Dresden March 2011 ILE Written Examination Answer Key

- **Questions 1 through 75 are RO level questions.**
- **Questions 76 through 100 are SRO level questions.**

Q#	Answer	Q#	Answer	Q#	Answer	Q#	Answer
1	C	26	C	51	C	76(1)	B
2	D	27	D	52	C	77(2)	D
3	C	28	D	53	C	78(3)	C
4	D	29	C	54	A	79(4)	D
5	C	30	B	55	B	80(5)	C
6	A	31	C	56	A	81(6)	A
7	C	32	D	57	B	82(7)	C
8	A	33	C	58	A	83(8)	C
9	D	34	D	59	B	84(9)	C
10	D	35	B	60	B	85(10)	A
11	B	36	C	61	D	86(11)	C
12	B	37	D	62	C	87(12)	B
13	C	38	C	63	B	88(13)	D
14	B	39	C	64	D	89(14)	A
15	C	40	A	65	D	90(15)	C
16	C	41	A	66	B	91(16)	D
17	C	42	C	67	C	92(17)	C
18	A	43	A	68	B	93(18)	A
19	A	44	D	69	B	94(19)	D
20	A	45	D	70	D	95(20)	C
21	B	46	A	71	D	96(21)	A
22	B	47	A	72	B	97(22)	C
23	C	48	D	73	C	98(23)	C
24	D	49	C	74	D	99(24)	B
25	D	50	B	75	D	100(25)	D

EXAMINATION ANSWER KEY

10-1 (2011-301) NRC Exam

1 **Points: 1.00**

Unit 3 was operating at near rated power, when an event occurred, causing RPV level and RPV pressure transients.

The Unit Supervisor directed the NSO to report when RPV water level dropped to TAF (Top of Active Fuel).

At time 00:00, RPV pressure is 890 psig and going down 100 psig per minute.

With an RPV water level of -143 inches, which of the following times is the EARLIEST time that the NSO be required to report TAF?

A. 00:02

B. 00:03

C. 00:04

D. 00:05

Answer: C

Question 1 Details

Comments:

Objective: DRE216LN001.11
Reference: TSG, attachment L hardcard
K/A: 295031.A2.01 4.6 / 4.6
K/A: Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL: Reactor water level.
Level: High
Pedigree: New
Explanation: TAF is -143 inches at an RPV pressure of < 500 psig. Given the rate and trend of the lowering RPV pressure, the EARLIEST that TAF would be reached is after 4 minutes.

REQUIRED REFERENCES: None.

2 **Points: 1.00**

Unit 2 was operating at near rated power when a transient caused RPV water level to drop to -64 inches.

What PCIS Group isolation(s) have automatically occurred?

A. Group 1 and Group 2 ONLY

B. Group 1 and Group 3 ONLY

C. Group 2 and Group 3 ONLY

D. Group 1, Group 2, AND Group 3

Answer: D

Question 2 Details

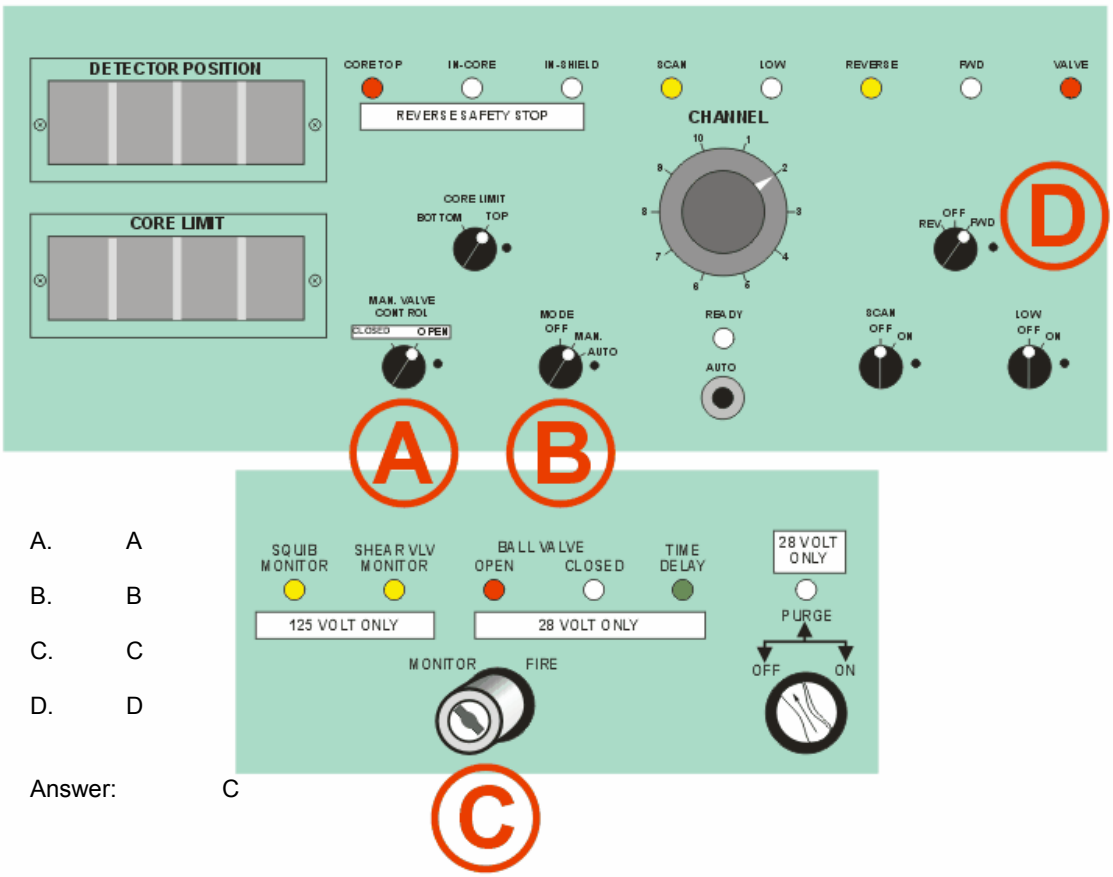
Question Type:	Multiple Choice
Topic:	(002) Generic.4.02 (1)
System ID:	23466
User ID:	
Status:	Active
Always select on test:	No
Authorized for practice:	No
Difficulty:	0.00
Time to Complete:	0
Point Value:	1.00
Cross Reference Number:	
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LK019 Reference: DEOP 100, DAN 902-5 D-4, DAN 902-5 D-5, DAN 902-5 E-5 K/A: Generic.4.2 4.5 / 4.6 K/A: Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. Level: High Pedigree: Bank Explanation: Per DEOP RPV Control, the entry condition for level is +8 inches. The level setpoint for a group 1 is -54 inches, the level setpoint for a group 2 is +6 inches and the level setpoint for a group 3 is +6 inches. With RPV water level 70 inches less than the DEOP 100 entry condition (-64 inches), all 3 group isolations will have occurred. **REQUIRED REFERENCES: None.**

3 **Points: 1.00**

Unit 2 was operating at near rated power, while performing TIP traces, when a transient occurred causing Drywell pressure to reach 3.5 psig.

Five minutes after the transient, one of the TIPs was determined to be stuck and has failed to retract.

Which of the switches, on the below drawing, is required to be re-positioned to isolate the TIP tube?



A. A

B. B

C. C

D. D

Answer: C

Question 3 Details

Comments:

Objective: DRE215LN001.08
Reference: DAN 902-5 E-5, DOP 0700-06
K/A: 215001.A4.03 3.0 / 3.1
K/A: Traversing In-Core Probe: Ability to manually operate and/or monitor in the control room: Isolation valves.
Level: High
Pedigree: Bank
Explanation: When Drywell pressure exceed 2.0 psig, a Group 2 isolation was received. A limit and action in the above procedure states that if a Group II Isolation is present AND any TIP Ball Valve fails to close upon TIP withdrawal, then the applicable Shear Valve should be actuated to isolate TIP tube by turning the Keylock Switch to FIRE.

REQUIRED REFERENCES: None.

4 **Points: 1.00**

Unit 2 was operating at near rated power, when a transient occurred. The following parameters are observed:

- Reactor Power is 95% and steady.
- Drywell pressure is 1.4 psig and steady.
- RPV pressure is 920 psig and decreasing.
- RPV water level is +20 inches and decreasing.
- FWLC master controller demand is 73% and increasing.

Which of the statements below demonstrates a proper verbal report from the Unit NSO to the Operating team per OP-DR-103-102-1002, STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION?

A. "Attention for an update, Reactor power is 95% and steady, RPV level is +20 inches and going down, RPV pressure is 920 psig and going down, End of Update"

B. "Attention for an update, RPV level is +20 inches and going down, RPV pressure is 920 psig and going down, Drywell pressure is 1.4 psig and steady, End of Update"

C. "Attention for an update, Reactor power is 95% and steady, RPV level is +20 inches and going down with the FWLC system compensating, RPV pressure is 920 psig and going down, End of Update"

D. "Attention for an update, Reactor power is 95% and steady, RPV level is +20 inches and going down, RPV pressure is 920 psig and going down, Drywell pressure is 1.4 psig and steady, End of Update"

Answer: D

Question 4 Details

Comments:

Objective: 29800LK065
Reference: OP-DR-103-102-1002
K/A: Generic.1.17 3.9 / 4.0
K/A: Ability to make accurate, clear, and concise verbal reports.
Level: Memory
Pedigree: New
Explanation: Per the procedure, the required update is to provide the current value and trend for Power, RPV Level, RPV Pressure and Drywell/Torus Pressure.

REQUIRED REFERENCES: None.

5 **Points: 1.00**

Unit 3 is operating at near rated power and the Operating team is preparing to perform DOS 2300-03, HIGH PRESSURE COOLANT INJECTION SYSTEM OPERABILITY AND QUARTERLY IST VERIFICATION TEST.

At time 00:00 the above surveillance is started, with an initial CST level of 19 feet.

What is the expected CST level at time + 30 minutes?

A. 15 feet

B. 17 feet

C. 19 feet

D. 21 feet

Answer: C

Question 5 Details

Comments:

Objective: DRE206LN001.02
Reference: DOS 2300-03
K/A: 206000.A1.03 3.5 / 3.6
K/A: Ability to predict and/or monitor changes in parameters associated with operating the HIGH PRESSURE COOLANT INJECTION SYSTEM controls including: Condensate storage tank level: BWR-2,3,4.
Level: Memory
Pedigree: New
Explanation: When HPCI is run for a surveillance, its suction is from the Torus (not CSTs) and its discharge is to the Torus (not CSTs). Since HPCI is taking a suction from the Torus and discharging to the Torus, there will be no increase in the CSTs.

REQUIRED REFERENCES: None.

6 **Points: 1.00**

In the event of a loss of normal cooling water to the Control Room HVAC “B” train Refrigerant Condenser, a backup source can be supplied from the _____ system.

A. U2 CCSW

B. U2 TBCCW

C. U3 CCSW

D. U3 TBCCW

Answer: A

Question 6 Details

Comments:

Objective: DRE288LN001.02
Reference: DOP 5750-05
K/A: Generic.2.03 3.8 / 3.9
K/A: Knowledge of the design, procedural, and operational differences between units.
Level: Memory
Pedigree: New
Explanation: The backup source of cooling water to the Control Room HVAC “B” train Refrigerant Condenser can be supplied from the U2 CCSW system only.

REQUIRED REFERENCES: None.

7 **Points: 1.00**

Unit 2 was operating at near rated power when a complete loss of Unit 2 125 VDC occurred.

Which of the following signal(s) would be the cause of the subsequent Reactor scram?

1) RPV high pressure
2) RPV lo lo water level
3) Drywell pressure high

A. 1 ONLY

B. 3 ONLY

C. 1 and 2 ONLY

D. 2 and 3 ONLY

Answer: C

Question 7 Details

Comments:

Objective: DRE263LN002.12
Reference: DAN 902-4 H-20, DOA 6900-02
K/A: 295004.K3.03 3.1 / 3.5
K/A: Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Reactor SCRAM: Plant-Specific.
Level: High
Pedigree: New
Explanation: The loss of all DC will make up the RPS logic for a scram on BOTH channels due to a loss of only ATS for both reactor water level lo lo and reactor pressure hi.

REQUIRED REFERENCES: None.

8 **Points: 1.00**

Unit 2 was operating at near rated power when annunciator 902-3-A-1, RX BLDG RAD HI illuminated.

The Unit Supervisor directed you to report readings on the 902-11 panel.

Which of the indications below is the cause of the alarm AND an entry condition for a DEOP?

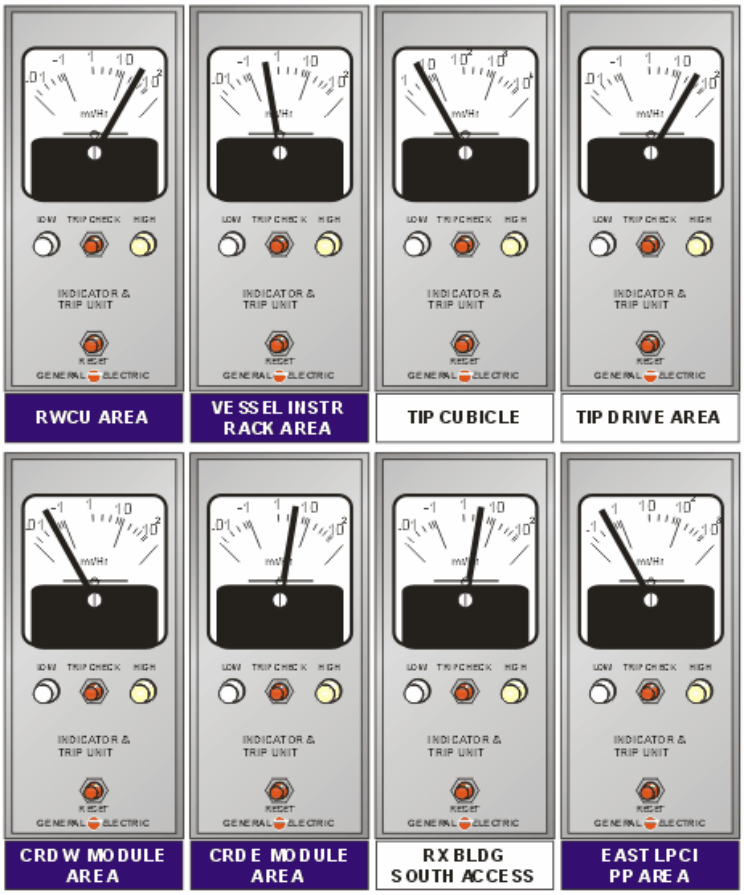
A. RWCU Area

B. EAST LPCI Pp Area

C. CRD E Module Area

D. TIP Drive Area

Answer: A



Question 8 Details

Comments:

Objective:
Reference: DAN 902-3 A-1, DEOP 300-1, Alarm setpoints on 902-11 panel
K/A: 295033.A2.01 3.8 / 3.9
K/A: Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: Area radiation levels.
Level: High
Pedigree: Bank
Explanation: Per the setpoints on 902-11 panel, the RWCU Area alarm comes in at 25 MR and is a DEOP 300-1 entry at 30MR, the reading in the attached picture shows RWCU Area at 40MR. All other areas are below alarm setpoints and below DEOP 300-1 entry conditions.

REQUIRED REFERENCES: None.

9 **Points: 1.00**

Unit 3 was operating at near rated power, when the RBCCW system DW SUPPLY VLV MO 3-3702 (Loop I isolation), failed closed.

Which of the following loads will be affected?

A. Pumpback Air Compressors

B. Fuel Pool Cooling Heat Exchangers

C. Shutdown Cooling Heat Exchangers

D. Recirc Pump Seals and Motor Coolers

Answer: D

Question 9 Details

Comments:

Objective: DRE208LN001.02
Reference: M-353
K/A: 400000.K3.01 2.9 / 3.3
K/A: Knowledge of the effect that a loss or malfunction of the CCWS will have on the following: Loads cooled by CCWS.
Level: Memory
Pedigree: Bank
Explanation: Loop I of the RBCCW system normally supplies the Recirc Pump Seals, Motor Coolers, and the Drywell Coolers.
(a) The Pumpback Air Compressors are cooled by Loop III from U2 only (both units).
(b) The Fuel Pool Cooling Heat Exchangers are supplied by Loop III.
(c) The Shutdown Cooling Heat Exchangers are cooled by Loop II.

REQUIRED REFERENCES: None.

10 **Points: 1.00**

Both Units were operating at near rated power, with the following conditions:

- 'A' SBGT system was in PRI.
- 'B' SBGT system was in STBY.

Then Unit 2 experienced a transient causing RPV water level to drop to -70 inches, before slowly trending up.

An NSO reported that the SBGT system operated as designed.

Then one (1) minute later the NSO reported that the 2/3A SBGT Heater indication changed from RED to GREEN.

Two (2) minutes later what would be the expected SBGT system flow and lineup?

A. 0 scfm, with neither system operating.

B. 3500 scfm, being supplied from the 2/3 'A' SBGT system.

C. 4100 scfm, being supplied from the 2/3 'A' SBGT system.

D. 4100 scfm, being supplied from the 2/3 'B' SBGT system.

Answer: D

Question 10 Details

Comments:

Objective: DRE261LN001.06
Reference: DAN 923-5 A-6, DOP 7500-01
K/A: 261000.A3.01 3.2 / 3.3
K/A: Ability to monitor automatic operations of the STANDBY GAS TREATMENT SYSTEM including: System flow.
Level: High
Pedigree: New
Explanation: When the operating ‘A’ train trips (due to heater trip) and the standby train ‘B’ has its control switch in the STANDBY position, then the ‘B’ train will auto start. After the auto start of the ‘B’ train, the normal expected system flow is 3900 – 4100 scfm.

REQUIRED REFERENCES: None.

11 **Points: 1.00**

Unit 2 was operating at near rated power, when the following occurred:

- MO 2-202-5A, 2A PP DISCH VLV begins closing.

Which of the following would reflect the expected indications for the 2A Recirc Pump, when the discharge valve reaches 89% open?

The 2A MG SET DRIVE MOTOR control switch will have a ___(1)___ target and the ___(2)___ indicating light(s) will be illuminated.

A. (1) red;
(2) blue

B. (1) red;
(2) amber AND green

C. (1) green;
(2) blue

D. (1) green;
(2) amber AND green

Answer: B

Question 11 Details

Comments:

Objective: DRE202LN001.06
Reference: DAN 902-4 A-9, DOP 0202-01
K/A: 202001.A3.07 3.3 / 3.3
K/A: Ability to monitor automatic operations of the RECIRCULATION SYSTEM including: Pump trips: Plant-Specific.
Level: High
Pedigree: Bank
Explanation: The pump will TRIP when the valve is 90% OPEN.

REQUIRED REFERENCES: None.

12 **Points: 1.00**

Unit 2 had just finished a refuel outage and has placed the mode switch in MODE 2. An NSO noted that Recirc loop temperature is 30°F higher than the temperature used by the QNE to predict the critical step/rod/notch.

What affect would this have on the actual critical step/rod/notch?

Per DGP 1-1, UNIT STARTUP, actual criticality would be . . . . .

A. later due to the doppler coefficient.

B. later due to the moderator temperature coefficient.

C. sooner due to being over-moderated.

D. sooner due to the moderator temperature coefficient.

Answer: B

Question 12 Details

Comments:

Objective: 20102LK032
Reference: DGP 1-1
K/A: Generic.1.43 4.1 / 4.3
K/A: Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc.
Level: Memory
Pedigree: Bank
Explanation: A moderator temperature increase results in the moderator temperature coefficient being more negative, thus more positive reactivity from control rod withdrawal would need to be performed for criticality.

REQUIRED REFERENCES: None.

13 **Points: 1.00**

Unit 3 was operating at near rated power, with the following conditions:

- ALL U3 Circ Water Pumps are running.
- It has been raining for the past 8 hours.

An NSO reported that Condenser vacuum is getting worse and the North AND South branch dP meters on the 903-7 panel have been steadily increasing all shift and are presently 4 feet of water higher than 7 hours ago.

Which of the following problems could these conditions indicate?

A. The Traveling Screens have high dp.

B. The Bar Racks are plugging with debris.

C. Debris is building up on the Main Condenser tubes.

D. One or more Circ Water Pumps have impeller damage.

Answer: C

Question 13 Details

Comments:

Objective: DRE275LN001.08
Reference: DOA 4400-01
K/A: 295002.K2.08 3.1 / 3.2
K/A: Knowledge of the interrelations between LOSS OF MAIN CONDENSER VACUUM and the following: Condenser circulating water system.
Level: High
Pedigree: Bank
Explanation: Condenser tube debris buildup is the only one of the choices that would cause dP to be higher (degradation of Condenser Vacuum). The distractors would cause dP to be lower due to decreased or loss of flow.

REQUIRED REFERENCES: None.

14 **Points: 1.00**

Unit 3 was operating at near rated power when annunciator 903-3 B-3, ISOL CONDR VENT RAD HI, illuminated.

The NSO reported that BOTH points on ISOL CONDR VENT RAD recorder RR 3-1840-12 are indicating 10 mrem/hr.

The required action(s) are to . . . . .

A. insert a manual scram ONLY.

B. verify closed ALL Iso Cond valves ONLY.

C. verify the Iso Cond shell side temperature is normal ONLY.

D. verify closed ALL Iso Cond valves AND insert a manual scram.

Answer: B

Question 14 Details

Comments:

Objective: DRE207LN001.10
Reference: DAN 902-3 B-3
K/A: 207000.G.4.31 4.2 / 4.1
K/A: Isolation (Emergency) Condenser: Knowledge of annunciator alarms, indications, or response procedures.
Level: Memory
Pedigree: New
Explanation: Upon receiving the above annunciator and BOTH radiation points indicating above 3 mrem/hr, the required actions are to close all valves. The conditions are not present to require inserting manual scram. Verifying the shell side temperature normal is required if only ONE of the radiation points is above 3 mrem/hr.

REQUIRED REFERENCES: None.

15 **Points: 1.00**

An accident has occurred at the station and you have volunteered to perform an evolution to *protect valuable property*. The dose rate in the area you will be entering is 30 Rem/hr.

Which of the following is the MAXIMUM time you can spend in the area performing your task without violating TEDE Radiation Emergency Exposure Limits per RP-AA-203 EXPOSURE CONTROL AND AUTHORIZATION?

A. 5 minutes

B. 9 minutes

C. 19 minutes

D. 49 minutes

Answer: C

Question 15 Details

Comments:

Objective: 29900LK208
Reference: RP-AA-203, EP-AA-113
K/A: Generic.3.04 3.2 / 3.7
K/A: Knowledge of radiation exposure limits under normal or emergency conditions.
Level: High
Pedigree: Modified
Explanation: The exposure limit for protecting valuable property is 10 TEDE. Based on 30 REM in the area, the stay time would be 20 minutes.
5 minutes would be correct if the candidate assumed the company yearly limit of 3 Rem.
9 minutes would be correct if the candidate assumed the federal yearly limit of 5 Rem.
49 minutes would be correct if the candidate assumed life saving instead of valuable property.

REQUIRED REFERENCES: None.

16 **Points: 1.00**

Unit 2 was operating at near rated power with the 902-36 back-panel recorder TIRS 2-1640-200A, (TORUS TEMP MON DIV 1) out of service, due to a failed power supply. All appropriate Technical Specifications/TRM conditions have been entered for this failure.

Then it is noted that TIRS 2-1640-200B (TORUS TEMP MON DIV 2) indicates the following:

- Point 1 87°F
- Point 2 95°F
- Point 3 94°F
- Point 4 95°F
- Point 5 108°F
- Point 6 105°F
- Point 7 87°F
- Point 8 92°F

What action(s) are the Operating Team required to take based on the current readings?

A. Immediately Scram the reactor, then enter DEOP 100, RPV CONTROL.

B. Immediately Scram the reactor, then enter DGP 2-3, REACTOR SCRAM.

C. Enter Tech Spec 3.6.2.1, SUPPRESSION POOL AVERAGE TEMPERATURE.

D. Blowdown the vessel, per DEOP 200-1, PRIMARY CONTAINMENT CONTROL.

Answer: C

Question 16 Details

Comments:

Objective: DRE223LN001.10
Reference: T.S. 3.6.2.1
K/A: 223001.K5.11 2.7 / 2.7
K/A: Knowledge of the operational implications of the following concepts as they apply to PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES: Temperature measurement.
Level: High
Pedigree: New
Explanation: Doing the math for the given temperatures, the average temperature is slightly over 95°F. Per Tech Spec 3.6.2.1, the average Torus temperature is required to be $\leq$95°F if thermal power is $\geq$1%. Immediately scramming the reactor is not done until Torus bulk temperature of 110°F. Blowing down is not done unless Torus bulk temperature violates the heat capacity limit.

REQUIRED REFERENCES: None.

17 **Points: 1.00**

Unit 3 was operating at full power when a transient caused the following to occur:

- The 3B Reactor Feed Pump tripped on overcurrent.
- RPV water level dropped to +20 inches.

With NO Operator actions, what condition would the reactor be in after the plant stabilized.

A. Scram

B. 35 - 45% power

C. 75 - 85% power

D. Full power

Answer: C

Question 17 Details

Comments:

Objective: 202LK016
Reference: DAN 902-4 H-6
K/A: 295001.K2.06 3.8 / 3.8
K/A: Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION and the following: Reactor power.
Level: High
Pedigree: New
Explanation: With the reactor operating at full power, 4 Cond/Cond Booster Pumps and 3 RFPs will be running. When the Cond/Cond Booster pump trips, the condition for a Recirc runback is met. The runback takes the Recic Pumps to 68% speed, which corresponds to 75 - 85% reactor power.
Scram would be correct if the candidate assumed RPV level dropped, based on loss of feed flow.
35 - 45% would be correct if the candidate assumed the Recirc Pumps ran back to their minimum speed (30%).
Full power would be correct if the candidate did not know the capacity of the Cond/Cond Booster pumps vs. the RFPs.

REQUIRED REFERENCES: None.

18 **Points: 1.00**

Unit 2 was in a refuel outage with all four of the RPS Shorting Links INSTALLED in the 902-15 and -17 Panels, when SRM 21 spiked to a full scale indication.

What response (if any) is expected from the RPS system under these conditions?

A. No RPS actuation.

B. 1/2 scram on RPS channel A ONLY.

C. 1/2 scram on RPS channel B ONLY.

D. Full scram.

Answer: A

Question 18 Details

Comments:

Objective: DRE212LN001.06
Reference: DOP 0700-01
K/A: 215004.A3.03 3.6 / 3.5
K/A: Ability to monitor automatic operations of the SOURCE RANGE MONITOR (SRM) SYSTEM including: RPS status.
Level: Memory
Pedigree: Modified
Explanation: With shorting links installed, the normal logic (an RPS trip from any neutron monitoring instrument-SRM,IRM, or APRM-results in a full scram) is bypassed.

REQUIRED REFERENCES: None.

19 **Points: 1.00**

Unit 2 was operating at near rated power, when a LOCA occurred.

If RPV pressure is 100 psig and lowering slowly, which of the following set of parameters would result in a USEABLE indicated *wide range* RPV water level?

Drywell temperature of ___(1)___ and an indicated *wide range* RPV water level of ___(2)___ .

A. (1) 257 ^{o}F
(2) -19 inches

B. (1) 257 ^{o}F
(2) -23 inches

C. (1) 357 ^{o}F
(2) +12 inches

D. (1) 357 ^{o}F
(2) -11 inches

Answer: A

Question 19 Details

Comments:

Objective: DRE216LN001.12
Reference: DEOP 100, 200-1 - figures A, B, and C, (RPV Water Level Instruments)
K/A: 295028.K1.01 3.5 / 3.7
K/A: Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL TEMPERATURE: Reactor water level measurement.
Level: High
Pedigree: New
Explanation: The examinee must utilize both the RPV saturation temperature and minimum indicated level tables of the above DEOP to determine that the only values that would result in a useable indication is a Drywell temperature of 257^{o}F and a RPV level of -19 inches.

REQUIRED REFERENCES: DEOP 200-1 - Figures A, B, and C, (RPV Water Level Instruments).

20 **Points: 1.00**

While executing a Dresden Emergency Operating Procedure (DEOP), what must be done if ANOTHER entry condition occurs?

A. Return to the start of the procedure and execute the procedure.

B. Suspend performance of the procedure UNTIL concurrence from STA.

C. Continue where you are presently at in the procedure, re-entry is NOT required.

D. Wait until you can exit the current leg, THEN re-enter the procedure with the current conditions.

Answer: A

Question 20 Details

Comments:

Objective: 29501LE004
Reference: DEOP 0010-00
K/A: Generic.4.14 3.8 / 4.5
K/A: Knowledge of general guidelines for EOP usage.
Level: Memory
Pedigree: Bank
Explanation: As described in the DEOP basis document, if while executing a Dresden Emergency Operating Procedure (DEOP), and another entry condition occurs, the Operator is required to return to the start of the procedure and execute the procedure.

REQUIRED REFERENCES: None.

21 **Points: 1.00**

Unit 2 was operating at near rated power when the Turbine tripped.

120 seconds later, the following is observed:

- The Generator has NOT tripped.
- The Generator Field Breaker is Open.

The team is required to open Generator OCBs ___(1)___ from the ___(2)___ panel.

A. (1) 1-2 and 1-7;
(2) 902-8

B. (1) 1-2 and 1-7;
(2) 923-2

C. (1) 9-10 and 10-11;
(2) 902-8

D. (1) 9-10 and 10-11;
(2) 923-2

Answer: B

Question 21 Details

Comments:

Objective: 24501LK017
Reference: DOA 5600-01, DOP 6400-13
K/A: 295005.G.4.49 4.6 / 4.4
K/A: Main Turbine Generator Trip: Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.
Level: Memory
Pedigree: New
Explanation: Per the above procedure, if the Turbine trips, and the Generator does NOT trip with the field breaker open, the required action is to open the Generator OCBs from the 923-2 panel. The Unit 2 OCBs are the 1-2 and 1-7.

REQUIRED REFERENCES: None.

22 **Points: 1.00**

Both Units were operating at near rated power, with the following equipment O.O.S.:

- 2B EHC Pump
- 2A Instrument Air Compressor
- 3C Instrument Air Compressor

Then a transient occurred, causing the following:

- Bus 27 Main Feed Breaker tripped.
- U2 Main Instrument Air receiver developed a leak.

How does the above transient effect the plant?

A. EHC pressure will decrease.

B. RWCU system flow would be interrupted.

C. The 2B RPS MG Set will become de-energized.

D. The ESS Bus will be supplied by the ALTERNATE feed.

Answer: B

Question 22 Details

Comments:

Objective: DRE278LN001.02
Reference: 12E-2305, DOA 4700-01
K/A: 300000.K6.12 2.9 / 2.9
K/A: Knowledge of the effect that a loss or malfunction of the following will have on the INSTRUMENT AIR SYSTEM: Breakers, relays and disconnects.
Level: High
Pedigree: New
Explanation: With a loss of Bus 27, the 2B IAC will be lost. That combined with the 2A IAC being O.O.S. will cause a loss of all Instrument Air compressors on Unit 2. As pressure decreases, the PCV and FCV will close on the RWCU system, interrupting flow.
(a) EHC pressure will not decrease since the 2A EHC is still powered from Bus 25.
(c) The 2B RPS MG Set will not de-energize since it is powered from MCC 29-2 via Bus 29.
(d) The ESS Bus will not transfer to the alternate feed since the normal supply of Bus 29 is still energized.

REQUIRED REFERENCES: None.

23 **Points: 1.00**

Unit 2 was operating at near rated power when a transient occurred, resulting in the following:

- Bus 24-1 de-energized.
- The U2 EDG auto started.
- The U2 EDG output breaker did NOT auto close onto Bus 24-1.
- The Bus 24-1 normal feed and divisional crosstie breakers are open.

The Unit Supervisor verified with EMD that Bus 24-1 is NOT faulted, then directed the NSO to power Bus 24-1 from the Unit 2 EDG locally.

This is accomplished by proceeding to Bus 24-1 on the ___(1)___ elevation of the U2 R. B. and ___(2)___ for the EDG output breaker.

A. (1) 517';
(2) depressing the Close pushbutton

B. (1) 517';
(2) turning on the local synchroscope, verifying in-synch, then depressing the Close pushbutton

C. (1) 545';
(2) depressing the Close pushbutton

D. (1) 545';
(2) turning on the local synchroscope, verifying in-synch, then depressing the Close pushbutton

Answer: C

Question 23 Details

Comments:

Objective: DRE262LN001.05
Reference: DGA-12
K/A: 262001.G.1.30 4.4 / 4.0
K/A: A.C. Electrical Distribution: Ability to locate and operate components, including local controls.
Level: Memory
Pedigree: New
Explanation: Per the above procedure, upon an emergency bus de-energizing with an EDG auto start but failure to close in, and the emergency bus is NOT faulted, the correct action is to close in the EDG output breaker locally. The method to close in locally is to depress the close pushbutton. The synchroscope is located in the Control Room and is ONLY utilized if closing in from the Control Room). Bus 24-1 is located on the 545' elevation of the R.B.

REQUIRED REFERENCES: None.

24 **Points: 1.00**

While performing DOS 3900-02, UNIT 2 AND UNIT 3 SERVICE WATER AND CONDENSATE TRANSFER SAFE SHUTDOWN MANUAL VALVE OPERABILITY, who is the NSO **required** to notify **immediately** if the acceptance criteria can NOT be met for "loss or low flow" component cooling system manual valve operability?

A. S.O.S. **only**

B. System Engineer **only**

C. S.O.S. **and** OPS Shift Supervisor

D. OPS Shift Supervisor **only**

Answer: D

Question 24 Details

Comments:

Objective: DRE276LN001.08
Reference: DOS 3900-02
K/A: 295018.G.2.12 3.7 / 4.1
K/A: Partial or Complete Loss of Component Cooling Water: Knowledge of surveillance procedures.
Level: Memory
Pedigree: New
Explanation: The procedure states specifically that if acceptance criteria can not be met for any step, notify Operations shift supervisor.

REQUIRED REFERENCES: None.

25 **Points: 1.00**

Unit 2 was operating at near rated power when a transient occurred, resulting in the following timeline:

- 00:00:00 - RPV water level is +30 inches.
- 00:00:01 - Spurious Reactor Scram.
- 00:00:16 - RPV water level is +20 inches.
- 00:00:31 - RPV water level is +10 inches.
- 00:00:46 - RPV water level is -10 inches.

Which ONE of the following is the RPV water level setpoint signal from the Feedwater Level Control system at time 00:00:46?

RPV water level is . . . . .

A. held at the present level until manual control is taken.

B. ramped back to +30 inches at a rate of 2 inches/minute.

C. ramped back to +30 inches at a rate of 5 inches/minute.

D. ramped back to +30 inches at a rate of 10 inches/minute.

Answer: D

Question 25 Details

Comments:

Objective: DRE259LN002.06
Reference: DOA 0600-01
K/A: 295006.K2.02 3.8 / 3.8
K/A: Knowledge of the interrelations between SCRAM and the following: Reactor water level control system.
Level: High
Pedigree: Bank
Explanation: On a scram, RPV level setpoint is set to -10 inches if FWLCS is in Master Auto. If RPV level does NOT drop below -30 inches, then the level setpoint is returned to the original value (+30 inches) at a rate of 10 inches/minute.

REQUIRED REFERENCES: None.

26 **Points: 1.00**

The unit is on-line and verification of the suppression pool water level as required every 24 hours by Tech Specs, is scheduled to be performed.

If the last time the verification was completed was 3/15/11 at 1200 hours, which of the following is the LATEST time that the next verification can be performed with no further actions required by Tech Specs?

A. 3/16/11 at 1200 hours

B. 3/16/11 at 1430 hours

C. 3/16/11 at 1800 hours

D. 3/16/11 at 2330 hours

Answer: C

Question 26 Details

Comments:

Objective: DRE215LN005.07
Reference: T.S. SR 3.0.2, TS 3.6.2.2
K/A: Generic.2.22 4.0 / 4.7
K/A: Knowledge of limiting conditions for operations and safety limits.
Level: High
Pedigree: New
Explanation: The Tech Specs allow a 25% extension time for surveillances. With the last time the SR was performed was 3/15/11 at 1200 hours and a 24 hour requirement plus a 25% extension (6 more hours) the latest that the SR may be performed without further action is 3/16/11 at 1800 hours.

REQUIRED REFERENCES: None.

27 **Points: 1.00**

The DEOPs require Emergency Depressurization if Torus water level CANNOT be maintained above 11 feet.

What is the basis for requiring Emergency Depressurization at this point?

A. Prevent exceeding LPCI NPSH requirements.

B. Prevent exceeding SRV tailpipe pressure limits.

C. Steam discharged from HPCI will NOT be suppressed.

D. Suppression of steam discharged from the downcomers can NOT be assured.

Answer: D

Question 27 Details

Comments:

Objective: DRE259LN001.12
Reference: DEOP 200-1 and EPG B-7-49
K/A: 295030.K3.01 3.8 / 4.1
K/A: Knowledge of the reasons for the following responses as they apply to LOW SUPPRESSION POOL WATER LEVEL: Emergency depressurization.
Level: Memory
Pedigree: Bank
Explanation: An emergency depressurization is performed at 11 feet in the Torus to ensure the steam can be condensed prior decreasing to the level of the downcomers.

REQUIRED REFERENCES: None.

28 **Points: 1.00**

Unit 2 was operating at near rated power when MCC 29-1 de-energized.

What effect does this have on the Unit 2 SBLC system?

A. A loss of power to the 2A pump AND 2B squib valve; resulting in a reduction of injection capability.

B. A loss of power to the 2B pump AND 2A squib valve; resulting in a reduction of injection capability.

C. A loss of power to ONLY half of the storage tank heaters; the remaining heaters will keep the boron in solution.

D. A loss of power to ALL of the storage tank heaters; if NOT corrected, could result in boron coming out of solution in the storage tank.

Answer: D

Question 28 Details

Comments:

Objective: DRE211LN001.12
Reference: DOP 1100-01, UFSAR 9.3-31
K/A: 211000.K5.07 2.7 / 2.9
K/A: Knowledge of the operational implications of the following concepts as they apply to STANDBY LIQUID CONTROL SYSTEM: Tank heater operation.
Level: Memory
Pedigree: Bank
Explanation: A loss of MCC 29-1 will cause a loss of ALL tank heaters, and 2B pump & 2B squib. The cross divisional powering of the pump and squib is a common misconception.

REQUIRED REFERENCES: None.

29 **Points: 1.00**

Which of the following is performed to minimize power transients through changes in the core void fraction caused by oscillations?

A. Inhibit ADS and initiate Iso Cond.

B. Verify FWLCS in automatic.

C. Initiate Iso Cond and open ADSVs to lower RPV pressure to 945 psig.

D. Maximize injection using Condensate/Feedwater or other preferred injection system.

Answer: C

Question 29 Details

Comments:

Objective: 29501LK025
Reference: DEOP 100, DEOP 400-5, EPG B-6-40
K/A: 295025.K1.01 3.9 / 4.0
K/A: Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE: Pressure effects on reactor power.
Level: Memory
Pedigree: Bank
Explanation: Allowing pressure oscillations can cause significant power transients through changes in the core void fraction. This is controlled via the Iso Condenser and ADSVs, thus not allowing the ADSVs to cycle.

REQUIRED REFERENCES: None.

30 **Points: 1.00**

Unit 2 was operating at 55% power, with a Generator Hydrogen pressure of 45 psig and steady.

Then a disturbance on the grid occurred and the Load Dispatcher (TSO) called to request that Dresden Station Unit 2 increase load.

From the choices below, the MAXIMIUM allowed MVAR is ___(1)___ and MWe is ___(2)___ .

A. (1) 200;
(2) 800

B. (1) 200;
(2) 900

C. (1) 400;
(2) 800

D. (1) 400;
(2) 900

Answer: B

Question 30 Details

Comments:

Objective: DRE262LN003.12
Reference: DOP 6400-08
K/A: 700000.A2.01 3.5 / 3.6
K/A: Ability to determine and/or interpret the following as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Operating point on the generator capability curve.
Level: High
Pedigree: New
Explanation: The candidate must locate the UNIT 2 operating curve, with the regulator IN SERVICE, to predict the max load. On Unit 2, with a Generator Hydrogen pressure of 45 psig, the allowed load is 200 MVAR and 900 MWe.

REQUIRED REFERENCES: DOP 6400-08 figure 1 through figure 7.

31 **Points: 1.00**

Unit 2 is in MODE 3 with the following set of conditions:

- RPV pressure is 200 psig.
- RPV water temperature of 316^{o}F.
- 2B RWCU pump is in service.
- 2B Recirc pump is running at minimum speed.
- 2B Shutdown Cooling train is aligned to Fuel Pool Cooling.
- 2A and 2C Shutdown Cooling trains are aligned to the vessel removing their RATED heat load.

Then an overcurrent condition occurs on BUS 23-1.

What action(s) is/are required to be taken to MAINTAIN the current RPV water temperature?

A. **Increase** CRD cooling water flow.

B. Open 3 turbine bypass valves **fully**.

C. Initiate the Iso Condenser and **throttle** the 2-1301-3 valve.

D. Start the RWCU system using the RWCU Aux pump and **maximize** system flow.

Answer: C

Question 31 Details

Comments:

Objective: DRE205LN001.08
Reference: DOA 1000-01 Residual heat removal, DTS 6700-2
K/A: 295021.A1.04 3.7 / 3.7
K/A: Ability to operate and/or monitor the following as they apply to LOSS OF SHUTDOWN COOLING: Alternate heat removal methods.
Level: High
Pedigree: New
Explanation: Per the procedure each train of SDC removes the equivalent of 8 MWth, and the Iso Cond can remove up to 74 MWth. With the loss of TWO trains of SDC cooling, The Iso Cond can be initiated and throttled to compensate for this loss.
Increasing CRD cooling water flow would add cool water, but not enough to overcome the loss from SDC.
Opening the bypass valves would remove too much heat (112 MWth) and lower temperature NOT maintain temperature.
RWCU (10 MWth) would NOT provide sufficient cooling to replace the lost cooling.

REQUIRED REFERENCES: None.

32 **Points: 1.00**

With the Unit in REFUEL, during fuel moves, which of the following is a responsibility of the Unit NSO?

A. Date and initial "Transfer Complete" box of the Move Sheet.

B. Initial the "FROM" location and "TO" location boxes of the Move Sheet.

C. Provide documentation of completed moves to the Fuel Handling Supervisor.

D. Indicate that SRM response check has been performed, if reactivity was affected.

Answer: D

Question 32 Details

Comments:

Objective: 23400LK005
Reference: DFP 0800-01
K/A: Generic.3.12 3.2 / 3.7
K/A: Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.
Level: Memory
Pedigree: Bank
Explanation: Per the master refueling procedure, one of the responsibilities of the Unit NSO is to indicate that SRM response check has been performed, to ensure instrumentation available to identify potential changes in dose rates due to inadvertent criticality.
(a) Filling in the "Transfer Complete" box of the Move Sheet is the duty of the SRO or an SROL.
(b) Completing the "FROM" and "TO" location boxes of the Move Sheet is the duty of the SRO or an SROL.
(c) Documentation of completed moves is provided to the SNM Custodian.

REQUIRED REFERENCES: None.

33 **Points: 1.00**

Unit 2 was operating at near rated power when an UNISOLABLE leak causing an offsite release approaching a General Emergency is discovered.

An RPV Scram and blowdown would be required to protect the general public if the unisolable leak was from . . . . .

A. the Heating Boilers discharging into the environment.

B. a CCSW pump discharging into the CCSW pump vault.

C. a Turbine Bypass Valve discharging onto the Turbine Deck.

D. the RBCCW temperature control valve (TCV) discharging into the berm around the Emergency Buses.

Answer: C

Question 33 Details

Comments:

Objective: 29502LE003
Reference: DEOP 300-02
K/A: 295038.K1.02 4.2 / 4.4
K/A: Knowledge of the operational implications of the following concepts as they apply to HIGH OFF-SITE RELEASE RATE: †Protection of the general public.
Level: Memory
Pedigree: New
Explanation: Per DEOP 300-2 a scram and blowdown is required when a primary system is discharging outside primary and secondary containments AND approaching the General Emergency level. A Turbine Bypass Valve is a primary system and the Turbine deck is outside secondary containment.
(a) The Heating Boilers are not primary steam.
(b) The CCSW system supports the primary LPCI system, but is NOT a primary system itself.
(d) The RBCCW system is inside secondary containment.

REQUIRED REFERENCES: None.

34 **Points: 1.00**

Unit 3 was operating at near rated power when a LOOP occurred, resulting in the following set of conditions:

- HPCI failed to start.
- Four (4) ADS valves opened.
- U3 EDG tripped on overcurrent.
- RPV pressure is 300 psig and decreasing.
- RPV water level is -125 inches and increasing.

Core cooling is . . . . .

A. NOT assured due to only three ECCS pumps injecting.

B. NOT assured due to RPV water level being near the top of active fuel.

C. assured due to the steam cooling effects via the four open relief valves.

D. assured due to the core being submerged via three ECCS pumps injecting.

Answer: D

Question 34 Details

Comments:

Objective: 299LN049-2
Reference: UFSAR Ch 6.3
K/A: 203000.K5.02 3.5 / 3.7
K/A: Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI: INJECTION MODE: Core cooling methods.
Level: High
Pedigree: Bank
Explanation: With a loss of off-site power (LOOP), the Reactor will scram. With a loss of HPCI, and a loss of Bus 34-1 (U3 EDG failure), the only possible injection sources are the 3A Core Spray and 3A and 3B LPCI pumps. With RPV pressure <340, the ECCS pumps will inject water into the RPV. This injection is sufficient to provide core submergence. Top of active fuel is not reached until -143 inches (with RPV pressure less than 500 psig). Steam cooling would not come into effect unless RPV pressure was greater than 450 psig.

REQUIRED REFERENCES: None.

35 **Points: 1.00**

Unit 3 is at 10% of rated thermal power, with APRM 4 having three (3) of its five (5) “A” level inputs LPRMs bypassed, when the following occurred:

- An "A" level LPRM input to APRM 4 failed DOWNSCALE.
- APRM 4 indicates 1%.

Prior to any Operator action, the APRM 4 DOWNSCALE ___(1)___ light(s) on the 903-37 panel, will be illuminated.

Then the Operator is required to bypass the failed LPRM ___(2)___ .

A. (1) ONLY;
(2) ONLY

B. (1) ONLY;
(2) AND APRM 4

C. (1) AND INOP;
(2) ONLY

D. (1) AND INOP;
(2) AND APRM 4

Answer: B

Question 35 Details

Comments:

Objective: DRE215LN005.03
Reference: DANs 902-5 C-3 and C-6, DOP 0700-08, DRE215LN005
K/A: 215005.A2.03 3.6 / 3.8
K/A: Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Inoperative trip (all causes).
Level: Memory
Pedigree: Bank
Explanation: With 3 of the 5 individual level LPRMs into the APRM bypassed ONLY the downscale light would illuminate. BOTH the failed LPRM AND APRM 4 should be bypassed (<2 operable in any given level). INOP trip setpoint is met when nine (9) LPRMs are bypassed.

REQUIRED REFERENCES: None.

36 **Points: 1.00**

Which one of the following list the MINIMUM set of conditions that will cause automatic initiation of the Automatic Depressurization System (ADS) for a leak INSIDE the Drywell?

A. Drywell pressure of 3.5 psig
RPV water level of -80 inches
120 second timer has timed out
"A" Core Spray Pump running and delivering 50 psig discharge pressure

B. Drywell pressure of 3.5 psig
RPV water level of -40 inches
120 second timer has timed out
"A" Core Spray Pump running and delivering 150 psig discharge pressure

C. Drywell pressure of 4.5 psig
RPV water level of -80 inches
120 second timer has timed out
"B" Core Spray Pump running and delivering 150 psig discharge pressure
ADS inhibit switch in the NORMAL position

D. Drywell pressure of 4.5 psig
RPV water level of -80 inches
120 second timer has timed out
"B" Core Spray Pump running and delivering 50 psig discharge pressure
ADS inhibit switch in the NORMAL position

Answer: C

Question 36 Details

Comments:

Objective: DRE218LN001.06
Reference: DAN 902-3 B-13
K/A: 218000.K1.01 4.0 / 4.1
K/A: Knowledge of the physical connections and/or cause effect relationships between AUTOMATIC DEPRESSURIZATION SYSTEM and the following:
RHR/LPCI: Plant-Specific.
Level: Memory
Pedigree: New
Explanation: Per DAN 902-3 B-13 ADS Timer Start, the conditions required are:
RPV water level < -59 inches for 2 minutes.
Drywell pressure > 2.0 psig.
120 second timer timed out.
Any ECCS pump running with a discharge pressure > 100 psig.
ADS inhibit switch NOT in the inhibit position.

REQUIRED REFERENCES: None.

37 **Points: 1.00**

Unit 3 was operating at 40% power, with power ascension in progress.

The NSO selected Control Rod F-01 and attempted to withdraw it from position 24 to full out.

Control Rod F-01 did NOT move.

The NSO raised CRD drive water pressure to 300 psid and attempted to withdraw the Control Rod.

The Control Rod still did NOT move.

Per DOP 0400-01, REACTOR MANUAL CONTROL SYSTEM, the next required action is to . . . . . .

A. manually scram Control Rod F-01 from the 902-16 panel.

B. direct an EO to electrically and hydraulically disarm Control Rod F-01.

C. utilize the double clutch method in an attempt to withdraw Control Rod F-01.

D. raise drive water pressure an additional 50 psid and attempt to withdraw Control Rod F-01.

Answer: D

Question 37 Details

Comments:

Objective: DRE201LN001.12
Reference: DOP 0400-01
K/A: 201003.A2.01 3.4 / 3.6
K/A: Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Stuck rod.
Level: High
Pedigree: Bank
Explanation: The candidate must realize that with raising drive water pressure and the Control Rod still not moving, it is a stuck rod. The correct actions for a stuck rod is to raise Drive water pressure an additional 50 psid and attempt to withdraw it.
(a) Scramming the rod is not correct for the conditions given.
(b) Disarming the Control Rod would only be done if the rod is decided to be uncoupled.
(c) Attempting to Double Clutch is only performed for rods at position 00.

REQUIRED REFERENCES: None.

38 **Points: 1.00**

Unit 3 was operating at near rated power when ALL annunciators are lost EXCEPT the annunciators labeled “ANNUN DC PWR FAILURE" are illuminated on the following panels:

- 903-3
- 903-4
- 903-5
- 903-6
- 903-7
- 903-8
- 903-55

What are the immediate actions the Operating team is required to perform?

A. Lock out the Recirc MG set scoop tubes ONLY.

B. Insert a manual scram, and trip the Turbine ONLY.

C. Stabilize and control RPV water level in normal band.

D. Insert a manual scram, trip the Turbine AND lock out the Recirc MG set scoop tubes.

Answer: C

Question 38 Details

Comments:

Objective: 26302LK001
Reference: DOA 6900-03
K/A: Generic.4.32 3.6 / 4.0
K/A: Knowledge of operator response to loss of all annunciators.
Level: Memory
Pedigree: Bank
Explanation: The conditions in the stem indicate a complete loss of Div 1 125VDC. The immediate action in the above DOA is to stabilize and control RPV water level in the normal control band. The distractors depict actions that would be taken if other sections of the DC system were lost.

REQUIRED REFERENCES: None.

39 **Points: 1.00**

Unit 2 was operating at near rated power when a transient occurred.

Instrument Air pressure is reported as 85 psig and dropping.

How does this effect the Main Steam system?

If Instrument Air pressure continues to drop, the ___(1)___ MSIVs will fail closed and the HIGHEST pressure this will occur at is ___(2)___ psig.

A. (1) inboard;
(2) 54

B. (1) inboard;
(2) 64

C. (1) outboard;
(2) 54

D. (1) outboard;
(2) 64

Answer: C

Question 39 Details

Comments:

Objective: DRE239LN001.12
Reference: DOA 4700-01
K/A: 239001.K6.02 3.2 / 3.2
K/A: Knowledge of the effect that a loss or malfunction of the following will have on the MAIN AND REHEAT STEAM SYSTEM: Plant air systems.
Level: High
Pedigree: New
Explanation: The candidate must understand that the inboard and outboard MSIVs have a different gas supply for their motive force. The outboard MSIVs are supplied by the Instrument Air system, and will fail closed when supply pressure drops to <55 psig. The inboard MSIVs are supplied by the Drywell pneumatic system (Nitrogen).

REQUIRED REFERENCES: None.

40 **Points: 1.00**

Unit 2 was operating at near rated power, when APRM 3 failed downscale.

A half Scram will be generated on RPS ___(1)___ if IRM ___(2)___ becomes INOP.

A. (1) A;
(2) 13

B. (1) B;
(2) 13

C. (1) A;
(2) 15

D. (1) B;
(2) 15

Answer: A

Question 40 Details

Comments:

Objective: DRE215LN003.06
Reference: DOP 0700-02, DAN 902-5 C-6
K/A: 215003.K1.01 3.9 / 3.9
K/A: Knowledge of the physical connections and/or cause effect relationships between INTERMEDIATE RANGE MONITOR (IRM) SYSTEM and the following: RPS.
Level: Memory
Pedigree: New
Explanation: A Half Scram is generated if an APRM downscale is received concurrent with its companion IRM being INOP. In this case APRM 3 and the companion IRM 13, cause a half-scram on RPS "A" side.

REQUIRED REFERENCES: None.

41 **Points: 1.00**

With the Reactor shutdown and fuel loaded in the core, and all control rods normally inserted, per the UFSAR, interlocks are provided which prevent the inadvertent withdrawal of more than ___(1)___ control rod(s) with the MODE switch in the ___(2)___ position.

A. (1) one;
(2) REFUEL

B. (1) one;
(2) STARTUP

C. (1) two;
(2) REFUEL

D. (1) two;
(2) STARTUP

Answer: A

Question 41 Details

Comments:

Objective: 299LN049-2
Reference: UFSAR.4.6.3.4.1
K/A: 295023.K3.02 3.4 / 3.8
K/A: Knowledge of the reasons for the following responses as they apply to REFUELING ACCIDENTS: Interlocks associated with fuel handling equipment.
Level: Memory
Pedigree: Bank
Explanation: Per the UFSAR, during Reactor shutdown and with fuel loaded in the core all control rods are normally inserted. Interlocks are provided which prevent the inadvertent withdrawal of more than ONE control rod with the mode switch in the REFUEL position.

REQUIRED REFERENCES: None.

42 **Points: 1.00**

Unit 2 was operating at near rated power when a transient occurred resulting in an ATWS.

The Unit Supervisor directed the Operating team to bypass the interlocks for the MSIV low water level AND Off Gas high radiation isolations.

Which of the following would be a correct indication of the interlocks above being properly bypassed?

A. The Off Gas SJAE suction valves automatically open.

B. Annunciator 902-5 B-13, CHANNEL A/B RPV LVL LO, can be reset.

C. Annunciator 902-5 D-4, GROUP 1 ISOLATION INITIATED, can be reset.

D. The MSIVs automatically open, UNLESS a valid MSL high rad signal is present.

Answer: C

Question 42 Details

Comments:

Objective: 29502LK077
Reference: DAN 902-5 B-13, DEOP 0500-02, 12E-2501 sht 1 and 2
K/A: 223002.K4.08 3.3 / 3.7
K/A: Knowledge of PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF design feature(s) and/or interlocks which provide for the following: Manual defeating of selected isolations during specified emergency conditions.
Level: Memory
Pedigree: Bank
Explanation: The jumpers installed per the above procedure bypass the lo-lo RPV water level Group 1 signal. This permits the annunciator to be reset. The low level annunciator cannot be reset when these jumpers are installed. The MSIVs do NOT auto open (these jumpers prevent their closure). The MSL hi-rad signal no longer is an input that would cause a Group 1 isolation. The Off Gas suction valves are not affected by these jumpers.

REQUIRED REFERENCES: None.

43 **Points: 1.00**

Unit 2 was operating at near rated conditions with the Off-Gas system aligned as follows:

- 2A train is in service.
- 2B train is secured.
- On the 902-7 panel, the 2A SJAE LO PRESS BYPASS switch is in the NORMAL position.
- On the 902-7 panel, the 2B SJAE LO PRESS BYPASS switch is in the BYPASS position.

If the 2B SJAE LO PRESS BYPASS switch is re-positioned to the NORMAL position, the predicted response is . . . . .

A. the Off-Gas system will have stable flows with NO alarms.

B. the Off-Gas system flowrate will LOWER due to flow no longer bypassing the 2B SJAEs.

C. SJAE suction valves close due to low SJAE steam supply pressure present from the 2B Off-Gas train being secured.

D. annunciator 902-7 F-14, 2B BOOSTER AIR EJECT STM PRESS LO alarms, but SJAE suction valves remain open.

Answer: A

Question 43 Details

Comments:

Objective: DRE271LN001.06
Reference: DOP 5400-23, DAN 902-7 E-14, 12E-2489 (upper right section)
K/A: 271000.A1.08 3.1 / 3.1
K/A: Ability to predict and/or monitor changes in parameters associated with operating the OFFGAS SYSTEM controls including: System flow.
Level: High
Pedigree: Bank
Explanation: With the 2B SJAE train secured, the 2-5499-76 valve is closed (per the above DOP). The conditions for the SJAE suction valves to go closed are: 2B SJAE LO PRESS BYPASS switch in NORMAL and 2A SJAE LO PRESS BYPASS switch in BYPASS with the 2A SJAE train NOT in service and 2-5499-76 2B OFF GASS RECOMB INLET SV open and 2B SJAE inlet steam pressure drops below 100 psig or 2B booster air ejector/recombiner dilution steam pressure drops below 90 psig. THEN any open SJAE suction valve will close. The conditions in the stem are not met for closure.

REQUIRED REFERENCES: None.

44 **Points: 1.00**

Unit 2 was operating at near rated power when annunciator 902-5 E-8, RPV LVL HI illuminated.

Provided the indications below, what actions are required to mitigate the transient?

Depress button # ___(x)___ and then depress the arrow(s) associated with button # ___(y)___ .

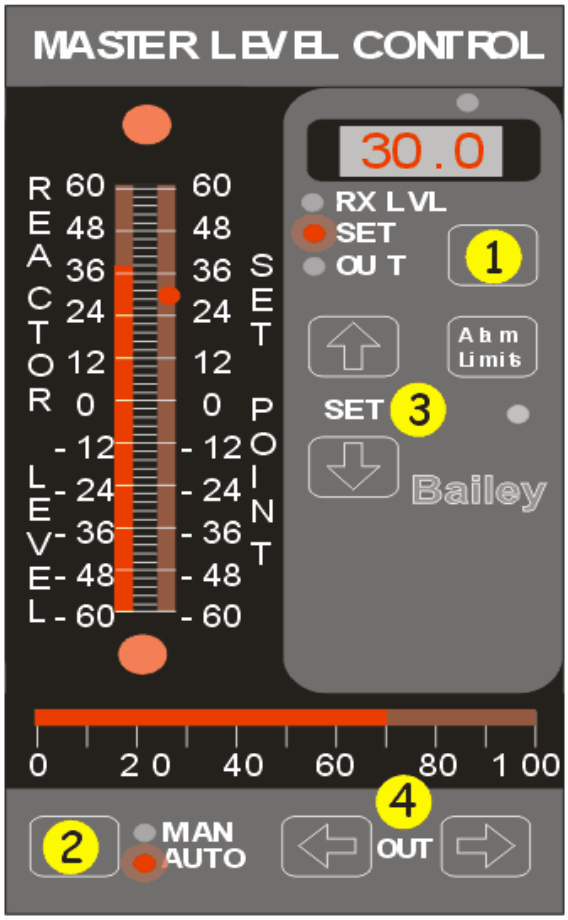
A. (x) 1; (y) 3

B. (x) 1; (y) 4

C. (x) 2; (y) 3

D. (x) 2; (y) 4

Answer: D



Question 44 Details

Comments:

Objective: DRE259LN003
Reference: DAN 902-E-8, DOA 0600-01
K/A: 295008.A1.01 3.7 / 3.7
K/A: Ability to operate and/or monitor the following as they apply to HIGH REACTOR WATER LEVEL: Reactor water level control: Plant-Specific.
Level: High
Pedigree: New
Explanation: With the annunciator for RPV High Level alarming, the DOA for transient level control is entered. The DOA states that if reactor water level is rising, to take manual control. Button #2 is depressed to transfer to manual control and buttons #4 are operated to lower reactor water level.

REQUIRED REFERENCES: None.

45 **Points: 1.00**

Unit 2 was operating at near rated power when a transient occurred, resulting in the following:

- The 2A Stator Water Cooling Pump tripped.
- The 2B Stator Water Cooling Pump failed to auto start.
- Attempts to manually start the 2B Stator Cooling Water Pump are NOT successful.

What actions are required by the Operating Team in an attempt to mitigate the above transient?

A. Reduce Recirc flow, then lock out the Scoop Tubes.

B. Insert a manual Scram prior to 6 ½ Bypass Valves opening.

C. Unload the Main Generator, remove Voltage, and trip the Turbine.

D. Reduce Main Generator VARs to zero, decrease Recirc flow, and insert CRAM rods.

Answer: D

Question 45 Details

Comments:

Objective: DRE253LN001.06
Reference: DOA 7400-01, DAN 902-7 C-3
K/A: 245000.G.1.02 4.1 / 4.4
K/A: Main Turbine Generator and Auxiliary Systems: Knowledge of operator responsibilities during all modes of plant operation.
Level: Memory
Pedigree: New
Explanation: When Stator Cooling flow is lost to the Main Generator, a Turbine Runback is initiated. The team is required to get the plant output under the capacity of the Bypass Valves (33.5% power) by zeroing Generator VARS, decreasing Recirc flow, and inserting CRAM rods.
(a) Reducing Recirc flow is correct, but locking out Scoop Tubes is done for a Recirc runback (not Turbine runback).
(b) A manual Scram is not inserted until 8 ½ bypass valves are opened (giving the team time to reduce Reactor power).
(c) This is not done unless conductivity is confirmed as the cause of the Turbine runback.

REQUIRED REFERENCES: None.

46 **Points: 1.00**

Both Units are operating at near rated power, when the Instrument Air piping in the **Unit 2** Reactor Building develops a rupture. The following conditions exist:

- **Unit 3** Instrument Air Pressure is normal.
- An Operator reports that the **Unit 3** Fuel Pool temperature is increasing.

Which of the following actions are required?

A. Throttle/Isolate Service Water loads on Unit 2.

B. Throttle/Isolate Service Water loads on Unit 3.

C. Close 2-4701-501A, U2 SERV AIR TO INST AIR X-TIE MANUAL ISOL VLV.

D. Close 3-4701-501, U3 SERV AIR TO INST AIR X-TIE MANUAL ISOL VLV.

Answer: A

Question 46 Details

Comments:

Objective: DRE278LN001.08
Reference: DOA 4700-01
K/A: 295019.G.1.20 4.6 / 4.6
K/A: Partial or complete loss of Instrument Air: Ability to interpret and execute procedure steps.
Level: High
Pedigree: Modified
Explanation: If equipment temperatures on a Unit with normal Instrument Air pressure is rising, then throttle or isolate Service Water loads on the Unit with the FAILED IA system. Closing the SERV AIR TO INST AIR X-TIE valves would only done upon a loss of off-site power to prevent back flow when crosstieing Unit 2 to Unit 3 Inst Air systems.

REQUIRED REFERENCES: None.

47 **Points: 1.00**

Unit 2 was operating at near rated power when a scram signal was received. An ATWS occurred, with half the rods NOT fully inserting.

For the Control Rods at known positions between 12 and 48, what color will they be displayed on the Rod Worth Minimizer?

A. Red

B. Cyan

C. Green

D. Yellow

Answer: A

Question 47 Details

Comments:

Objective: DRE201LN006.11
Reference: DOP 0400-02
K/A: 295015.A1.05 2.5 / 2.8
K/A: Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM: Rod worth minimizer: Plant-Specific.
Level: Memory
Pedigree: New
Explanation: After a scram signal, Control Rods at a known position (other than 00) will be displayed in RED.
(b) Rods that are OOS are displayed in cyan.
(c) Rods at position 00 are displayed in GREEN.
(d) Rods with an unknown position are displayed in yellow (question marks).

REQUIRED REFERENCES: None.

48 **Points: 1.00**

Per the UFSAR, what is the reason, during a DBA LOCA, for having LPCI pumps operating with Torus cooling placed in service following Reactor vessel flooding?

A. To ensure adequate mixing of the Torus water.

B. To maintain Torus water level in the normal operating band.

C. To immediately terminate the increase in Torus temperature.

D. To terminate the increase in Torus temperature after several hours.

Answer: D

Question 48 Details

Comments:

Objective: DRE203LN001.01
Reference: UFSAR 6.2, DOP 1500-02
K/A: 295013.K3.01 3.6 / 3.8
K/A: Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL TEMPERATURE: Suppression pool cooling operation.
Level: Memory
Pedigree: Bank
Explanation: Per the above UFSAR section 6.2.1.3.4.1 page 6.2.33, during a DBA LOCA, the reason for having LPCI pumps operating with Torus cooling placed in service following Reactor vessel flooding is to terminate the increase in Torus temperature after several hours.

REQUIRED REFERENCES: None.

49 **Points: 1.00**

The CRM ISOL switch, on the 923-5 panel, is required to be placed in the ISOLATE position, if . . . . .

A. CO_2 is discharging into the AEER.

B. Halon is discharging into the AEER.

C. smoke is detected in the Control Room HVAC outside air supply.

D. Annunciator 923-1 B-3, CONTROL ROOM BREATHING AIR PRESS HI/LO is received.

Answer: C

Question 49 Details

Comments:

Objective: DRE288LN003.11
Reference: DOA 5750-04, DANs 923-1 B-3, 923-5 H-2
K/A: 600000.A2.06 2.5 / 2.8
K/A: Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Need for pressurizing control room (recirculating mode).
Level: Memory
Pedigree: Bank
Explanation: If a source of smoke is from Control Room HVAC outside air supply (not IN the Control Room), then the CRM ISOL switch is required to be placed in ISOLATE. If Control Room breathing air low pressure alarm comes in, the actions are to check air cylinders or shift to air packs. If CO2 is discharging into the AEER, the action is to place the Control Room HVAC system to purge.

REQUIRED REFERENCES: None.

50 **Points: 1.00**

Unit 3 was operating at near rated power, when a LOCA occurred, resulting in the following set of conditions:

- HPCI auto initiated and aligned for injection.
- Drywell pressure is 6.5 psig and rising 0.25 psig per minute.
- RPV water level is currently +52 inches and dropping one inch per minute.

The SRO has directed you to maintain RPV water level +8 to +48 inches using the HPCI system.

What Operator actions, if any, are required to maintain the specified RPV water level using HPCI?

A. Nothing, HPCI will automatically re-initiate to maintain RPV water level within the specified band.

B. Depress the TURB TRIP RESET pushbutton and control RPV water level with the FLOW CONTROLLER.

C. Depress the TURB TRIP RESET pushbutton and control RPV water level with the MOTOR GEAR UNIT control switch.

D. Depress the AUTO INITIATE pushbutton and control RPV water level with the MOTOR GEAR UNIT control switch.

Answer: B

Question 50 Details

Comments:

Objective: DRE206LN001.06
Reference: DAN 902-3 A-9
K/A: 206000 K4.03 4.2 / 4.1
K/A: Knowledge of HIGH PRESSURE COOLANT INJECTION SYSTEM design feature(s) and/or interlocks which provide for the following: Resetting turbine trips: BWR-2,3,4.
Level: High
Pedigree: Bank
Explanation: The HPCI turbine trip will reset itself at –59" following a high level trip and will trip again on RPV high level. In order to maintain the specified water level +8 to +48, the NSO will have to depress the TURB TRIP RESET pushbutton and manually control HPCI using the flow controller. Depressing the AUTO INITIATE pushbutton will re-start HPCI, after RPV level drops below the trip setpoint, but the Motor Gear Unit is not utilized to control HPCI, the Flow Controller is.

REQUIRED REFERENCES: None.

51 **Points: 1.00**

With MAXIMUM Torus Cooling in operation, ___(1)___ system pressure is maintained ___(2)___ psid above the ___(3)___ system pressure, to prevent leakage to the environment.

A. (1) CCSW;
(2) 7;
(3) LPCI

B. (1) LPCI;
(2) 7;
(3) CCSW

C. (1) CCSW;
(2) 20;
(3) LPCI

D. (1) LPCI;
(2) 20;
(3) CCSW

Answer: C

Question 51 Details

Comments:

Objective: DRE277LN001.02
Reference: DOP 1500-02
K/A: 219000.K4.10 3.3 / 3.6
K/A: Knowledge of RHR/LPCI: TORUS/SUPPRESSION POOL COOLING MODE design feature(s) and/or interlocks which provide for the following: Prevention of leakage to the environment through system heat exchanger: Plant-Specific.
Level: Memory
Pedigree: New
Explanation: With both LPCI pumps operating per loop (MAXIMUM Torus Cooling) CCSW pressure should be maintained 20 psid above LPCI system pressure to ensure any leakage will be from the CCSW to the LPCI system.

REQUIRED REFERENCES: None.

52 **Points: 1.00**

Unit 2 was operating at near rated power, when MCC 29-2 experienced an overcurrent condition.

The expected plant response is . . . . .

A. RPS Bus A will momentarily de-energize prior to AUTO transferring to the reserve power supply from MCC 25-2.

B. RPS Bus B will momentarily de-energize prior to AUTO transferring to the reserve power supply from MCC 25-2.

C. RPS Bus A will be de-energized and must be MANUALLY re-energized from MCC 25-2 per DOP 500-03, REACTOR PROTECTION SYSTEM POWER SUPPLY OPERATION.

D. RPS Bus B will be de-energized and must be MANUALLY re-energized from MCC 25-2 per DOP 500-03, REACTOR PROTECTION SYSTEM POWER SUPPLY OPERATION.

Answer: C

Question 52 Details

Comments:

Objective: DRE262LN005.12
Reference: DOA 0500-05, DOP 0500-03
K/A: 212000.A2.01 3.7 / 3.9
K/A: Ability to (a) predict the impacts of the following on the REACTOR PROTECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: RPS motor-generator set failure.
Level: Memory
Pedigree: New
Explanation: Upon a failure (loss of power from MCC 29-2) of the 2B RPS MG Set, the RPS Bus A will become de-energized. This is a common misconception due to the cross powering of "B" MG Set to "A" Bus. The required action is to MANUALLY repower the bus from MCC 25-2.

REQUIRED REFERENCES: None.

53 **Points: 1.00**

Unit 2 was operating at near rated power when annunciator 902-3 G-3, CS SYS A BUS/LOGIC PWR FAILURE, illuminated.

This can be diagnosed as a loss of the _____ .

A. 2A RPS Bus

B. U2 ESS Bus

C. U2 125 VDC Main Bus 2A-1

D. U2 125 VDC Main Bus 2B-1

Answer: C

Question 53 Details

Comments:

Objective: DRE209LN001.02
Reference: DAN 902-3 G-3
K/A: 209001.K2.03 2.9 / 3.1
K/A: Knowledge of electrical power supplies to the following: Initiation logic.
Level: Memory
Pedigree: New
Explanation: The 2A Core Spray System Logic is powered from U2 125 VDC Main Bus 2A-1.

REQUIRED REFERENCES: None.

54 **Points: 1.00**

Unit 2 was operating at 30% power with the following set of conditions:

- 2A RFP is operating.
- 2A and 2B Condensate/Booster Pumps are operating.
- Bus 22 and 24 Main Feed Breakers (MFB) are O.O.S. for breaker upgrades.

Then the TR-86 Sudden Pressure Relay activated.

The Unit Supervisor directed the Aux NSO to initiate Torus cooling.

Which Unit 2 CCSW pumps currently would have power available?

A. 'A' and 'B' pumps only

B. 'A' and 'C' pumps only

C. 'C' and 'D' pumps only

D. 'A', 'B', 'C' and 'D' pumps

Answer: A

Question 54 Details

Comments:

Objective: DRE262LN001.01
Reference: 12E-2435 shts 1 & 2
K/A: 295003.K1.04 3.1 / 3.2
K/A: Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: Electrical bus divisional separation.
Level: High
Pedigree: Bank
Explanation: In a normal electrical lineup the UAT powers Bus 21 and Bus 23 and the RAT powers Bus 22 and Bus 24. When TR-86 trips on a sudden pressure event, Bus 22 and 24 are designed to transfer to the UAT (via their MFBs). With Bus 22 and Bus 24 having their MFBs out of service, they become de-energized. This causes a loss of division 2 power to all buses except the Emergency buses (they will be powered from the U2 EDG). With a loss of Division 2 power, only the Division 1 CCSW Pumps (A and B), powered from Bus 21 and Bus 23, are available.

REQUIRED REFERENCES: None.

55 **Points: 1.00**

Unit 2 was operating at 70% power with power ascension in progress, with the following timeline:

- 00:00:00 - An NSO selected Control Rod F-05, at position 00.
- 00:00:15 - The NSO attempted to withdraw F-05 to the TARGETED position of 02.
- 00:00:30 - Control Rod F-05 double notched to position 04.
- 00:00:45 - The NSO stopped all rod moves and notified the Unit Supervisor.
- 00:01:00 - A personnel injury occurred in the Control Room.
- 00:15:00 - The Unit Supervisor then provided direction to the NSO.

At time 00:15:00, the required action is to ___(1)___ because ___(2)___ .

A. (1) insert Control Rod F-05 to its insequence position;
(2) only one (1) Control Rod was mispositioned

B. (1) immediately reduce power 50 MWe with Recirc flow;
(2) it has been greater than 10 minutes since the mispositioning

C. (1) immediately reduce power 50 MWe with Recirc flow;
(2) it has been less than 20 minutes since the mispositioning

D. (1) immediately reduce power 50 MWe by inserting Control Rods;
(2) it has been greater than 10 minutes since the mispositioning

Answer: B

Question 55 Details

Comments:

Objective: 20102LK016
Reference: DOA 300-12
K/A: 295014.K1.06 3.8 / 3.9
K/A: Knowledge of the operational implications of the following concepts as they apply to INADVERTENT REACTIVITY ADDITION: Abnormal reactivity additions.
Level: High
Pedigree: New
Explanation: Per the above procedure, in the event of mispositioned control rod, time is usually of the essence. At high power levels (above 50%), inadvertent control rod movements should be corrected or appropriate power reductions commenced prior to spending time on data gathering or consultation. If it has been GREATER than 10 minutes since the mispositioning, the immediate action is to reduce power 50 MWe with RECIRC.
(a) This would only be done if the time was LESS than 10 minutes since the mispositioning.
(c) The time limit is greater than 10 minutes, not less than 20 minutes.
(d) Power is to be reduced with Recirc not Control Rods.

REQUIRED REFERENCES: None.

56 **Points: 1.00**

Unit 2 was in HOT SHUTDOWN, with the following conditions:

- 2A and 2B SDC loops are lined up to the 2A Recirc loop with 3000 gpm flow each.
- BOTH Recirc Pumps are shutdown.

Then an NSO opens the 2-1001-5B, OUTLET ISOL VLV.

The expected SDC flows would be ___(1)___ gpm in the 2A SDC loop and ___(2)___ gpm in the 2B SDC loop.

A. (1) 3000;
(2) 3000

B. (1) 3000;
(2) 4500

C. (1) 4500;
(2) 3000

D. (1) 4500;
(2) 4500

Answer: A

Question 56 Details

Comments:

Objective: 205LN001.06
Reference: DOP 1000-03
K/A: 205000.A1.02 3.3 / 3.2
K/A: Ability to predict and/or monitor changes in parameters associated with operating the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) controls including: SDC/RHR pump flow.
Level: High
Pedigree: New
Explanation: The SDC loop flows are controlled by the 2-1001-4, individual pump discharge valves. Opening the common 2-1001-5 header isolation valves will not allow an appreciable increase in loop flows, merely allow the present flow to be split among the other Recirc loop.

REQUIRED REFERENCES: None.

57 **Points: 1.00**

Unit 2 was operating at near rated power when the Main Feed breaker from Bus 24-1 to Bus 29 experienced an overcurrent condition.

How will the plant respond?

A. Condenser Off Gas suction valves will fail closed and the Main Condenser vacuum will worsen.

B. Scram valve solenoids will become de-energized and a half scram will be generated on the “A” channel.

C. Scram valve solenoids will become de-energized and a half scram will be generated on the “B” channel.

D. Annunciator 902-8 A-8, 120 V INST BUS VOLT LO, will illuminated and complete Group 2 and 3 isolations will occur.

Answer: B

Question 57 Details

Comments:

Objective: DRE201LN001.03
Reference: DOA 0500-05
K/A: 201001.K2.02 3.6 / 3.7
K/A: Knowledge of electrical power supplies to the following: Scram valve solenoids.
Level: High
Pedigree: New
Explanation: The overcurrent condition on Bus 29 will cause it to de-energize. When Bus 29 de-energizes, MCC 29-2 will become de-energized, causing the “B” RPS MG Set to lose power. When the “B” MG Set loses power, the “A” Bus will become de-energized. The “A” Bus is the power supply to the 117 scram valve solenoids. When these solenoids are lost, the logic is picked up for a half scram on the “A” channel.
(a) The Off Gas system suction valves are powered by the Essential Service Bus, which does lose its primary power source, but remains energized.
(c) The 118 scram valve solenoids would be lost and a subsequent half scram would occur on the “B” channel if MCC 28-2 were lost.
(d) Only HALF Group 2 and 3 isolations will occur. The full isolations would occur if the Instrument Bus were lost, which is still powered given the conditions in the stem.

REQUIRED REFERENCES: None.

58 **Points: 1.00**

Considering the GREEN BOARD concept at Dresden Station, NORMALLY ENRERGIZED equipment is indicated by a ___(1)___ light and equipment SELECTED for standby is indicated by a ___(2)___ light.

A. (1) blue
(2) white

B. (1) blue
(2) green

C. (1) green
(2) blue

D. (1) green
(2) white

Answer: A

Question 58 Details

Comments:

Objective: 29800LK005
Reference: LP ILTS001
K/A: Generic.2.44 4.2 / 4.4
K/A: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.
Level: Memory
Pedigree: New
Explanation: The GREEN BOARD concept at Dresden Station provides the following meanings for light indications:
Green: normal
Amber: tripped
Red: abnormal
White: standby condition
Blue: normally energized

REQUIRED REFERENCES: None.

59 **Points: 1.00**

Unit 3 was operating at near rated power when a transient occurred causing the Unit Supervisor to enter DSSP 0100-CR, HOT SHUTDOWN PROCEDURE - CONTROL ROOM EVACUATION, and directed you to immediately initiate the U3 Isolation Condenser and exit the main Control Room.

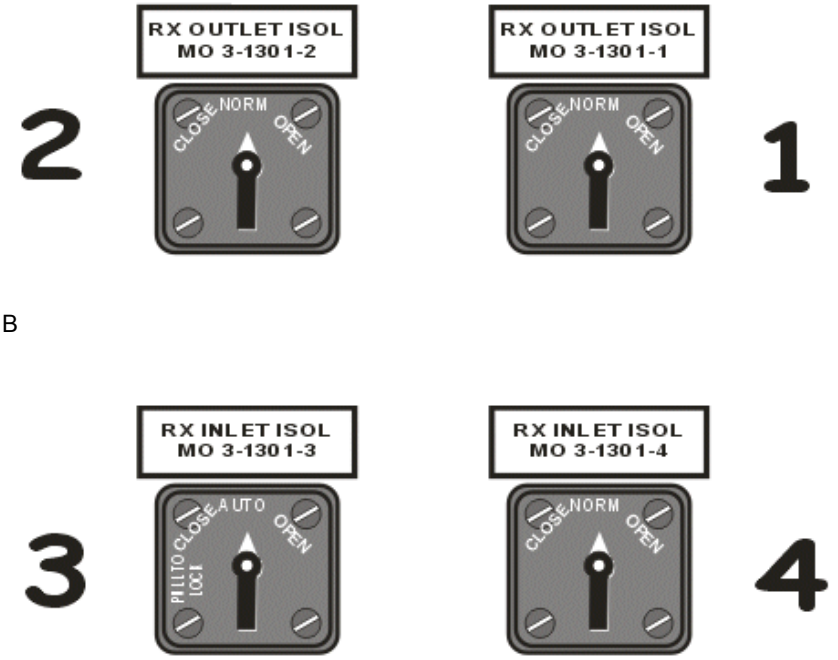
Given the 903-3 panel switches below, which of the following valve(s) must be re-positioned, at a MINIMUM, to initiate the U3 Isolation Condenser?

A. 1 ONLY

B. 3 ONLY

C. 1 AND 2

D. 3 AND 4



Answer: B

Question 59 Details

Comments:

Objective: DRE207LN001.05
Reference: DSSP 0100-CR, DOP 1300-03
K/A: 295016.A1.09 4.0 / 4.0
K/A: Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: Isolation/emergency condenser(s): Plant-Specific.
Level: High
Pedigree: New
Explanation: With the Iso Cond in a normal system lineup, both the outlet isolation valves (Drywell inboard and outboard) are open, along with the Drywell inboard inlet isolation valve. The Drywell outboard inlet isolation (3-1301-3) is in the normal closed position and will be the only valve that will need to be re-positioned.

REQUIRED REFERENCES: None.

60 **Points: 1.00**

Unit 2 was operating at near rated power, with the following set of conditions:

- The FWRVs are controlling in AUTO.
- RPV water level setpoint is + 30 inches.
- 3 ELEMENT is "in-control" on the FWLC system.

Then a transient occurred causing a loss of the steam flow signal to the Bailey Control System.

How will RPV water level respond and why?

A. RPV water level will stay at its current level;
the FWRVs have locked up AS-IS.

B. RPV water level will be controlled at +30 inches;
the FWLC system has entered SINGLE ELEMENT control.

C. RPV water level will decrease until manual control is taken;
the FWLC system has failed due to BAD QUALITY

D. RPV water level will decrease for 45 seconds, then return to +30 inches;
the FWLC system has entered SETPOINT SETDOWN.

Answer: B

Question 60 Details

Comments:

Objective: DRE259LN002.06
Reference: DAN 902-5 G-8
K/A: 259002.K3.01 3.8 / 3.8
K/A: Knowledge of the effect that a loss or malfunction of the REACTOR WATER LEVEL CONTROL SYSTEM will have on following: Reactor water level.
Level: High
Pedigree: New
Explanation: With the Bailey feedwater level control system operating in 3-element control, and experiencing a loss one of its input signals (steam or feed flow), then it will transfer to single element.
(a) The FWRVs would only lock up as-is, if there is a loss of Instrument Air to them.
(c) Water level will not decrease, as the FWLC system is being controlled in single element.
(d) Setpoint setdown is entered only if two of the level inputs are lost.

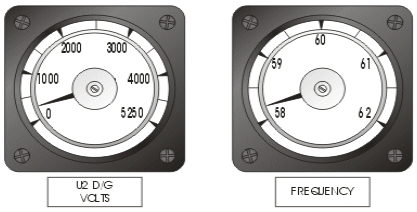
REQUIRED REFERENCES: None.

61 **Points: 1.00**

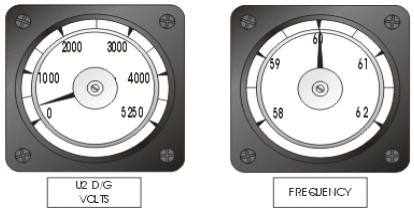
Unit 2 was operating at near rated power when a transient occurred causing Drywell pressure to peak at 3.5 psig and then decrease to 1.4 psig.

Which of the following is the expected indications one (1) minute after the above transient occurred?

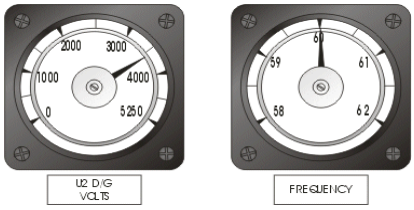
A.



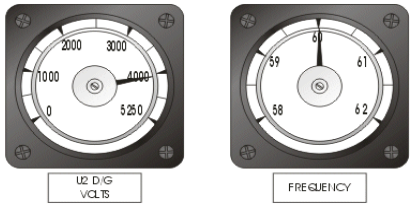
B.



C.



D.



Answer: D

Question 61 Details

Comments: Objective: DRE264LN001.11
Reference: DOP 6600-02
K/A: 295024.A1.06 3.7 / 3.7
K/A: Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: Emergency generators.
Level: High
Pedigree: New
Explanation: The examinee must understand that when Drywell pressure exceeds 2.0 psig, an ECCS initiation signal is generated. One of the actions that occur upon an ECCS signal is the EDGs auto start. Several seconds after auto starting the EDGs would be running at full speed, operating at ~60 hertz on the frequency meter and ~ 4160 Volts on the voltmeter.

REQUIRED REFERENCES: None.

62 **Points: 1.00**

U2 was operating at near rated power when the 125 VDC 2A-1 Distribution panel de-energized.

Several hours later, the Electrical Maintenance Department completed repairs and re-energized the 2A-1 Distribution panel.

What is the current power supply to the Unit 2 Safety Relief Valve 203-3A *solenoid*?

A. U2 ESS Bus

B. U2 Instrument Bus

C. 125 VDC Distribution Panel 2A-1

D. 125 VDC Distribution Panel 2B-1

Answer: C

Question 62 Details

Comments:

Objective: DRE239LN001.02
Reference: DOA 6900-T1
K/A: 239002.K2.01 2.8 / 3.2
K/A: Knowledge of electrical power supplies to the following: SRV solenoids.
Level: High
Pedigree: New
Explanation: The 203-3A SRV solenoid has two power supplies. The normal supply is the 2A-1 Dist Panel and the alternate supply is the 2B-1 Dist Panel. When the normal supply (2A-1) is lost a “normal seeking” automatic transfer device will transfer to the alternate supply (2B-1). Upon the normal supply being re-energized, the “normal seeking” automatic transfer device will transfer power back from the alternate supply (2B-1) to the normal supply (2A-1).
(a) The ESS Bus is the power supply to the Acoustic monitor for the ERVs.
(b) The Instrument Bus is the power supply to the Tailpipe temperature monitor for the ERVs.
(d) 2B-1 would be the power supply if the automatic transfer device didn’t transfer back to the normal supply.

REQUIRED REFERENCES: None.

63 **Points: 1.00**

Concerning the Unit 2 RWCU system, the **regenerative** heat exchanger shell has ___(1)___ water flowing through it and the **non-regenerative** heat exchanger shell side has ___(2)___ water flowing through it.

A. (1) RWCU;
(2) RWCU

B. (1) RWCU;
(2) RBCCW

C. (1) RBCCW;
(2) RWCU

D. (1) RBCCW;
(2) RBCCW

Answer: B

Question 63 Details

Comments:

Objective: DRE204LN001.02
Reference: M-20, M-30
K/A: 204000.K1.04 2.9 / 2.9
K/A: Knowledge of the physical connections and/or causeeffect relationships between REACTOR WATER CLEANUP SYSTEM and the following: Component cooling water systems.
Level: Memory
Pedigree: New
Explanation: RBCCW flows through the shell side of the NON-regenerative heat exchangers and RWCU flows through the shell side of the regenerative heat exchangers, on its return path to the RPV.

REQUIRED REFERENCES: None.

64 **Points: 1.00**

Which of the following set of parameters are within the capacity of the Torus to accept a Blowdown?

Torus water level of ___(1)___ ft
RPV pressure of ___(2)___ psig
Torus bulk temperature of ___(3)___ ^{o}F

A. (1) 16.5;
(2) 500;
(3) 180

B. (1) 16.5;
(2) 600;
(3) 175

C. (1) 17.5;
(2) 350;
(3) 170

D. (1) 17.5;
(2) 400;
(3) 150

Answer: D

Question 64 Details

Comments:

Objective: DRE223LN001.12
Reference: DEOP 200-01, TSG
K/A: 295026.A2.02 3.8 / 3.9
K/A: Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool level.
Level: High
Pedigree: New
Explanation: The only above set of parameters that are NOT outside the capacity of the Torus to accept a Blowdown are a Torus Water level of 17.5 ft, with an RPV pressure of 400 psig and a Torus bulk temperature of 150^{o}F. The Examinee will have to utilize both the Heat Capacity Limit curves to decide which set of parameters do NOT violate the curves.

REQUIRED REFERENCES: DEOP 200-1 figure M (Heat Capacity Limit) and TSG attachment G (Optimized Limit Curve).

65 **Points: 1.00**

Unit 3 was operating at near rated power when a transient occurred.

At time 05:10:00, the following parameters and trends are observed:

- Drywell pressure is 3.5 psig and rising.
- RPV water level is +15 inches and dropping.
- Instrument Air pressure is 85 psig and dropping.

At time 05:10:00, which of the following has happened?

A. The MSIVs have closed.

B. The FWRVs have locked up.

C. The RWCU system has isolated.

D. The SBGT system has auto started.

Answer: D

Question 65 Details

Comments:

Objective: DRE261LN001.06
Reference: DAN 902-5 E-5
K/A: 261000.K4.01 3.7 / 3.8
K/A: Knowledge of STANDBY GAS TREATMENT SYSTEM design feature(s) and/or interlocks which provide for the following: Automatic system initiation.
Level: High
Pedigree: New
Explanation: When Drywell pressure exceed 2.0 psig, a Group 2 isolation signal is generated and this signal causes SBGT to auto start.
(a) This does not happen until RPV water level drops to < -54 inches and generates a Group 1 signal.
(b) This does not happen until Instrument Air pressure drops to < 65 psig.
(c) This does not happen until RPV water level drops to < +6 inches and generates a Group 3 signal.

REQUIRED REFERENCES: None.

66 **Points: 1.00**

Unit 3 was operating at near rated power when the following timeline of events occurred:

- 00:00:00 - Drywell pressure increased to 8.5 psig.
- 00:03:00 - Torus Sprays were established with ALL four LPCI pumps operating.
- 00:03:15 - Annunciator 903-8 F-5, 4 KV BUS 34-1 OVERCURRENT, illuminated.
- 00:03:30 - 2/3 EDG LO OIL PRESS annunciator illuminated.

At time 00:04:00, the LPCI system would have _____ supplying Torus Spray flow.

A. NO pumps

B. the A and B pumps ONLY

C. the C and D pumps ONLY

D. ALL four pumps

Answer: B

Question 66 Details

Comments:

Objective: DRE203LN001.12
Reference: 12E-3304, DAN 902-8 F-5
K/A: 230000.A4.01 3.7 / 3.5
K/A: RHR/LPCI: Torus/Suppression Pool Spray Mode: Ability to manually operate and/or monitor in the control room: Pumps.
Level: High
Pedigree: New
Explanation: When Drywell pressure exceeded 2.0 psig, the reactor will scram and the EDGs will auto start (but NOT close into their respective buses). The subsequent overcurrent condition on Bus 34-1 will cause it to separate from its current source of power (Bus 34) but the EDG output breaker is not allowed to close in to re-energize Bus 34-1. This causes the “C” and “D” pumps to become de-energized, leaving only the “A” and “B” pumps supplying flow.

REQUIRED REFERENCES: None.

67 **Points: 1.00**

Unit 2 was operating at near rated power when an ATWS occurred, resulting in a Reactor power of 75%.

An NSO attempted to inject the SBLC system, but reported both U2 SBLC pumps are de-energized.

The Unit Supervisor directed the Operating Team to begin alternate SBLC injection.

This is accomplished by . . . . .

A. transferring the Unit 2 SBLC pump power supplies to the alternate feed from Unit 3.

B. sending batches of boron into the RWCU Demin Service Unit and injecting it into the Reactor.

C. sending batches of boron into a Condensate Demin Service Unit and injecting it into the Reactor.

D. running hoses to cross-tie the Unit 3 SBLC system to the Unit 2 system and injecting from the Unit 3 SBLC system.

Answer: C

Question 67 Details

Comments:

Objective: DRE211LN001.12
Reference: DEOP 0500-01
K/A: 295037.K2.13 3.4 / 4.1
K/A: Knowledge of the interrelations between SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN and the following: Alternate boron injection methods: Plant-Specific.
Level: Memory
Pedigree: New
Explanation: Per the above procedure the method for alternate SBLC injection is to prepare a batch of boron solution in the CATEX Tank, send it to the MIX and HOLD Tank, then send it to a Condensate Demin Service Unit. After two batches are in the Service Unit, the boron solution is injected into the Reactor. Eight batches are used to inject the Cold Shutdown Boron Weight into the reactor.

REQUIRED REFERENCES: None.

68 **Points: 1.00**

Unit 3 was operating at near rated power when the Inverter catastrophically failed on the Essential Service System (ESS) and annunciator 903-8 E-8, ESS BUS ON DC OR ALTERNATE AC illuminated.

How will the Essential Service System respond?

A. The Static Switch will transfer and energize the ESS Bus from 38-2.

B. The Static Switch will transfer and energize the ESS Bus from Bus 36.

C. The Rectifier will auctioneer the highest voltage and energize the ESS Bus from Bus 39.

D. The Rectifier will auctioneer the highest voltage and energize the ESS Bus from T.B. 250VDC MCC 3.

Answer: B

Question 68 Details

Comments:

Objective: DRE262LN005.06
Reference: DOP 6800-01, DAN 903-8 E-8
K/A: 262002.K6.03 2.7 / 2.9
K/A: Knowledge of the effect that a loss or malfunction of the following will have on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.): Static inverter.
Level: High
Pedigree: New
Explanation: The ESS Bus can be powered from four possible power sources. In the order they will supply the ESS Bus, they are: Bus 39, T.B. 250VDC MCC 3, Bus 36, and MCC 38-2. Bus 39 is rectified and then auctioneered with T.B. 250VDC MCC 3, to decide which one will feed the Inverter. If the Inverter is lost, these two are lost as possible feeds to the ESS Bus. The remaining two sources (Bus 36 and MCC 25-2 feed into an ABT which normally will select Bus 36 (unless it is unavailable).

REQUIRED REFERENCES: None.

69 **Points: 1.00**

Unit 2 was operating at 50% power when a Jet Pump failed.

Indications of this would be a sudden rise in indicated core flow with a corresponding drop in . . . . .

A. Core thermal power and Recirc pump flow.

B. Core thermal power and Main Generator output.

C. Main Generator output and rise in Core Plate differential pressure.

D. Core Plate differential pressure and a rise in Main Generator output.

Answer: B

Question 69 Details

Comments:

Objective: DRE202LN001.12
Reference: DOA 0201-01
K/A: 290002.K3.03 3.3 / 3.4
K/A: Knowledge of the effect that a loss or malfunction of the REACTOR VESSEL INTERNALS will have on following: Reactor power.
Level: Memory
Pedigree: New
Explanation: Per the above procedure an indication of a Jet Pump failure is a sudden rise in indicated core flow with a corresponding drop in Core thermal power and Main Generator output.
(a) Recirc Pump flow will rise not drop.
(c) Core Plate dp will drop not rise.
(d) Main Generator output will drop not rise.

REQUIRED REFERENCES: None.

70 **Points: 1.00**

Unit 2 was operating at near rated power when a rupture occurred in the Unit 2 Instrument Air system main receiver.

The NSO reported that Unit 2 Instrument Air system header pressure is slowly dropping.

If the trend continues, which of the following will occur FIRST?

A. FWRVs will lockup.

B. Instrument Air dryers are auto bypassed.

C. FWRVs will be auto supplied with their backup air supply.

D. The Service Air system crosstie to the Instrument Air system, will auto open.

Answer: D

Question 70 Details

Comments:

Objective: DRE278LN001.06
Reference: DANs 923-1 F-4, 902-6 E-10, 902-6 H-10, DOA 4700-01
K/A: 300000.K1.02 2.7 / 2.8
K/A: Knowledge of the connections and / or cause effect relationships between INSTRUMENT AIR SYSTEM and the following: Service air.
Level: Memory
Pedigree: New
Explanation: When the Inst Air header pressure drops to 85 psig, the Serv Air to Inst Air crosstie valve auto opens.
(a) FWRVs do not lockup until 65 psig.
(b) The dryers do not auto bypass until 60 psig.
(c) FWRVs backup supply does not open until 83 psig.

REQUIRED REFERENCES: None.

71 **Points: 1.00**

Unit 3 was operating at near rated power, with Bus 35 O.O.S. for maintenance, when a fire caused an overcurrent condition on Bus 38.

How will this affect the plant?

A. The U3 ESS Bus transfers to its DC source.

B. The 3A 250 VDC BOP battery charger has lost its AC source.

C. The U3 125VDC battery charger 3 has lost its AC power source.

D. All Unit 3 24/48 volt battery chargers have lost their AC power source.

Answer: D

Question 71 Details

Comments:

Objective: DRE263LN003.12
Reference: DOP 6800-02, DOA 6900-01
K/A: 263000.K6.01 3.2 / 3.5
K/A: Knowledge of the effect that a loss or malfunction of the following will have on the D.C. ELECTRICAL DISTRIBUTION: A.C. electrical distribution.
Level: High
Pedigree: New
Explanation: All 4 (2 positive and 2 negative) chargers are powered from the Instrument Bus. With Bus 35 OOS, MCC 35-2 has no power. With Bus 38 going overcurrent, MCC 38-2 loses power. Without these two MCCs, the Instrument Bus has no power, and subsequently all 4 chargers lose AC power.
(a) The primary power supply to the ESS Bus (Bus 39) is not lost, therefore it will not transfer to its DC source (250 VDC).
(b) 3A 250 VDC BOP battery charger is powered from Bus 37.
(c) The U3 125 VDC charger is powered from MCC 39-2 and has not lost power (3A is powered from MCC 38-2 and would be de-energized).

REQUIRED REFERENCES: None.

72 **Points: 1.00**

Per DOS 6600-01, DIESEL GENERATOR SURVEILLANCE, while synchronizing a D/G to an energized bus, the synchroscope should rotate in the ___(1)___ direction, and the INCOMING voltage should be slightly ___(2)___ than the RUNNING voltage.

A. (1) fast (clockwise)
(2) lower

B. (1) fast (clockwise)
(2) higher

C. (1) slow (counter-clockwise)
(2) lower

D. (1) slow (counter-clockwise)
(2) higher

Answer: B

Question 72 Details

Comments:

Objective: DRE264LN001.05
Reference: DOS 6600-01
K/A: 264000.A4.02 3.4 / 3.4
K/A: Ability to manually operate and/or monitor in the control room: Synchroscope.
Level: Memory
Pedigree: New
Explanation: When synchronizing the D/G to the Bus, the Synchroscope should rotate one revolution in approximately 30 in the fast (clockwise) direction and the incoming voltage should be slightly higher than the running voltage.

REQUIRED REFERENCES: None.

73 **Points: 1.00**

Unit 3 was operating at near rated power when the Unit Supervisor announced entering DEOP 200-1, PRIMARY CONTAINMENT CONTROL, on High Torus level.

The expected color of the U3 Torus level indication, on the SPDS screen would be . . . . .

A. red

B. blue

C. green

D. yellow

Answer: C

Question 73 Details

Comments:

Objective: DRE283LN002.03
Reference: DOP 9950-17
K/A: 295029.G.1.19 3.9 / 3.8
K/A: High Suppression Pool Water Level: Ability to use plant computers to evaluate system or component status.
Level: High
Pedigree: New
Explanation: Per the above procedure, the Torus high pre-level alarm is at 16 feet (high alarm level is 27 feet). DEOP 200-1 is entered when Torus level is a little in excess of 15 feet.
SPDS definitions of colors are:
Red – parameter in alarm condition.
Blue – there are not sufficient number of channels to monitor for a given display.
Green – operating conditions are in a normal range.
Yellow – pre-alarm condition.

REQUIRED REFERENCES: None.

74 **Points: 1.00**

Unit 2 was operating at near rated power, when a transient occurred, resulting in the following:

- Drywell pressure is 2.5 psig and going up.
- RPV pressure is 550 psig and going down.
- RPV water level is -110 inches and going down.
- "A" Recirc loop was selected by LPCI Loop Select Logic.

Several minutes later, TR-86 sudden pressure relay activated.

Two (2) minutes after the sudden pressure event which LPCI pumps, if any, would be *operating*?

A. None

B. A and B **only**

C. C and D **only**

D. A, B, C, **and** D

Answer: D

Question 74 Details

Comments:

Objective: DRE203LN001.06
Reference: DAN 902-3 E-8, F-8
K/A: 203000.A4.01 4.3 / 4.1
K/A: RHR/LPCI: Injection Mode (Plant Specific): Ability to manually operate and/or monitor in the control room: Pumps.
Level: High
Pedigree: New
Explanation: When RPV water level dropped below -59 inches, an ECCS signal was generated. This caused a scram and fast transfer to division 2 power for the unit. This also caused all 4 LPCI pumps to start, and the U2 and 2/3 EDGs to start (but not close into their respective emergency buses). When TR-86 experienced a sudden pressure event, it tripped and this causes a loss of all off-site power (LOOP). This cause the LPCI pumps to load shed (trip). The EDGs then subsequently close onto the emergency buses. When the emergency buses undervoltage relays reset, the first 2 LPCI pps (one per division) restart, 5 seconds later the second set of LPCI pps restart. Therefore all 4 LPCI pumps will be operating within two minutes of the SPR event (with only A and B selected for injection into the RPV).

REQUIRED REFERENCES: None.

75 **Points: 1.00**

Both Units were operating at near rated power, with following initial conditions:

- Unit 2 “A” and “B” RBCCW Pumps and Heat Exchangers are in operation.
- Unit 3 “B” RBCCW Pump and Heat Exchanger is in operation.

Then a transient occurred, resulting in the following:

- Unit 2 Drywell pressure is 1.22 psig and increasing slowly.
- Unit 3 Drywell pressure is 2.15 psig and increasing slowly.
- Bus 34-1 de-energized due to an overcurrent condition.

What is the NEXT required action?

A. Place the U3 EDG control switch to the start position.

B. Depress the Unit 2 AND Unit 3 manual scram pushbuttons.

C. Close the RBCCW supply valves to the Unit 2 Drywell ONLY.

D. Close the RBCCW supply valves to the Unit 3 Drywell ONLY.

Answer: D

Question 75 Details

Comments:

Objective: DRE276LN001.08
Reference: DOA 3700-01
K/A: 400000.A4.01 3.1 / 3.0
K/A: Component Cooling Water System (CCWS): Ability to manually operate and/or monitor in the control room: CCW indications and control.
Level: High
Pedigree: Bank
Explanation: With a LOCA on Unit 3 AND Drywell pressure > 2.0 psig, and a subsequent loss of U3 RBCCW (overcurrent on Bus 34-1) the required action is to isolate RBCCW to Unit 3 Drywell ONLY.

REQUIRED REFERENCES: None.

76 **Points: 1.00**

Unit 3 was operating at near rated conditions with the following indications:

- Feed flow of 11.1 Mlbm/hr.
- Steam flow of 11.2 Mlbm/hr.
- The Flow control line is 100.0 %.

Then the 3B Condensate/Condensate Booster pump tripped on overcurrent.

The above transient will cause ___(1)___ AND the Unit Supervisor will be required to direct ___(2)___ .

A. (1) a recirc runback;
(2) manually scramming the reactor per DGP 02-03, REACTOR SCRAM

B. (1) a recirc runback;
(2) inserting CRAM rods per DGP 03-04, CONTROL ROD MOVEMENTS

C. (1) an automatic scram;
(2) entering DEOP 100, RPV CONTROL

D. (1) the scoop tubes to automatically lock out;
(2) taking manual control of the scoop tubes per DOP 0202-12 for scoop tube lock out

Answer: B

Question 76 Details

Comments:

Objective: DRE259LN001.12
Reference: DAN 902-4 H-6, DGP 03-04
K/A: 259001.A2.01 3.7 / 3.7
K/A: Ability to (a) predict the impacts of the following on the REACTOR FEEDWATER SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Pump trip.
Level: High
Pedigree: Bank
Explanation: These condition lead to a recirc runback. Given the conditions, the MELLA boundary will be violated. The requirements if the MELLA boundary is violated, the requirement is to direct inserting CRAM rods per DGP 03-04

SRO per criteria: 5

REQUIRED REFERENCES: None.

77 **Points: 1.00**

What is the basis for the LCO that states “Two recirculation loops with matched flows shall be in operation”?

A. To prevent temperature stratification in the core.

B. To prevent excessive vibrations of the jet pump risers.

C. To prevent entering the “Instability Region” of core flow.

D. To ensure the assumptions of the LOCA analysis are satisfied.

Answer: D

Question 77 Details

Comments:

Objective: DRE202LN001.07
Reference: Tech Spec Bases 3.4.1.1
K/A: 295001.G.2.25 3.2 / 4.2
K/A: Partial or Complete Loss of Forced Core Flow Circulation: Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.
Level: Memory
Pedigree: Bank
Explanation: Two recirculation loops are normally required to be in operation with their flows matched to ensure that during a LOCA caused by a break in the piping of one recirculation loop the assumptions of the LOCA analysis are satisfied.

SRO per criteria: 2

REQUIRED REFERENCES: None.

78 **Points: 1.00**

With a unit at near rated power, the following conditions exist:

- At 1430 on 2/25/11 it was discovered that a Technical Specification surveillance with a 24 hour frequency was last performed satisfactorily at 1230 hours on 2/23/11.

The Limiting Condition for Operation (LCO) required actions state that the equipment be restored to OPERABLE status within 4 hours OR

Be in MODE 3 in 12 hours.

AND

Be in MODE 4 in 36 hours.

If the surveillance was then performed with unsatisfactory results, which of the following will be the LATEST time that meets the requirement to be in MODE 4?

A. By 1430 hours on 2/27/11

B. By 1830 hours on 2/27/11

C. By 0430 hours on 2/28/11

D. By 1830 hours on 2/28/11

Answer: C

Question 78 Details

Comments:

Objective: DRE299LN001.04
Reference: Tech Specs
K/A: Generic.2.23 3.1 / 4.6
K/A: Ability to track Technical Specification limiting conditions for operations.
Level: High
Pedigree: Bank
Explanation: Given the last time that the surveillance was performed (1230 on 2/23/11) and not performing the surveillance again, the time that the unit would need to be in MODE 4 by is 0630 on 2/28/11 (24 hours from discovery of not performing the surveillance plus 4 hours to perform the surveillance, plus 36 hours). The latest time, out of the distractors, that would meet this time is 0430 2/28/11.
2/27/11 @ 1430 would be assumed if the 24 hours from discovery was NOT counted.
2/28/11 @ 1830 would be assumed if the 12 and 36 hours were added.

SRO Criteria: 1

REQUIRED REFERENCES: None.

79 **Points: 1.00**

Unit 2 was in a startup, when a transient occurred, resulting in a Scram signal being generated.

The following was reported to the Unit Supervisor:

- APRM DOWNSCALE lights are extinguished.
- RPV water level is -45 inches and trending up slowly.

With regards to RPV water level control, which of the following actions is the Unit Supervisor required to direct NEXT?

A. Trip BOTH Recirc pumps per DEOP 400-5, FAILURE TO SCRAM.

B. Bypass interlocks per DEOP 500-2, BYPASSING INTERLOCKS AND ISOLATIONS.

C. Terminate AND Prevent to hold RPV water level between -50 inches and -164 inches, per DEOP 400-5, FAILURE TO SCRAM.

D. Hold RPV water level between +48 inches and -164 inches using HPCI and feedwater per DEOP 400-5, FAILURE TO SCRAM.

Answer: D

Question 79 Details

Comments:

Objective: 29502LP025
Reference: DEOP 400-5
K/A: 295037.A2.01 4.2 / 4.3
K/A: Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : Reactor Power
Level: High
Pedigree: Bank
Explanation: When RPV water level decreases to < 8 inches a scram signal is generated. The examinee must be able to determine that reactor power is > 6% and in an ATWS condition, as indicated by the downscale lights not being illuminated for this situation. During an ATWS, with power > 6% and RPV water level < -35 inches, per DEOP 400-5 the actions are to hold RPV water level between 48 inches and -143 inches (box 7) using HPCI and feedwater.
(a) Trip recirc pumps are not the NEXT action (since would have tripped at -59 inches).
(b) Bypass interlocks is incorrect, since the MSIVs would have went closed when a Group 1 isolation was received.
(c) Terminate and Prevent and hold level between -50 inches and -164 inches is NOT to be directed since RPV water level is < -35 inches (the overides are NOT met which does NOT send the SRO to box 8).

SRO Criteria: 5

REQUIRED REFERENCES: DEOP charts, with the entry conditions blanked out.

80 **Points: 1.00**

Both units were operating at near rated power, when the breaker feeding Unit 3 250VDC Turb Bldg MCC 3 tripped, due to a fire.

Paralleling the Unit 2 250VDC system to the Unit 3 250VDC system is *prohibited* unless certain requirements are met, because . . . . .

A. the crosstie utilizes wiring that was NOT analyzed for cross-connected operation.

B. the crosstie utilizes breakers that were NOT analyzed for cross-connected operation.

C. this would exceed system design loading, requiring BOTH units to be in MODE 3.

D. this would exceed system design loading, requiring Unit 2 ONLY to be in MODE 3.

Answer: C

Question 80 Details

Comments:

Objective: DRE263LN001.07
Reference: ITS 3.8.4 Bases 3.8.4, DOA 6900-04
K/A: 263000.G.1.32 3.8 / 4.0
K/A: D.C. Electrical Distribution: Ability to explain and apply system limits and precautions.
Level: Memory
Pedigree: Bank
Explanation: As described in the discussion section of the above DOA, if a remaining battery system is used to restore power to a bus which is NOT part of its NORMAL configuration, the remaining battery also becomes inoperable because it is outside of its design load profile.

SRO per criteria: 2

REQUIRED REFERENCES: None.

81 **Points: 1.00**

Unit 3 is in SHUTDOWN, with NO Recirc pumps running, and the following set of conditions exist:

- RPV water temperature is 300°F.
- 3A SDC pump is running and aligned to the RPV.
- 3B SDC pump is running and aligned to the FPC system.
- 3C SDC pump is running and aligned to the RPV.

If Recirc Loop water temperature trends up to 373°F, what action(s) is/are the Unit Supervisor required to direct?

A. Control RPV water temperature/pressure per DOA 1000-1, RESIDUAL HEAT REMOVAL ALTERNATIVES **only**.

B. Control RPV water temperature/pressure per DOA 1000-1, RESIDUAL HEAT REMOVAL ALTERNATIVES **and** monitor fuel storage pool water level once per hour per DOA 1900-1, LOSS OF FUEL POOL COOLING.

C. Align 3B SDC pump to the RPV to control RPV water temperature/pressure per DOP 1000-3, SHUTDOWN COOLING MODE OF OPERATION **only**.

D. Align 3B SDC pump to the RPV to control RPV water temperature/pressure per DOP 1000-3, SHUTDOWN COOLING MODE OF OPERATION **and** monitor fuel storage pool water level once per hour per DOA 1900-1, LOSS OF FUEL POOL COOLING.

Answer: A

Question 81 Details

Comments: Objective: DRE205LN001.06
Reference: DOA 1000-01, DOA 1900-01, DAN 903-4 B-23
K/A: 205000.A2.01 3.1 / 3.3
K/A: Ability to (a) predict the impacts of the following on the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Recirculation loop high temperature.
Level: High
Pedigree: Bank
Explanation: When the SDC Pump suction temperature (Recirc Loop Temp) exceeds 339°F, the pumps lined up to the RPV (3A and 3C) trip. 3B pump will NOT trip, as it still has suction from the Fuel Pool Cooling system. Entry into DOA 1000-01 is the only required entry.

SRO per criteria: 5

REQUIRED REFERENCES: None.

82 **Points: 1.00**

During core alterations that potentially affect core reactivity, which of the following conditions MUST be met?

A. The Control Room Nuclear Observer is in the Control Room.

B. An SRO or an SROL be anywhere on the refuel floor to directly supervise activities.

C. An SRO or an SROL be on the refueling platform (bridge) to directly supervise activities.

D. Radiation Protection personnel have placed a high radiation area lock on AND posted access to the entire Drywell indicating: "No Entry - Fuel Transfer In Progress".

Answer: C

Question 82 Details

Comments:

Objective: 29800LK084
Reference: DFP 0800-01, TRM 3.9.a
K/A: Generic.1.40 2.8 / 3.9
K/A: Knowledge of refueling administrative requirements.
Level: Memory
Pedigree: Bank
Explanation: The DFP requires that an SRO or SROL supervise and be on the bridge. Posting of signs for the Drywell is only required above the 2nd floor. The Nuclear Observer must be on-site, NOT in the Control Room when moving fuel.

SRO per criteria: 7

REQUIRED REFERENCES: None.

83 **Points: 1.00**

Unit 3 was operating at near rated power with HPCI out of service, when a transient occurred resulting in the following:

- RPV pressure is 450 psig and steady.
- RPV water level is +20 inches and steady.
- The Iso Condenser is being used for pressure control.
- ALL Reactor Feed Pumps tripped on low suction pressure, and failed to reset.

Then a tube leak developed in the Iso Condenser.

Which of the following is the Unit Supervisor required to direct?

A. Start an ISOL CNDR M-U PP per DOA 1300-01, ISOLATION CONDENSER TUBE LEAK.

B. Drain the Iso Condenser to normal band per DOP 1300-01, STANDBY OPERATION OF ISOLATION CONDENSER.

C. When RPV water level can NOT be maintained above +8 inches use SBLC to inject per DEOP 500-3, ALTERNATE WATER INJECTIONS SYTEMS.

D. When RPV water level can NOT be maintained above +8 inches use CORE SPRAY to inject per DEOP 500-3, ALTERNATE WATER INJECTIONS SYTEMS.

Answer: C

Question 83 Details

Comments:

Objective: DRE207LN001.12
Reference: DEOP 100
K/A: 207000.G.4.06 3.7 / 4.7
K/A: Isolation Condenser: Knowledge of EOP mitigation strategies.
Level: High
Pedigree: Bank
Explanation: With a tube leak in the Iso Cond, a path will exist between the vessel and the Iso Cond. The RPV is at a higher pressure than the Iso Cond, allowing RPV water inventory to drain into the Iso Cond shell side. As RPV level decreases to +8 inches, DEOP 100 is entered and this directs RPV injection. With HPCI O.O.S., the loss of all RFPs, and RPV pressure above the level for the low pressure injection systems, the correct action is to use alternate water injection systems in “detail E” (SBLC is the available choice, as LPCI is not available at the current RPV pressure).

SRO Criteria: 5

REQUIRED REFERENCES: DEOP charts, with the entry conditions blanked out.

84 **Points: 1.00**

A transient has occurred that requires venting Primary Containment for pressure control.

Primary Containment water level is 45 feet and steady.

Venting is secured to minimize radiation release when Torus Bottom pressure is below _____ psig.

A. 20

B. 40

C. 60

D. 65

Answer: C

Question 84 Details

Comments:

Objective: 22301LP006
Reference: DEOP 500-04, DEOP 200-1
K/A: Generic.3.11 3.8 / 4.3
K/A: Ability to control radiation releases.
Level: High
Pedigree: Bank
Explanation: To control the amount of radiation release, venting is secured when Torus Bottom Pressure is below the Primary Containment Pressure Limit (60 psig with the given Primary Containment water level), rather than maintaining a continuous vent path to one of the lower values. The higher value (65 psig) does not meet the intent of maintaining containment integrity.

SRO per Criteria: 5

REQUIRED REFERENCES: DEOP charts, with the entry conditions blanked out.

85 **Points: 1.00**

Unit 3 was in a startup and the Recirc flow input signal to the APRMs is 50%.

When Recirc flow is raised the output signal from the "A" Flow Unit remains at 50% and actual Recirc loop flows respond as expected.

As Recirc flow continues to be raised a control rod block will FIRST occur due to a ___(1)___ and the Unit Supervisor is required to direct ___(2)___ .

A. (1) flow Unit Comparator trip;
(2) contacting the Instrument Maintenance Department for assistance, per DOA 0700-03, ROD OUT BLOCKS.

B. (1) flow Unit Comparator trip;
(2) reducing Recirc flow to the original value per DAN 902-5 C-3, ROD OUT BLOCK, then continue startup.

C. (1) flow biased neutron flux high signal;
(2) contacting the Instrument Maintenance Department for assistance, per DOA 0700-03, ROD OUT BLOCKS.

D. (1) flow biased neutron flux high signal;
(2) reducing Recirc flow to the original value per DAN 902-5 C-3, ROD OUT BLOCK, then continue startup.

Answer: A

Question 85 Details

Comments:

Objective: DRE215LN005.06
Reference: DAN 902-5, DOA 0700-03
K/A: 215005.A2.07 3.2 / 3.4
K/A: Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Recirculation flow channels flow mismatch.
Level: High
Pedigree: Bank
Explanation: A control rod block due to a Flow Unit Comparator trip (not flow biased neutron flux signal) will occur upon a 7.5% mismatch, which causes annunciator APRM HI. The auto action on receipt of the alarm is a Rod Withdrawal Block. The ROD OUT BLOCK annunciator requires to stop all power increases until the problem with 'B' Flow Comparator Unit is corrected. IMD must be contacted to troubleshoot the problem.

SRO Criteria: 5

REQUIRED REFERENCES: None.

86 **Points: 1.00**

Both units are operating at near rated power with the minimum shift staffing.

At 0430 the STA qualified individual is transported off-site to the Morris hospital and the Unit Supervisor placed a call to fill the vacant STA position.

If NO other STA qualified individual is able to make it into the site until 0900, what is the LATEST time that the Station will be in compliance with Tech Specs, with regards to shift staffing?

A. 0400

B. 0500

C. 0600

D. 0700

Answer: C

Question 86 Details

Comments:

Objective: 29900LK014
Reference: Tech Spec 5.0 section 5.2.2 b. and 5.2.2.f
K/A: Generic.1.04 3.3 / 3.8
K/A: Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, “no-solo” operation, maintenance of active license status, 10CFR55, etc.
Level: Memory
Pedigree: Bank
Explanation: Per the above Tech Spec, shift crew composition may be less than the minimum requirement for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements below the STA requirement for a time not to exceed 2 hrs for unexpected absence. The distractors are based on misconceptions of no time, 1 hour, and 3 hours (the start of next shift).

SRO per criteria: 2

REQUIRED REFERENCES: None.

87 **Points: 1.00**

Which of the following events require that the Unit Supervisor direct a plant-wide public address (PA) announcement, per OP-AA-104-101, COMMUNICATIONS?

A. Starting the WCT pump.

B. A Torus temperature of 107°F and increasing.

C. Chemistry reports that Tritium sample results are above limits.

D. Dresden lock and dam reports fish mortality attributed to plant operations.

Answer: B

Question 87 Details

Comments:

Objective: 29501LK076
Reference: OP-AA-104-101, DEOP 200-1, OP-AA-106-101
K/A: 295026.G.1.14 3.1 / 3.1
K/A: Suppression Pool High Water Temperature: Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.
Level: Memory
Pedigree: New
Explanation: With a Torus temperature of 107°F and increasing, it is imminent that the temperature will reach the scram setpoint of 110°F in DEOP 200-1. Per the communications procedure a plant wide announcement is required PRIOR to a mode change.
(a) The WCT pump is in the RW basement, which is not normally occupied and is not of a personnel safety concern.
(c) Is an event that is required to be reported per the significant event reporting procedure, but does not meet the requirement for a PA announcement.
(d) Is an event that is required to be reported per the significant event reporting procedure, but does not meet the requirement for a PA announcement.

SRO per Criteria: 5

REQUIRED REFERENCES: None.

88 **Points: 1.00**

An NSO reports that Drywell Average Air Temperature is 145°F.

This ___(1)___ exceed the Technical Specification Limit, which is based on preventing ___(2)___ during a DBA LOCA.

A. (1) DOES;
(2) exceeding 150°F in the Torus and the potential degradation of the primary containment structure under accident loads

B. (1) DOES;
(2) exceeding 281°F in the Drywell and the potential degradation of the primary containment structure under accident loads

C. (1) DOES NOT;
(2) exceeding 150°F in the Torus and the potential degradation of the primary containment structure under accident loads

D. (1) DOES NOT;
(2) exceeding 281°F in the Drywell and the potential degradation of the primary containment structure under accident loads

Answer: D

Question 88 Details

Comments:

Objective: 29502LK001
Reference: Tech Spec and Bases for 3.6.1.5
K/A: 295012.A2.01 3.8 / 3.9
K/A: Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE: Drywell temperature.
Level: Memory
Pedigree: Modified
Explanation: Per the above bases, the LCO limit is 150°F based on meeting the initial conditions of the safety analysis, to not exceed peak LOCA temperature of 281°F.

SRO per criteria 2

REQUIRED REFERENCES: None.

89 **Points: 1.00**

Unit 2 was starting up in MODE 2 with the 2A CRD Pump O.O.S., when the following occurred:

- 2B CRD Pump tripped.
- Annunciator 902-5 F-2, ACCUMULATOR CHARGING WTR PRESS LO illuminated.
- Annunciator 902-5 G-2, ACCUMULATOR LVL HI / PRESS LO illuminated.
- The NLO dispatched to the field reported that CRD B-8 has a low pressure alarm locally.
- CRD B-8 is reported at position 48.

The Unit Supervisor is required to direct:

A. IMMEDIATELY scram the reactor and enter DGP 02-03, REACTOR SCRAM.

B. Enter DGP 02-03, REACTOR SCRAM, to reduce load THEN manually scram the reactor.

C. Utilize the scram toggle switch to insert CRD B-8, per DOA 0300-01, CONTROL ROD DRIVE SYSTEM FAILURE.

D. Attempt to restore Charging Water Header pressure within 20 minutes, per DOA 0300-01, CONTROL ROD DRIVE SYSTEM FAILURE.

Answer: A

Question 89 Details

Comments:

Objective: DRE201LN001.12
Reference: DOA 0300-01
K/A: 295022.G.4.11 4.0 / 4.2
K/A: Loss of CRD Pumps: Knowledge of abnormal condition procedures.
Level: High
Pedigree: Bank
Explanation: If in MODE 2 and CRD water can NOT be immediately restored, and any accumulator NOT at position 00 has a trouble light illuminate, the Unit Supervisor is required to direct IMMEDIATELY scramming the reactor and entering DGP 02-03.
(b) Load would be reduce prior to scramming if a FCV valve failed.
(c) The scram toggle switch would be utilized if in MODE 3, 4, or 5.
(d) Restoring charging water pressure within 20 minutes would be allowed only if a pump was running, but pressure was low.

SRO per Criteria: 5

REQUIRED REFERENCES: None.

90 **Points: 1.00**

Both Units were operating at near rated power when the following breakers tripped:

- 345KV BT 8-9 CB
- 345KV BT 8-15 CB

This will cause a loss of the normal power supply to ___(1)___ and the Unit Supervisor is required to direct ___(2)___ .

A. (1) TR-22;
(2) reducing load on TR-22 per DOA 6100-03, AUX POWER TRANSFORMER TROUBLE

B. (1) TR-22;
(2) manually starting the U2 EDG per DGA-12, PARTIAL OR COMPLETE LOSS OF AC POWER

C. (1) TR-32;
(2) reducing load on TR-31 per DOA 6100-03, AUX POWER TRANSFORMER TROUBLE

D. (1) TR-32;
(2) manually starting the U3 EDG per DGA-12, PARTIAL OR COMPLETE LOSS OF AC POWER

Answer: C

Question 90 Details

Comments:

Objective: DRE262LN003.12
Reference: DOP 6400-13, DOA 6100-03
K/A: 295003.A2.05 3.9 / 4.2
K/A: Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Whether a partial or complete loss of A.C. power has occurred.
Level: High
Pedigree: New
Explanation: When breakers 8-9 and 8-15 (4-8 is normally open when both units are operating) trip, it and causes a loss of power to TR-32. When TR-32 loses power, Buses 32 and 34 lose their normal power supply and “fast-transfer” to TR-31. This situation causes a potential overload on TR-31, which must have some of its load shed.
The normal supply to TR-22 would be lost if there was a fault on 345KV CBs 2-3 and 3-4 or TR-86. The EDGs would not need to be manually started, since they did not receive a valid start signal because fast-transfer occurred.

SRO per criteria: 5

REQUIRED REFERENCES: None.

91 **Points: 1.00**

Unit 3 was operating at near rated conditions, with the 3A Fuel Pool Cooling (FPC) pump O.O.S. for motor replacement, when Bus 39 de-energized due to an overcurrent condition.

The Unit Supervisor is required to direct monitoring fuel storage pool water temperature ___(1)___ once per hour locally and ___(2)___ .

A. (1) ONLY
(2) start additional RBCCW pumps, per DOP 3700-02, REACTOR BUILDING CLOSED COOLING WATER SYSTEM OPERATION

B. (1) ONLY
(2) align a SDC pump to the fuel pool system, per DOP 1000-04, FUEL POOL COOLING MODE OF OPERATION OF SHUTDOWN COOLING SYSTEM

C. (1) AND level
(2) start additional RBCCW pumps, per DOP 3700-02, REACTOR BUILDING CLOSED COOLING WATER SYSTEM OPERATION

D. (1) AND level
(2) align a SDC pump to the fuel pool system, per DOP 1000-04, FUEL POOL COOLING MODE OF OPERATION OF SHUTDOWN COOLING SYSTEM

Answer: D

Question 91 Details

Comments:

Objective: DRE233LN001.08
Reference: DOA 1900-01
K/A: 233000.A2.09 2.7 / 2.9
K/A: Ability to (a) predict the impacts of the following on the FUEL POOL COOLING AND CLEAN-UP ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A.C. electrical power failures.
Level: High
Pedigree: New
Explanation: With 3A FPC pump O.O.S. and a subsequent loss of the 3B FPC pump (loss of Bus 39), there is no forced cooling of the Fuel Pool. The loss of Bus 39 also causes a loss the Fuel Pool low level alarms, due to the loss of MCC 39-3. With these losses, BOTH temperature AND level are required to be monitored locally. With a loss of all forced cooling, the required action is to align the SDC system. Starting additional RBCCW pump would be performed if forced FPC flow was still present, but not maintaining temperatures.

SRO per criteria: 5

REQUIRED REFERENCES: None.

92 **Points: 1.00**

Unit 2 was operating at near rated power when a scram signal was received, resulting in the following indications:

- RPV pressure is 1025 psig and slowly decreasing.
- Drywell pressure is 1.55 psig and slowly increasing.
- RPV water level dropped to +12 inches before slowly increasing.

Which of the following orders is the Unit Supervisor required to direct?

A. Secure Hydrogen Addition per DOA 0040-01, SLOW LEAK.

B. Control RPV water level between +8 and +48 inches, per DEOP 100, RPV CONTROL.

C. Maintain RPV water level between +25 and +35 inches, per DGP 02-03, REACTOR SCRAM.

D. Hold Drywell and Torus pressures below 2.0 psig, per DEOP 200-1 PRIMARY CONTAINMENT CONTROL.

Answer: C

Question 92 Details

Comments:

Objective: 29502LP021
Reference: DGP 02-03
K/A: 295006.G.1.06 3.8 / 4.8
K/A: SCRAM: Ability to manage the control room crew during plant transients.
Level: High
Pedigree: New
Explanation: Given the conditions in the stem, maintaining RPV water level between +25 and +35 inches per DGP 02-03 is the correct answer.
(a) Hydrogen addition is not secured per the DOA, unless flowrates are incorrect (not indicated in the stem).
(b) RPV water level is controlled by the DGP, not the DEOP.
(d) Drywell pressure is above the scram setpoint, but has not reached the condition where it would be controlled by the DEOP.

SRO per criteria: 5

REQUIRED REFERENCES: None.

93 **Points: 1.00**

The main Control Room received a report of a fire near the Unit 2 EHC Skid. The Control Room sounded the fire alarm and directed the fire brigade to assemble.

At the minimum ___(1)___ fire brigade members are required to be on-site, and the nearest fire equipment cart to the area of the fire would be located in ___(2)___ .

A. (1) 5;
(2) Unit 2/3 Turbine Building 517' elevation, by the Cardox tank

B. (1) 5;
(2) Unit 3 Reactor Building 545' elevation, West side

C. (1) 6;
(2) Unit 2/3 Turbine Building 517' elevation, by the Cardox tank

D. (1) 6;
(2) Unit 3 Reactor Building 545' elevation, West side

Answer: A

Question 93 Details

Comments:

Objective: 286LN00217
Reference: TRM 5.0.a, DFPS 4114-12
K/A: Generic.4.26 3.1 / 3.6
K/A: Knowledge of facility protection requirements, including fire brigade and portable fire fighting equipment usage.
Level: Memory
Pedigree: Bank
Explanation: Per the TRM, there are 5 members on the fire brigade. The fire was reported near the EHC skid, which is located on the 517’ elevation of the U2 Turbine Building. The nearest fire cart would be the Unit 2/3 Turbine Building 517' elevation, by the Cardox Tank. SRO are the Brigade Leader for the fire brigade. Reactor Operators are not required to be Fire Brigade qualified nor do they respond to fires.

SRO Criteria: 1

REQUIRED REFERENCES: None.

94 **Points: 1.00**

Unit 2 was operating at near rated power, when an NSO reported that RPV water level was trending down.

The expected indications would be that steam flow is ___(1)___ than feed flow and the Unit Supervisor would be required to direct entering ___(2)___ FIRST.

A. (1) lower;
(2) DEOP 100, RPV CONTROL

B. (1) lower;
(2) DOA 0600-1, TRANSIENT LEVEL CONTROL

C. (1) higher;
(2) DEOP 100, RPV CONTROL

D. (1) higher;
(2) DOA 0600-1, TRANSIENT LEVEL CONTROL

Answer: D

Question 94 Details

Comments:

Objective: DRE259LN001.06
Reference: DAN 902-5 F-8, DOA 0600-01
K/A: 295009.A2.02 3.6 / 3.7
K/A: Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL: Steam flow/feed flow mismatch.
Level: High
Pedigree: New
Explanation: RPV level will decrease if steam flow is higher than feed flow decrease because not as much feed is going into the vessel as steam exiting. If uncorrected, RPV level will decrease to the level (+25 inches) that causes annunciator 902-5 F-8 REACTOR VESSEL LOW LEVEL to annunciate. The DAN directs entering DOA 0600-01, before getting to the entry condition for DEOP 100 (+8 inches).

SRO per criteria: 5

REQUIRED REFERENCES: None.

95 **Points: 1.00**

Unit 2 has the following conditions:

- RPV water temperature is 205°F.
- The reactor MODE switch is in SHUTDOWN.
- ALL Reactor Vessel head closure bolts are fully tensioned.

Given the above conditions, the SRO will declare the reactor is in what MODE?

A. Mode 2

B. Mode 3

C. Mode 4

D. Mode 5

Answer: C

Question 95 Details

Comments:

Objective: 29800LP022
Reference: T.S. 1.1
K/A: Generic.2.35 3.6 / 4.5
K/A: Ability to determine Technical Specification Mode of Operation.
Level: High
Pedigree: Modified
Explanation: Per the tech specs, the reactor is considered in Mode 4 if the MODE SWITCH is in SHUTDOWN and ALL reactor vessel head closure bolts are fully tensioned AND the coolant temperature is $\leq$ 212.

SRO per Criteria: 2

REQUIRED REFERENCES: None.

96 **Points: 1.00**

Unit 2 was operating at near rated power with MCC 28-1 O.O.S., when an ATWS occurred.

Reactor power is reported as 39%.

The NSO placed the SBLC keylock switch in the SYS 2 position and reported the following SBLC indications 15 seconds later:

- 2B Pump light is illuminated.
- 2B Squib light is illuminated.
- Flow light is extinguished.

Currently, ___(1)___ boron is injecting and the Unit Supervisor is required to direct ___(2)___ .

A. (1) NO;
(2) injecting alternate SBLC per DEOP 500-1, ALTERNATE STANDBY LIQUID CONTROL INJECTION

B. (1) NO;
(2) re-positioning the SBLC keylock switch to the SYS 1 & 2 position per DOP 1100-02, INJECTION OF STANDBY LIQUID CONTROL

C. (1) 40 gpm;
(2) verifying the RWCU system isolated per DOP 1100-02, INJECTION OF STANDBY LIQUID CONTROL

D. (1) 80 gpm;
(2) verifying the RWCU system isolated per DOP 1100-02, INJECTION OF STANDBY LIQUID CONTROL

Answer: A

Question 96 Details

Comments: Objective: DRE211LN001.12
Reference: DOP 1100-02, DEOP 400-5
K/A: 211000.A2.02 3.6 / 3.9
K/A: Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Failure of explosive valve to fire.
Level: High
Pedigree: New
Explanation: When the SBLC keylock switch is placed to the SYS 2 position the 2B pump should start and 2B SQUIB should fire. The indication that the SQUIB light is still illuminated indicates that the SQUIB did not fire (is passing no flow). With no boron being injected into the vessel, the Unit Supervisor is required to direct injecting alternate boron per DEOP 500-1 (as directed by DEOP 400-5).
(b) Re-positioning the keylock switch to SYS 1 & 2 will not inject boron, since MCC 28-1 is the power supply to the 2A SQUIB and 2A Pump (and is NOT procedurally correct).
(c) 40 gpm would be injecting if the 2B SQUIB would have fired (indicated by the light being extinguished).
(d) 80 gpm would be injecting if both subsystems were injecting, requiring the keylock switch to be in SYS 1 and SYS 2 position (Each SBLC pump has a design flowrate of 40 gpm).

SRO per criteria: 5

REQUIRED REFERENCES: None.

97 **Points: 1.00**

Unit 2 was scrammed and the Control Room evacuated, due to a fire.

- RPV pressure is currently 450 psig and steady.
- RPV water level is currently -85 inches and going down.

The available instrument racks that the Unit Supervisor is required to direct the U2 NSO to locally monitor RPV level are the 2202- ___(1)___ instrument racks, and the lowest *indicated* RPV water level allowed before a blowdown is required is ___(2)___ .

A. (1) 5, 6, 7, AND 8;
(2) -160 inches

B. (1) 5, 6, 7, AND 8;
(2) -180 inches

C. (1) 7 and 8 ONLY;
(2) -160 inches

D. (1) 7 and 8 ONLY;
(2) -180 inches

Answer: C

Question 97 Details

Comments:

Objective: DRE216LN001.12
Reference: DSSP-100CR, DEOP 0010-00, DEOP 100, TSG att L
K/A: 295016.A2.02 4.2 / 4.3
K/A: Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT: Reactor water level.
Level: High
Pedigree: New
Explanation: Per the above procedure, all 4 instrument racks (5, 6, 7, and 8) have remote level indication, but with RPV water level < -60 inches only the 7 and 8 racks will monitor level. Blowdown must occur prior to reaching the Steam Cooling With Injection level, which is -164 inches, since RPV pressure is < 500 psig, thus -160 is correct. -180 would be correct if RPV pressure was > 500 psig.

SRO per criteria: 5

REQUIRED REFERENCES: DEOP 100, with the entry conditions blanked out.

98 **Points: 1.00**

Which of the following events are required to be reported to the Plant Manager, Station Security, and the Senior Resident Inspector per OP-AA-106-101, SIGNIFICANT EVENT REPORTING?

A. An event of potential public interest.

B. An unplanned shutdown or load reduction.

C. A report of a suspicious and malicious activity directed at plant safety.

D. A significant breakdown of plant radiological or environmental controls.

Answer: C

Question 98 Details

Comments:

Objective: 29900LK152
Reference: OP-AA-106-101
K/A: Generic.4.30 2.7 / 4.1
K/A: Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.
Level: Memory
Pedigree: New
Explanation: Per the above procedure if there is suspicion of activity directed at plant safety or security the following individuals must be notified: Plant Manager, Station Security, and Senior Resident Inspector. The other events are all reportable as significant events, but Security is not required to be notified for them.

SRO per Criteria: 5

REQUIRED REFERENCES: None.

99 **Points: 1.00**

An NSO reported that Control Rod F-05, with a last known position of 28 has lost all RPIS indication.

In an attempt to restore RPIS indication, the following sequence of events occurred:

- Control Rod F-05 was inserted one notch.
- A slight power change was reported by the NSO.
- Control Rod F-05 was withdrawn one notch.
- A slight power change was reported by the NSO.

An NSO reported that RPIS indication for Control Rod F-05 did **NOT** return.

Which of the following actions is the Unit Supervisor required to direct?

A. Drive the Control Rod to full in position and insert an alternate limit of 00, per DOA 0300-06, RPIS FAILURE.

B. Drive the Control Rod to full in position and electrically or hydraulically isolate the HCU, per DOA 0300-06, RPIS FAILURE.

C. Immediately fully insert all control rods in core cells containing one or more fuel assemblies, per T.S. 3.9.4, CONTROL ROD POSITION INDICATION.

D. Increase Drive Water pressure, and attempt to move the Control Rod to a position that has a good RPIS indication, per DOA 0300-01, CONTROL ROD DRIVE SYSTEM FAILURE.

Answer: B

Question 99 Details

Comments:

Objective: DRE201LN002.08
Reference: DOA 0300-06, DAN 902-5 G-3
K/A: 214000.G.4.4 4.5 / 4.7
K/A: Rod Position Information System: Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.
Level: High
Pedigree: New
Explanation: If a Control Rod has lost RPIS and can NOT be moved to a position that has good RPIS indication, the required actions are to drive the Control Rod to the full in position, and electrically or hydraulically isolate the HCU.
(a) An alternate limit is only inserted if the Control Rod can be moved to a position that restores RPIS indication.
(c) Inserting all control rods in core cells containing one or more fuel assemblies, is only performed if in MODE 5.
(d) Increasing Drive Water pressure is only performed if the Control Rod is stuck or difficult to move, which is not the case by indication that power changed when the control rod was moved.

SRO per Criteria: 5

REQUIRED REFERENCES: None.

100 **Points: 1.00**

Unit 3 was operating at near rated power when an Instrument Air system pipe ruptured, causing Instrument Air pressure to drop rapidly to 0 psig.

The FWRVs will fail ___(1)___ .

If RPV water level is dropping and feedwater is needed for injection, while executing the DEOPs, the Unit Supervisor is required to direct Operators to ___(2)___ .

A. (1) immediately;
(2) valve in Nitrogen bottles, per DOA 4700-01, INSTRUMENT AIR SYSTEM FAILURE

B. (1) immediately;
(2) install handwheels and manually operate the FWRVs, per DOA 0600-01, TRANSIENT LEVEL CONTROL

C. (1) after 30 minutes;
(2) valve in Nitrogen bottles, per DOA 4700-01, INSTRUMENT AIR SYSTEM FAILURE

D. (1) after 30 minutes;
(2) install handwheels and manually operate the FWRVs, per DOA 0600-01, TRANSIENT LEVEL CONTROL

Answer: D

Question 100 Details

Comments:

Objective: DRE278LN001.12
Reference: DOA 4700-01, DOA 0600-01
K/A: 295019.A2.02 3.6 / 3.7
K/A: Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR: Status of safety-related instrument air system loads.
Level: High
Pedigree: New
Explanation: Per the critical component failure table in the Loss of Inst Air DOA, the FWRVs will operate on their backup nitrogen source for 30 minutes after a loss of Inst Air. The DOA for transient level control states that if the FWRVs can not be opened due to loss of air and feedwater/alternate injection systems are required by the DEOPs, then operate the valves manually as directed by the Unit Supervisor.

SRO per Criteria: 5

REQUIRED REFERENCES: None.