUESTION 45

A plant startup is in progress. Reactor Pressure is stable at 100 psig, when the following alarms are received.

- 3D2, SCRAM DISCH VOLUME HIGH
- 3D73, TRIP ACTUATORS A1 / A2 TRIPPED
- 3D74, TRIP ACTUATORS B1 / B2 TRIPPED
- 3D94, DISCH WATER VOL HIGH LEVEL CHANNEL TRIP

Based on these conditions, which one of the following describes the status of the following annunciators?

(1) 3D113, CONTROL ROD WITHDRAWAL BLOCKED
(2) 3D6, SCRAM VALVE PILOT AIR HDR PRESS HIGH / LOW

	(1)	(2)
_____ A.	Clear	Clear
_____ B.	Clear	Alarming
_____ C.	Alarming	Clear
_____ D.	Alarming	Alarming

Correct Answer : D Scram Discharge Volume High Level Trip causes BOTH Rod Block and Scram.
Plausible Distractors: A is plausible, if SDV Level RPS Trip and Rod Block functions are not known. B is plausible if Rod Block function is not known. C is plausible if RPS Trip function is not known.

Objective Link: ST-OP-315-0027-001-A013

RO 44	Tier 2	K/A Number 215003	Statement A4.05	IR 3.4	Origin M	Source Question Fitzpatrick 2003 NRC Exam
LOK F (1I)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.4	Reference Documents 3D59, Rev 5		

QUESTION 46

Intermediate Range Monitor (IRM) Upscale RPS Trips are BYPASSED when _____________.

_____ A. the IRM is on Range 8

_____ B. **ALL** APRMs are downscale

_____ C. **ALL** SRMs are fully inserted

_____ D. the Reactor Mode Switch is in RUN

Correct Answer : D IRM Trips are bypassed with the Reactor Mode Switch in RUN.
Plausible Distractors: A is plausible, SRM Upscale Trips are BYPASSED when IRMs are on Range 8. B is plausible, potential misconception with Companion Trips. C is plausible. potential misconception with SRM Detector Retract Not Permitted.
Objective Link: ST-OP-315-0023-A016
Source Question: An IRM HI Flux **Control Rod Block** is automatically bypassed when___________? (MODIFICATION) A The IRM is on Range **1**. (MODIFICATION) B The SRM's are fully inserted. C **The IRM's companion APRM is downscale**. (MODIFICATION) D The Reactor Mode Switch is placed in RUN.

RO 46	Tier 2	K/A Number 215005	Statement K1.16	IR 3.3	Origin N	Source Question N/A
LOK H (3PEO)	Grp 1	10 CFR 55.41(b) 6	LOD (1-5) 3.5	Reference Documents: 3D119, Rev 10; 3D115, Rev 9		

QUESTION 47

With Reactor Power at 100%, the following alarms and indications occur:

- 3D113, CONTROL ROD WITHDRAWAL BLOCK
- 3D115, APRM FLOW UPSCALE
- B31-R617, Recirc A Loop Flow Indicator, is **UNCHANGED** at 42 KGPM.
- B31-R613, Recirc B Loop Flow Indicator, is **UNCHANGED** at 42 KGPM.
- Reactor Power is **UNCHANGED** at 100%.
- B31-R614, Recirc Loops Flow Recorder, indicates **UPSCALE** on Loops “A” and “B”.

What is the effect of this failure and what is the proper crew response?

_____ A. This will cause OPRM protection to be enabled. Bypass RBM A.

_____ B. This will cause OPRM protection to be enabled. Bypass APRM Channel 1.

_____ C. This will prevent OPRM protection from becoming enabled. Bypass RBM A.

_____ D. This will prevent OPRM protection from becoming enabled. Bypass APRM Channel 1.

Correct Answer : D APRM Channel 1 provides Recirc Loop A and Loop B flow signals to B31-R614, Recirc Loops A and B Flow Recorder. OPRMs are enabled ONLY below 60% Recirc Flow and Simulated Thermal Power greater than 28%. OPRM protection for APRM 1 is prevented and cannot be enabled.
Plausible Distractors: A/C are plausible, RBM processes flow unit input to IPCS only. B is plausible, however low flow is required to enable OPRM protection.

Objective Link: ST-OP-315-0024-A015

RO 47	Tier 2	K/A Number 217000	Statement K2.01	IR 2.8	Origin N	Source Question N/A
LOK F (1F)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.4	Reference Documents 23.206, Rev 83		

QUESTION 48

When 480 VAC MCC 72F becomes **DEENERGIZED**, which one of the following RCIC valves will lose power?

_____ A. E5150-F095**,** RCIC Turbine Steam Inlet Bypass Valve

_____ B. E5150-F007, RCIC Steam Line Inboard Isolation Valve

_____ C. E5150-F008**,** RCIC Steam Line Outboard Isolation Valve

_____ D. E5150-F084, RCIC Exhaust Vacuum Breaker Inboard Isolation Valve

Correct Answer : B E5150-F007, RCIC Steam Line Inboard Isolation Valve is powered from 480 VAC MCC 72F-4A Pos 4D.
Plausible Distractors: A is plausible, but is powered from D1 DC MCC 2PA-1 pos 7C. C is plausible, but is powered from D1 DC MCC 2PA-1 Pos 3A. D is plausible, but is powered from D2 DC MCC 2PB-1 Pos 6C. It is also an inboard primary containment isolation valve, which in most cases is located in the primary containment and AC powered. This valve is located outside of the primary containment. (Torus Room)
Objective Link: ST-OP-315-0043-A014

RO 48	Tier 2	K/A Number 218000	Statement K3.01	IR 4.4	Origin M	Source Question Dresden 2002 NRC Exam
LOK H (3PEO)	Grp 1	10 CFR 55.41(b)7	LOD (1-5) 3.3	Reference Documents 1D44 Rev 12, 1D31 Rev 10		

QUESTION 49

A transient occurs, resulting in the following conditions:

- ALL MSIVs are closed.
- HPCI is operating and injecting into the vessel.
- RPV Water Level is 35 inches, lowering one inch per minute.
- Reactor pressure is 900 psig and slowly lowering.
- Drywell pressure is 1.0 psig and trending up at 0.05 psig/min.
- 1D57, ADS/SRV/EECW TCV POWER SUPPLY FAILURE, alarms.
- 2PA2-5 Circuit 1 is de-energized and cannot be restored.

3 minutes later, the following H11-P601 panel annunciators alarm:

- 1D31, ADS DRYWELL PRESS BYPASS TIMER INITIATE A / B LOGIC
- 1D36, ADS ECCS PUMP CH B PERMISSIVE

From the receipt of the alarms, the **EARLIEST** that ADS Valves should be **AUTOMATICALLY OPENED,** is:

_____ A. 2 minutes

_____ B. 7 minutes

_____ C. 9 minutes

_____ D. Never (valves remain closed)

Correct Answer : C
Annunciators indicate that L1 (31.8 inches) has occurred.
L1 + 7 minutes (DW Bypass Timer) = 7 minutes + 105 seconds = 8 minutes and 45 seconds
ADS Valves OPEN. Loss of 2PA2-5 disables ADS Logic A, but ADS Logic B is powered and

has dual power supplies (2PA2-5 & 2PA2-6). ADS Logic B is sufficient to initiate ADS.

Plausible Distractors:
A is plausible, 105 seconds from L1, IF Hi DW Pressure existed, this would be correct.
B is plausible, 7 minutes from L1, candidate may select if misconception exists about logic and 105 sec timer.
D is plausible, if candidate believes loss of 2PA2-5 will disable both logic trains/systems.

Objective Link: ST-OP-315-0042-B003

Source Question:

At 10:44, the following conditions exist on Unit 2:
A Steam Line Break occurred in the Drywell **(MODIFICATION)**
The MSIVs are closed
HPCI is operating and injecting to the vessel
RPV Water Level is -45 inches and trending down at two inches per minute **(MODIFICATION)**
Reactor pressure is 900 psig and steady
Drywell pressure is 1.5 psig, rising at 0.2 psig per minute **(MODIFICATION)**

At 10:47, the following 902-3 panel annunciators alarm:
ADS PERMISSIVE DW PRESSURE HIGH (E-15) **(MODIFICATION)**
ADS TIMER START (B-13)
LPCI/CS PP AT PRESS (H-13)
ADS INHIBIT (G-11) **(MODIFICATION)**

What is the state of this reactor at 10:54? **(MODIFICATION)**

A Reactor Water Level is still trending down **(MODIFICATION)**
B HPCI is maintaining level in the vessel **(MODIFICATION)**
C All five ADS relief valves are open **(MODIFICATION)**
D LPCI and Core Spray pumps are running and injecting water into the vessel**(MODIFICATION)**

RO 49	Tier 2	K/A Number 223002	Statement K4.06	IR 3.4	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK F (1I)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 3.2	Reference Documents 23.427, Rev 18; ST-OP-315-0048-001, Rev 11		

QUESTION 50

The plant is in Mode 4 with RHR Loop "A" operating in the Shutdown Cooling Mode.
A RHR Shutdown Cooling Isolation has occurred.

Which one of the following lists the **MINIMUM** condition(s) and/or action(s) which will allow Shutdown Cooling Suction Valves to be reopened?

_____ A. **ONLY** the initiating condition must be corrected and restored to normal.

_____ B. **ONLY** Main Steam Line Isolation RESET pushbuttons on H11-P601 and H11-P602 must be depressed.

_____ C. The initiating condition must be corrected and restored to normal **AND** Main Steam Line Isolation RESET pushbuttons on H11-P601 and H11-P602 must be depressed.

_____ D. The initiating condition must be corrected and restored to normal **AND** the close push button on the affected isolation valves must be depressed **AND** **ONLY** the Main Steam Line Isolation RESET pushbutton on H11-P601 must be depressed.

Correct Answer : C RHR SDC Valves may be reopned after the initiating condition has been corrected and restored to normal AND Main Steam Line Isolation RESET pushbuttons on H11-P601 and H11-P602 have been depressed.
Plausible Distractors: A is plausible, but is inadequate to permit reopening SDC Valves. B is plausible, but is inadequate to permit reopening SDC Valves. D is plausible, but is not the MINIMUM conditions / actions.

Objective Link: ST-OP-0048-A015

RO 59	Tier 2	K/A Number 211000	Statement K6.03	IR 3.2	Origin N	Source Question N/A
LOK H (2RI)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 3.5	Reference Documents 23.106 Rev 85, 23.139 Rev 41		

QUESTION 51

Following a LOSS OF OFFSITE POWER, the following conditions exist:

- Reactor Power is 20%.
- EDG 13 FAILED to start.
- Power to ESF Bus 72B has been LOST.

Which one of the following pumps **IS AVAILABLE** for reactivity control?

_____ A. C4103-C001A, SLC PUMP A

_____ B. C4103-C001B, SLC PUMP B

_____ C. C1106-C001A, EAST CRD PUMP

_____ D. C1106-C001B, WEST CRD PUMP

Correct Answer : C Bus 64B is the power supply to CRD Pump A
Plausible Distractors: A is plausible, SLC Pump A is an ATWS reactivity control system pump, but is fed from Bus 72B. This bus lost power (given in stem). Candidate must know power supply. B is plausible, SLC Pump B is an ATWS reactivity control system pump, but is fed from Bus 72E. EDG 13 failed to start (given in stem) which would supply its power supply (72E). D is plausible, W. CRD Pump is an ATWS reactivity control system pump, but is fed from Bus 65E. EDG 13 failed to start (given in stem) which would supply its power supply (65E).
Objective Link: ST-OP-315-0010-A014

RO 50	Tier 2	K/A Number 239002	Statement K5.06	IR 2.7	Origin B	Source Question Grand Gulf 2002 NRC Exam
LOK F (1B)	Grp 1	10 CFR 55.41(b)3	LOD (1-5) 2.6	Reference Documents: ST-OP-315-0005-001 Rev 15		

QUESTION 52

Which one of the following describes the function of the Safety Relief Valve Tailpipe Vacuum Breakers?

_____ A. Relieve steam from the SRV tailpipes following SRV actuation to the Drywell to prevent excessive back pressure on the SRV discs.

_____ B. Relieve differential pressures built up in the SRV tailpipes following actuation that would result in lift pressures for SRVs which are in excess of design.

_____ C. Equalize pressure established in the SRV tailpipes to assure positive actuation of the SRV Tailpipe Pressure Switches for accurate SRV position indication.

_____ D. Equalize pressure conditions in the SRV tailpipes to prevent Torus water from being drawn into the piping which could result in excessive hydraulic loads.

Correct Answer : D SRV Tailpipe Vacuum Breakers prevent condensing steam in the Tailpipe from drawing Torus Water upward into the Tailpipe, which would result in water slug flow on subsequent lifts, which may produce excessive hydraulic loads.
Plausible Distractors: A is a plausible, but incorrect function. B is a plausible, but incorrect function. C is a plausible, but incorrect function.
Objective Link: ST-OP-315-0005-A008

RO 26	Tier 1	K/A Number 295031	Statement EA2.04	IR 4.6	Origin N	Source Question N/A
LOK H (2DR)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 2.8	Reference Documents 29.100.01, RPV Control, Sheet 1		

QUESTION 53

Following a transient, plant conditions are:

- Drywell Pressure is 8 psig.
- **NO** ECCS Pumps are running.
- **NO** High **OR** Low Pressure Injection systems are running.

Which of the following is the **LOWEST** stable RPV Water Level which assures Adequate Core Cooling?

_____ A. **TOP** of Active Fuel

_____ B. 25 inches **BELOW** the Top of Active Fuel

_____ C. 40 inches **BELOW** the Top of Active Fuel

_____ D. 48 inches **BELOW** the Top of Active Fuel

Correct Answer : C Minimum Zero Injection Water Level is by EOP Flowcharts -40 inches.
Plausible Distractors: A is plausible, TAF assures Adequate Core Cooling, but is NOT the LOWEST. B is plausible, and is the lower limit, if Injection Systems are operating. D is plausible, if BOTH Core Spray Pumps in one loop are operating.
Objective Link: ST-OP-802-3001-001-01-08

RO 51	Tier 2	K/A Number 259002	Statement K6.05	IR 3.5	Origin N	Source Question N/A
LOK H (2RI/ 3PEO)	Grp 1	10 CFR 55.41(b)7	LOD (1-5) 3.1	Reference Documents 23.107, Rev 106 ST-OP-315-0046-001 Rev 13		

QUESTION 54

With the plant operating at 100% power, the following conditions are present:

- 3 ELEMENT Feedwater Control is in effect.
- REACTOR LEVEL SELECT Switch is in the “A LEVEL” position.
- C32-R618, Master Feedwater Level Controller, is set at 197 inches.
- C32-R606A, Reactor Level “A” Indicator, reads 197 inches.
- C32-R606B, Reactor Level “B” Indicator, reads 196 inches.
- C32-R606C, Reactor Level “C” Indicator, reads 198 inches.
- C32-R606D, Reactor Level “D” Indicator, reads 197 inches.

IF C32-R606A, Reactor Level “A” Indicator, **INSTANTANEOUSLY FAILS** to 160 inches, how will the plant respond?

_____ A. **ACTUAL** Reactor Water Level will **RISE** until an indirect Reactor Scram occurs.

_____ B. **ACTUAL** Reactor Water Level will **LOWER** one inch, control has automatically shifted to Reactor Level Channel “B”.

_____ C. **ACTUAL** Reactor Water Level will **RISE** one inch, control has automatically shifted to Reactor Level Channel “C”.

_____ D. **ACTUAL** Reactor Water Level will **NOT CHANGE**, control has automatically shifted to the Median of the three remaining channels.

Correct Answer : D If the lead selected RPV water level signal, A or B fails, DCS logic will automatically transfer RPV water level control and the input to C32-R618, Master Feedwater Level Controller, to the Median signal of the three remaining RPV water level signals. This will cause ACTUAL Level to NOT CHANGE because the median signal was the same as the pre-failure value of Level Channel A.

Plausible Distractors: A is plausible, if the candidate does not know Level Control automatically transfers. B is plausible, if the candidate does not know that the Level Control Channel automatically transfers to the median signal. Level B is also the other selectable Lead Channel. C is plausible, if the candidate does not know that the Level Control automatically transfers to the median signal. Channel C is an available level channel.
Objective Link: ST-OP-315-0046-B001

RO 52	Tier 2	K/A Number 261000	Statement A1.04	IR 3.0	Origin B	Source Question N/A
LOK H (2RI)	Grp 1	10 CFR 55.41(b) 10	LOD (1-5) 3.2	Reference Documents 29.100.01 Sheet 5, Rev 7 EPG Bases page B-8-1		

QUESTION 55

Drywell Pressure is 2 psig. Div 1 SGTS is in service with Div 2 SGTS **OUT OF SERVICE** for maintenance. The following indications occur:

- 8D35, DIV I SGTS AIR FLOW STOPPED, alarms
- T4600-F004A, Div 1 SGTS Exhaust Fan Inlet Isolation Damper, is **CLOSED**

This will result in a condition which **FIRST** requires entry into the:

_____ A. Radiation Release Control EOP Leg to ensure that any airborne radioactive material, in the Secondary Containment, is not released to the surrounding atmosphere.

_____ B. Secondary Containment Control EOP Leg to ensure that unfiltered airborne radioactive material, in the Secondary Containment, is not released to the surrounding atmosphere.

_____ C. Secondary Containment Control EOP Leg to limit the maximum temperatures for equipment located in the Secondary Containment which is necessary to place the plant in a stable shutdown condition.

_____ D. Radiation Release Control EOP Leg to place the plant in a condition which reduces the motive force for radioactive material release from inside the Secondary Containment to the environs.

Correct Answer : B
High Drywell Pressure indication implies that Reactor Building Ventilation has tripped and isolated. Low Secondary Containment D/P requires Secondary Containment Control EOP Entry to ensure that any airborne radioactive material in the Secondary Containment is not released to the surrounding atmosphere without passing through the SGTS filters.

Plausible Distractors: A is plausible, Radiation Release EOP Leg may be required AFTER radioactivity is released without passing through the SGTS filters. C is plausible, High Area Temperatures is a Secondary Containment Control EOP Leg entry, but SGTS does not effectively limit Area Temperatures, due to having no supply cooling. D is plausible, radiation releases may be limited by reducing plant pressure, which reduces steam leakage and motive force. NO radiation release conditions are given.
Objective Link: LP-OP-315-0120-C011

RO 53	Tier 2	K/A Number 262001	Statement A2.02	IR 3.6	Origin B	Source Question N/A
LOK H (2RI/ 3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.3	Reference Documents 23.307, Rev. 90		

QUESTION 56

The following conditions exist:

- Reactor power is 98%.
- Drywell Pressure is 1.1 psig, rising slowly.
- Reactor Water Level is 185 inches, lowering slowly.

If the pressure and level trends continue, what can the operator expect to happen to the Emergency Diesel Generators (EDG), **AND** what action should be taken?

_____ A. EDG will auto start. Dispatch an operator to load the EDG for at least 1 hour.

_____ B. EDG auto starts, load shed occurs. Dispatch an operator to load the EDG for at least 1 hour.

_____ C. EDG will auto start and the EDG output breaker will close. Dispatch an operator to verify proper operation of the EDG.

_____ D. EDG will auto start, the EDG output breaker will close, and loads will be sequenced on to the EDG. Dispatch an operator to verify proper operation of the EDG.

Correct Answer : A BOTH Low RPV Water Level 1 and High Drywell Pressure will automatically start EDGs. Since Offsite Power has not been lost, EDG will run unloaded with the Output Breaker open. Procedure 23.307 requires loading for at least 1 hour before stopping an automatically started EDG.
Plausible Distractors: B is plausible, Loads won't shed without a loss of power. Offsite Power is available, so no Load Shed will occur. C is plausible, EDG will auto start. Offsite Power is available, so EDG Output Breaker will

not close. D is plausible, EDG will auto start. Offsite Power is available, so EDG Output Breaker will not close.
Objective Link: ST-OP-315-0065-B003

RO 54	Tier 2	K/A Number 262002	Statement A3.01	IR 2.8	Origin N	Source Question N/A
LOK H (2RI)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 3.2	Reference Documents 23.308.01, Rev. 25		

QUESTION 57

The following indications exist:

- 3D22, UPS UNIT A / B TROUBLE, alarms.
- Reactor Building Operator reports that R3100S011, UPS Bus “A” Inverter DC Input Breaker, is OPEN.

Given these indications, which one of the following describes UPS distribution status?

_____ A. UPS Bus “A” loads are de-energized, the DC Input Breaker must be repaired to restore power to UPS Bus “A” loads.

_____ B. UPS Bus “A” loads remain energized, the STATIC SWITCH automatically aligns loads to the Alternate Source.

_____ C. UPS Bus “A” loads are de-energized, MANUAL TRANSFER Switch operation is necessary to restore power to UPS Bus “A” loads.

_____ D. UPS Bus “A” loads remain energized, the STATIC SWITCH automatically aligns inverter to the UPS Bus “B” Rectifier Output.

Correct Answer : B A low voltage output is sensed at the output of the static inverter and the STATIC SWITCH automatically aligns loads to the Alternate Source.
Plausible Distractors: A is plausible, UPS Inverters A and B can share DC, but if Inverter “A” DC Input Breaker trips, the UPS “A” Inverter will have no power. C is plausible, if Inverter and Static Switch are damaged, this is the appropriate method. D is plausible, DC Input Power is shared between UPS “A” and “B”, AC Output is not.
Objective Link: ST-OP-315-0062-B003

RO 55	Tier 2	K/A Number 263000	Statement A4.01	IR 3.3	Origin N	Source Question N/A
LOK F (1I)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.75	Reference Documents 20.300.260VESF, Rev 1		

QUESTION 58

With a loss of Division 1 ESF 260/130 VDC Batteries and Chargers, which one of the following will result?

_____ A. Breakers on 4160V Busses 65E and 13EC will lose control power.

_____ B. C11-F110A, Scram Pilot Air Header Backup Scram Valve, will actuate.

_____ C. MCC 72CF Feed will auto throw-over from 72C Pos 3C to 72F Pos 5C.

_____ D. Breakers CM and CF will not open on generator relaying or with the manual control switches on COP H11-P804.

Correct Answer : C Div 1 ESF Batteries provide control power to Div 1 ESF buses, breakers, and MCC 72CF Breaker auto throw-over function. (This is the LPCI Swing MCC.) There are no Control Room operated DC Power Breakers. Loss of Div 1 control power will cause MCC 72CF to shift from being supplied from Div 1 to Div 2 power.
Plausible Distractors: A is plausible, but is associated with Division 2 ESF 260 / 130 VDC Batteries and Chargers. B is plausible, correct source, but loss of power prevents Backup Scram Valve actuation. D is plausible, but is a failure mode associated with loss of BOP Batteries and Chargers.
Objective Link: ST-OP-315-0064-A016

RO 57	Tier 2	K/A Number 300000	Statement K1.05	IR 3.1	Origin N	Source Question N/A
LOK H (2RI/ 3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.7	Reference Documents 20.129.01, Rev 25		

QUESTION 59

The plant is operating at 100% power, when the following occurs:

- 7D54, INTERRUPTIBLE CONTROL AIR HEADER PRESS LOW, alarms.
- P50-R870, IAS Header Pressure Indicator, reads 80 psig (lowering).

If this trend continues, which one of the following describes the component(s) **AND** failure mode(s) which will require the Reactor Mode Switch to be placed in SHUTDOWN per 20.129.01, “Loss of Station and/or Control Air”?

_____ A. An Inboard MSIV begins to CLOSE due to loss of IAS.

_____ B. An Outboard MSIV begins to CLOSE due to loss of IAS.

_____ C. A Control Rod drifts in due to C11-F002A, CRD Flow Control Valve, failing OPEN due to loss of IAS.

_____ D. A Control Rod Drive Hydraulic Pump TRIPS on Low Suction Pressure due to C11-F412, CRD Pump Suction Pressure Control Valve, failing SHUT due to loss of IAS.

Correct Answer : B Outboard MSIVs are supplied by IAS and close at approximately 50 psig.
Plausible Distractors: A is plausible, Inboard MSIVs may begin to CLOSE, if Division 1 **Non** Interruptible Air is lost. C is plausible, failure mode of C11-F002A is CLOSED, so Control Rods will not drift in due to this failure. D is plausible, although complete loss of CRD may require the Reactor Mode Switch placed in

SHUTDOWN immediately during some other plant conditions, the CST provides a redundant suction supply to the CRD Hydraulic Pumps. The operating CRD Pump should remain in service.
Objective Link: SS-OP-802-2001-RO-0004

RO 58	Tier 2	K/A Number 400000	Statement K2.01	IR 2.9	Origin N	Source Question N/A
LOK F (1F)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.75	Reference Documents 23.127, Rev 103		

QUESTION 60

With the plant operating at 100% power, when the following occurs:

- 9D10, DIV 1 480 V ESS BUS 72C BKR TRIPPED, alarms.
- CMC Switch for BUS 64C POS C11, 4160V FEED TO BUS 72C, indicates TRIPPED.

Given these indications, which of the following correctly describes the impact on the Reactor Building Closed Cooling Water (RBCCW) Pumps?

_____ A. **ONLY** P4200-C001, North RBCCW Pump, loses power.

_____ B. **ONLY** P4200-C003, South RBCCW Pump, loses power.

_____ C. **BOTH** P4200-C001 **AND** P4200-C002, North and Center RBCCW Pumps, lose power.

_____ D. **BOTH** P4200-C003 **AND** P4200-C002, South and Center RBCCW Pumps, lose power.

Correct Answer : A Bus 72C is the power supply to the North RBCCW Pump.
Plausible Distractors: B is plausible, P4200-C003, South RBCCW Pump is powered from Bus 72E. C/D is plausible, P4200-C002, Center RBCCW Pump is powered from Bus 72F.
Objective Link: ST-OP-315-0067-A014

RO 60	Tier 2	K/A Number 212000	Statement A1.04	IR 2.8	Origin N	Source Question N/A
LOK H (3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.8	Reference Documents 23.316, Rev 46		

QUESTION 61

With the plant operating with normal electrical alignment at 100% power, RPS Bus “A” Voltage begins lowering. The **FIRST** protective action which will result is a trip of the:

_____ A. RPS MG Set “A” Motor Breaker.

_____ B. RPS MG Set “A” Output Breaker.

_____ C. C7100-S003C, RPS MG Set “A” EPA Circuit Breaker.

_____ D. C7100-S003G, RPS Alternate Transformer “A” EPA Circuit Breaker.

Correct Answer : C C7100-S003C, EPA Circuit Breaker trips at 109 VAC. High Cognitive Level due to recognizing normal RPS alignment and breaker trip hierarchy.
Plausible Distractors: A s plausible, only Motor trips are 175 amps, loss of 480 vac power, and overheating 230°F. B is plausible, but is not the FIRST., Output Breaker trips at 108 VAC. D is plausible, this is the RPS “A” Alternate Power EPA, not normally in service.
Objective Link: ST-OP-315-0027-A008

RO 61	Tier 2	K/A Number 215003	Statement K3.01	IR 3.9	Origin N	Source Question N/A
LOK H (3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.7	Reference Documents 3D59, Rev 6 3D63, Rev 5		

QUESTION 62

During a reactor start-up with all IRMs reading 30 on Range 5, IRM E Range Selector Switch is repositioned to Range 4.

This will cause a:

_____ A. Rod Block **ONLY**.

_____ B. Half Scram **ONLY**.

_____ C. Half Scram on RPS Trip Channel “A” **AND** a Rod Block.

_____ D. Half Scram on RPS Trip Channel “B” **AND** a Rod Block.

Correct Answer : C When E IRM Range switch is repositioned to Range 4, indication goes from 30/40 to 300/125, which results in an IRM High-High condition. This results in a RPS Trip Channel “A” Trip and a Rod Block.
Plausible Distractors: A is plausible, but is only partially correct. B is plausible, but is only partially correct. D is plausible, but incorrect, RPS Trip Channel A is associated with IRM E.
Objective Link: ST-OP-315-0023-B002

NRC NOTE: Based on questions asked by candidates during the written exam, the licensee changed the highlighted numbers. The reason for the change: odd ranges for IRMs are 0 – 40!

RO 62	Tier 2	K/A Number 262001	Statement K5.01	IR 3.1	Origin N	Source Question N/A
LOK H (3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 2.9	Reference Documents 23.307, Rev 90		

QUESTION 63

When paralleling an EDG with Offsite Power, if SYNCH BUS Starting Volts are 12 volts higher than SYNCH BUS Running Volts, which one of the following conditions will result when the EDG Output Breaker is CLOSED?

_____ A. The Emergency Diesel Generator will be reverse powered by the grid.

_____ B. Excessive Reactive Power will flow from the Emergency Diesel Generator to the grid.

_____ C. Excessive Reactive Power will flow from the grid to the Emergency Diesel Generator.

_____ D. Excessive True Power will be picked up from the grid by the Emergency Diesel Generator.

Correct Answer : B KA Statement, "principles of paralleling two AC sources" KA tie is the proper division of reactive load by adjustment of pre-synchronization settings. Approximate voltage match.
Plausible Distractors: A is plausible, will happen if Governor Setting is too low. C is plausible, will happen if Voltage Regulator Setting is too low. D is plausible, will happen if Governor Setting is too high.
Objective Link: ST-OP-315-0065-A016

RO 64	Tier 2	K/A Number 201001	Statement A1.01	IR 3.1	Origin B	Source Question 2004 Clinton NRC Exam
LOK H (3PEO)	Grp 2	10 CFR 55.41(b) 5	LOD (1-5) 2.8	Reference Documents ST-OP-315-0010, Rev 14		

QUESTION 64

The plant is operating at normal pressure with C11-F002A, CRD Drive Water "A" Flow Control Valve, in service and in AUTOMATIC control.

The following CRD indications are present:

- Cooling water flow is 45 gpm.
- Drive water D/P is 225 psid.
- Cooling water D/P is 15 psid.
- No Control Rod Motion is in progress.

When C1152-F003, CRD Drive/Cooling Water Pressure Control Valve, is adjusted in the **CLOSED** direction, what will be the **FINAL** effect on the CRD System parameters?

_____ A. Drive Water D/P **INCREASES** and Cooling Water Flow **DECREASES**.

_____ B. Drive Water D/P **DECREASES** and Cooling Water Flow **DECREASES**.

_____ C. Drive Water D/P **INCREASES** and Cooling Water Flow **REMAINS THE SAME**.

_____ D. Drive Water D/P **DECREASES** and Cooling Water Flow **REMAINS THE SAME**.

Correct Answer : C When the Pressure Control Valve is throttled CLOSED, Drive Water D/P increases, due to lower flow through the CRD Pump. The FCV is in AUTO and automatically maintains Cooling Water Flow stable.
Plausible Distractors: A is plausible, but is incorrect because cooling water flow remains the same with FCV in AUTO. Correct if the CRD FCV was in MANUAL. B/D is plausible, but is incorrect because drive water D/P increases. Could be selected if misconception exists about location of PCV. (For example: If PCV was located upstream of

Cooling Water Header.)
Objective Link: ST-OP-315-0010-A015

RO 65	Tier 2	K/A Number 202002	Statement 2.1.28	IR 3.2	Origin N	Source Question N/A
LOK F (1P)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 3.2	Reference Documents 23.138.01, Rev 88		

QUESTION 65

The RECIRC MANUAL RUNBACK pushbutton causes a speed reduction in:

_____ A. **ONLY** RR MG Sets in AUTO and automatically resets when the RR MG Set speed adjustments are completed.

_____ B. RR MG Sets in AUTO or MANUAL and automatically resets when the RR MG Set speed adjustments are completed.

_____ C. **ONLY** RR MG Sets in AUTO and is RESET by operation of the RECIRC RUNBACK RESET A (B) pushbutton.

_____ D. RR MG Sets in AUTO or MANUAL, and is RESET by operation of the RECIRC RUNBACK RESET A (B) pushbutton.

Correct Answer : B RECIRC RUNBACK RESET A (B) pushbutton is used to reset automatic runbacks from the speed limiters. Manual Runbacks automatically reset when speed adjustments are completed.
Plausible Distractors: A is plausible, Manual Runbacks automatically reset when speed adjustments are completed. Misconception may exist that speeds are only reduced in Auto. C is plausible, RR MG Set speeds are reduced in Auto or Manual. Misconception may exist that speeds are only reduced in Auto. D is plausible, RR MG Set speeds are reduced in Auto or Manual. Manual Runbacks automatically reset when speed adjustments are completed.
Objective Link: ST-OP-315-0004-C001

RO 66	Tier 2	K/A Number 204000	Statement K1.08	IR 3.7	Origin B	Source Question LaSalle 2003 NRC Exam
LOK F (1I)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 2.3	Reference Documents 23.139, Rev 41		

QUESTION 66

Which of the following describes the **DIRECT** response of the Reactor Water Cleanup System when the Standby Liquid Control System is initiated?

_____ A. The operating RWCU pumps trip.

_____ B. The operating RWCU Filter Demineralizers go into HOLD.

_____ C. G3300-F033, RWCU Blowdown Flow Control Valve, automatically closes.

_____ D. G3352-F004, RWCU Supply Outboard Isolation Valve, **AND** G3352-F220, RWCU to Feedwater Outboard Containment Isolation Valve, CLOSE.

Correct Answer : D SBLC Initiation directly causes G3352-F004, RWCU Supply Outboard Isolation Valve AND G3352-F220, RWCU to Feedwater Outboard Containment Isolation Valve to CLOSE.
Plausible Distractors: A is plausible, this is an indirect trip, on G3352-F004 Not Full Open. Valve gets close signal and closes, leaving full open limit switch (5% closed/95% open). Full open contact in pump trip string, closes, tripping the pump. B is plausible, this is an indirect effect. Sensed Low F/D Flow will cause F/Ds to transfer to HOLD. C is plausible, but is NOT an interlock associated with SBLC.
Objective Link: ST-OP-315-0008-B007

RO 67	Tier 2	K/A Number 215002	Statement K2.03	IR 2.8	Origin N	Source Question N/A
LOK H (3PEO)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 3.5	Reference Documents 9D70, Rev 16, VMR1-82.1		

QUESTION 67

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

- 3D103, APRM TROUBLE, alarms.
- 9D70, DIV I 120V RPS BUS 1A POWER FAILURE, alarms.

Which one of the following describes the impact of this failure?

_____ A. **ALL** APRM Channels are operable **AND** a Half Scram has occurred.

_____ B. APRM Channel 1 indicates INOP trip **AND** a Half Scram has occurred.

_____ C. APRM Channels 1 and 3 indicate INOP trip **AND** a Full Scram has occurred.

_____ D. **ALL** APRM Channels are operable **AND ONLY** a Control Rod Block has occurred.

Correct Answer : A APRMs have a QLVPS powered from both RPS A and B in an auctioneered manner. Loss of one RPS power supply will cause a non-critical self-test fault only. No functions will be affected. Loss of RPS A side causes a half scram, not from APRMs.
Plausible Distractors: B is plausible, based on former design of PRNM. C is plausible, based on former design of PRNM and misconception of new design requiring any 2 APRMs for a full scram. D is plausible, APRMs are not affected. The Half scram is a result of the loss of RPS bus 1A.
Objective Link: ST-OP-315-0024-B002

RO 56	Tier 2	K/A Number 264000	Statement 2.4.31	IR 3.3	Origin N	Source Question N/A
LOK H (2RI/ 3PEO)	Grp 1	10 CFR 55.41(b) 7	LOD (1-5) 3.0	Reference Documents 9D44, Rev 4, 9D66, Rev 4		

QUESTION 68

Following a Loss of Offsite Power, EDGs 11 and 12 are operating supplying their respective ESF Busses. The following alarms are received:

- 9D44, DIV I EDG 11 FUEL OIL PRESSURE LOW.
- 9D66, DIV I EDG 12 CRANKCASE PRESSURE HIGH.

Given these indications, which one of the following describes the status of the Emergency Diesel Generators?

_____ A. **BOTH** EDGs trip immediately.

_____ B. **BOTH** EDGs continue to operate.

_____ C. EDG 11 continues to operate. EDG 12 trips immediately.

_____ D. EDG 11 trips immediately. EDG 12 continues to operate.

Correct Answer : C After an emergency start, only essential trips are active. Fuel oil low pressure is not an essential trip.
Plausible Distractors: Other choices are plausible if EDG logic and/or essential and non-essential trips are not known.
Objective Link: ST-OP-315-0065-B003

RO 68	Tier 2	K/A Number 216000	Statement A2.08	IR 3.2	Origin N	Source Question N/A
LOK H (3SPR)	Grp 2	10 CFR 55.41(b) 5	LOD (1-5) 3.5	Reference Documents Provide: 29.100.01, Rev 6 Cautions and Curves		

QUESTION 69

A plant transient has resulted in the following conditions:

- Reactor Pressure is 100 psig.
- Drywell Temperature is 360°F.

B21-R605, RPV Flood Up Level Indicator, is __(1)__ . The **LOWEST** value at which this instrument may be used is __(2)__ .

	(1)	(2)
_____ A.	accurate	at an indicated RPV level of 200"
_____ B.	unreliable	at an indicated RPV level of 220"
_____ C.	unreliable	at an indicated RPV level of 240"
_____ D.	unreliable	at an indicated RPV level of 280"

Correct Answer : C Reference Leg heating due to Drywell High Temperature causes B21-N027 to indicate HIGHER than actual RPV Water Level. EOP Procedures restrict instrument use to ONLY RPV Levels above the Minimum Indicated Level. The Saturation Curve must be used to determine if in unreliable region. 240 and 280 inches are above the minimum but 240 is the lowest.
Plausible Distractors: Distractors are plausible, if candidate does not use EOP curves and tables correctly.
Objective Link: ST-OP-802-3002-01-05

RO 69	Tier 2	K/A Number 226001	Statement K4.10	IR 2.9	Origin B	Source Question Fermi-2 2003 NRC Exam
LOK H (3PEO)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 3.1	Reference Documents ST-OP-315-0041, Rev 14		

QUESTION 70

A LOCA has occurred. The following conditions exist:

- Reactor Pressure is 200 psig, stable.
- Reactor Water Level is 30 inches, stable.
- ADS is **INHIBITED**.
- Drywell Pressure 20 psig and slowly lowering.
- Division 1 and 2 Core Spray in service and supplying the RPV.
- Division 2 RHR is aligned to the vessel through B Loop.
- Division 1 RHR is being used for Containment Cooling and Containment Sprays.
- E1150-F010, RHR Crosstie Valve, is **OPEN**.
- Containment Spray Mode Select switch is in **MANUAL**.
- Containment Spray 2/3 Core Height Override keylock switch is in **NORMAL**.

A subsequent loss of 345 Kv Offsite Power and failure of EDGs 13 and 14 result in Reactor Water Level falling to -50 (minus 50) inches on the Core Level Instruments. What is the expected RHR system response?

_____ A. Division 1 Containment Spray and Cooling valves will close. Division 1 RHR discharge pressure will increase and Division 1 RHR will inject to the vessel through Division 1.

_____ B. Division 1 Containment Spray and Cooling valves will close. Division 1 RHR discharge pressure will increase and Division 1 RHR will inject to the vessel through Division 2.

_____ C. Division 1 Containment Spray and Cooling valves will remain open. Division 1 RHR discharge pressure will decrease and Division 1 RHR will inject to the vessel through Division 1.

_____ D. Division 1 Containment Spray and Cooling valves will remain open. Division 1 RHR discharge pressure will decrease and Division 1 RHR will inject to the vessel through Division 2.

Correct Answer : B 2/3 Core Height (Level 0 = -42 inches) Isolates Containment Cooling, ONLY Division 2 valves are affected by subsequent LOOP since Division 2 EDGs failed to start. LPCI remains selected to the B Loop.
Plausible Distractors: Distractors are plausible, identifying power supply misconceptions and the effect on the remaining RHR Pumps and LPCI flowpath.
Objective Link: ST-OP-315-0041-A016

RO 71	Tier 2	K/A Number 241000	Statement K6.08	IR 3.6	Origin N	Source Question N/A
LOK H (3PEO)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 3.2	Reference Documents: ST-OP-315-0045, Rev 12		

QUESTION 71

The following conditions exist:

- Reactor power is 65%.
- RPV Pressure is 1010 psig.
- Turbine Flow Limiter setting is 70%.
- Reactor Flow Limiter setting is 115%.
- Pressure Regulator No. 1 is in service set at 944 psig.

A transient occurs that results in a reactor power increase to 85% CTP. This causes:

_____ A. Turbine Control Valves to **CLOSE** and will result in an RPS actuation from TCV Fast Closure.

_____ B. Turbine Control Valves to **OPEN** and will result in an RPS actuation associated with RPV Level.

_____ C. Turbine Control Valves **AND** Bypass Valves to **OPEN**. **NO** RPS actuations are expected to occur.

_____ D. Turbine Control Valves to **AND** Bypass Valves to **OPEN**. This transient will be terminated by RPS actuation associated with RPV Pressure.

Correct Answer : C An increase in reactor power causes TCVs to open. The BPVs will open on pressure control once power rises to 70% based on Turbine Flow Limiter setting. Steam flow will not exceed the BPV capacity (25%) and reactor pressure and power will rise. No RPS actuations will occur.
Plausible Distractors: A is plausible, if misconception about Pressure Control mode exists. This is plausible if TCVs initially CLOSE due to a Trip signal. B is plausible, if misconception about plant effects exist. High steam flow could cause

lowering level, if makeup capability is inadequate. The Feedwater system can handle a 20% power change. D is plausible, if BPV capacity is exceeded.
Objective Link: ST-OP-315-0045-A016

RO 72	Tier 2	K/A Number 256000	Statement A4.03	IR 3.2	Origin B	Source Question Fermi-2 2001 NRC Exam
LOK H (2RI)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 3.6	Reference Documents 5D131, Rev 9		

QUESTION 72

The following plant conditions exist:

- 5D131, SOUTH HOTWELL LEVEL HIGH/LOW, in alarm.
- N61-R805, South Hotwell Primary/Backup Level Indicator, indicates 49 inches (lowering)

Which statement describes the plant status for the given conditions?

_____ A. Condenser Pumps, tripped
Heater Feed Pumps, tripped
Reactor Feed Pumps, tripped

_____ B. Normal Hotwell Supply Pump auto started.
N2000-F620, Condenser Hotwell Relief Station Bypass Valve, closed
N20-F407, Condenser Hotwell Normal Makeup LCV, open (> 90% indicated)

_____ C. Normal and Emergency Hotwell Supply Pumps are running.
N20-F406, Condenser Hotwell Emergency Makeup LCV, open (> 20% indicated)
N20-F407, Condenser Hotwell Normal Makeup LCV, open (> 90% indicated)

_____ D. N20-F406 Condenser Hotwell Emergency Makeup LCV, closed (0% indicated)
N20-F407, Condenser Hotwell Normal Makeup LCV, closed (0% indicated)
N2000-F636, Condenser Hotwell Emergency Makeup Bypass Valve, closed

Correct Answer : B At ≤ 50 inches Hotwell Level, with the Condenser Hotwell Normal Makeup LCV ≥ 90% open, the Normal Hotwell Supply Pump Auto starts.
Plausible Distractors: A is plausible on Low Hotwell Level, but no trips have been reached. C is plausible, but Emergency Makeup Level has not been reached, Emergency pump has not started, Emergency Makeup LCV has not opened.

D is plausible, correct alignment for Normal Hotwell Levels.
Objective Link: ST-OP-315-0006-A015

RO 74	Tier 2	K/A Number 271000	Statement K6.08	IR 2.9	Origin N	Source Question N/A
LOK F (1P)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 2.75	Reference Documents 6D2, Rev 9		

QUESTION 73

With the plant operating at 100% power and Hydrogen Water Chemistry (HWC) in service, the following occurs:

- 6D2, SJAE STEAM PRESSURE HIGH / LOW, alarms.
- N11-R802, Main Steam to OG SJAE & Preheaters Pressure Indicator, reads 40 psig.

The effect of the above conditions on the Off Gas System is:

_____ A. **LOW** Off Gas System Flow.

_____ B. **LOW** Off Gas Oxygen Concentration.

_____ C. **HIGH** Off Gas Hydrogen Concentration.

_____ D. **HIGH** Off Gas Radiation Monitor Indication.

Correct Answer : A The SJAEs isolate with steam pressure < 50 psig and condenser vacuum will decrease, per the ARP. With no condenser non-condensables and steam flow through the SJAEs, Off Gas system flow will decrease.
Plausible Distractors: B is plausible, with no flow, no Hydrogen is available for recombination, Oxygen concentration rises. C is plausible, this is an AOP indication for a wet recombiner. D is plausible, this is an AOP indication for failed fuel cladding. Low System Flow will cause LOW Radiation Monitor Readings. Slower process flow allows as shorter lived nuclides to decay prior to reaching the monitor.
Objective Link: ST-OP-315-0035-B003

RO 73	Tier 2	K/A Number 259001	Statement K5.03	IR 2.8	Origin N	Source Question N/A
LOK F (1P)	Grp 2	10 CFR 55.41(b) 10	LOD (1-5) 3.0	Reference Documents 23.107 Rev 106		

QUESTION 74

According to 23.107, “Reactor Feedwater and Condensate Systems”, the Reactor Feed Pump Turbines should be warmed for:

_____ A. 1 hour at 1000 rpm **ONLY.**

_____ B. 6 hours at 1600-1800 rpm **ONLY**.

_____ C. 1 hour at 1000 rpm **AND** 1 hour at 1600-1800 rpm.

_____ D. 6 hours at 1000 rpm **AND** 6 hours at 1600-1800 rpm.

Correct Answer : C 23.107. Precaution and Limitation 3.1.7 states, “Each RFPT should be warmed for 1 hour at 1000 rpm and 1 hour at 1600-1800 rpm.
Plausible Distractors: A is plausible, partial statement of warming requirements. B and D are plausible because these are the old requirements for the S. RFPT before the drain piping was modified.
Objective Link: ST-OP-315-0007-B005

RO 75	Tier 2	K/A Number 290002	Statement K3.03	IR 3.3	Origin N	Source Question N/A
LOK H (3 PEO)	Grp 2	10 CFR 55.41(b) 7	LOD (1-5) 3.6	Reference Documents 20.138.02 Rev 23		

QUESTION 75

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

- B21-R609A, Jet Pump 15 Flow, lowered from 5.0×10^6 to 0 lb/hr.
- B21-R611A, Jet Pumps 11-20 Loop A Flow, lowered from 44×10^6 to 39×10^6 lb/hr.
- B31-R617, Recirc "A" Loop Flow, increased from 30,000 to 34,000 gpm.
- B21-R613, Reactor Core DP Indicator, lowered from 32 to 22 psid.

This will cause Reactor Power to:

_____ A. **RISE AND** APRM Simulated Thermal Power Upscale Trip Setpoint to **RISE**.

_____ B. **RISE AND** APRM Simulated Thermal Power Upscale Trip Setpoint to **LOWER**.

_____ C. **LOWER AND** APRM Simulated Thermal Power Upscale Trip Setpoint to **RISE**.

_____ D. **LOWER AND** APRM Simulated Thermal Power Upscale Trip Setpoint to **LOWER**.

Correct Answer : C Indications are given for a Jet Pump separation. Lower Reactor Core DP indicates lower ACTUAL Core Flow which LOWERS Reactor Power. Recirc A Loop Flow Increased which raises APRM Simulated Thermal Power Upscale Trip Setpoint.
Plausible Distractors: A is plausible, if misconception about Recirc Loop Flow vs Jet Pump Loop Flow effect on Reactor Power exists. (Recirc Runaway) B is plausible, if misconception about Recirc Loop Flow vs Jet Pump Loop Flow effect on Reactor Power exists AND flow instrument input to APRM Flow exists. D is plausible is misconception about flow instrument input to APRM Flow exists.
Objective Link: ST-OP-315-0004-C011