UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-325/95-301 and 50-324/95-301

Licensee: Carolina Power and Light Company
P.O. Box 1551
Raleigh, NC 27602

Docket Nos.: 50-325 and 50-324 License Nos.: DPR-71 and DPR-62

Facility Name: Brunswick Steam Electric Plant Units 1 and 2

Examination Conducted: October 20-28, 1995

Chief Examiner: _____ for 11/17/95
Ronald F. Aiello Date Signed

Accompanying Personnel: George T. Hopper
Paul M. Steiner

Approved by: _____ 11/17/95
Thomas A. Peebles, Chief Date Signed
Operator Licensing and Human
Performance Branch
Division of Reactor Safety

SUMMARY

Scope:

Facility training personnel and NRC examiners conducted an announced, pilot operator licensing initial examination during the period of October 20-28, 1995. The Facility administered the written examination on October 20, and the NRC examiners administered the operating examinations on October 23-28. All of the examinations were administered under the guidelines of the Examiner Standards (ES), NUREG-1021, Revision 7, and the requirements of 10 CFR 55, to three Senior Reactor Operator (SRO) and eight Reactor Operator (RO) candidates.

Results:

The examiners identified one strength in the area of examination development (paragraph 2.c).

Candidate Pass/Fail:

	SRO	RO	Total	Percent
Pass	2	8	10	90.9%
Fail	1	0	1	9.1%

A review of the questions missed showed that the candidates missed a high percentage of questions developed around plant modifications. The inspector found that the initial training program had not emphasized plant modification training (paragraph 2.b).

No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

*Del Benzaquin, Acting Training Manager
*Bill Campbell, Vice President
*Denny Hicks, Regulatory Affairs Manager
*Jeff Lyash, Operations Manager
*Hal Wall, Supervisor Initial Training

Other licensee employees contacted included instructors, engineers, technicians, operators, and office personnel.

NRC Personnel

C. Patterson, Senior Resident Inspector
*P. Byron, Resident Inspector
M. Janus, Resident Inspector

*Attended exit interview

2. Discussion

a. Scope

Facility training personnel and NRC examiners conducted an announced, pilot operator licensing initial examination during the period of October 20-28, 1995. The Facility administered the written examination on October 20, and the NRC examiners administered the operating examinations on October 23-28. All of the examinations were administered under the guidelines of the Examiner Standards (ES), NUREG-1021, Revision 7 and the requirements of 10 CFR 55, to three Senior Reactor Operator (SRO) and eight Reactor Operator (RO) candidates.

b. Candidate Performance

Two of the three SRO and all of the RO candidates passed the written examination. A review of the questions missed showed that the candidates missed a high percentage of questions developed around plant modifications. The inspector found that the initial training program had not emphasized plant modification training.

The examiners evaluated the candidates' performance during simulator scenarios and JPMs using the guidelines of NUREG-1021, Examiner Standards, Revision 7, Supplement 1, and the requirements of 10 CFR 55 and concluded that the candidates performed satisfactorily. While the candidates' performance on the written examination and simulator portion of the operating test was generally good, the examiners identified a problem with the use of computers in the control room and simulator. One candidate spent 15 minutes trying to find the OG-6.1 program in the Main Control Room. One candidate spent 10 minutes trying to access NRCS to find a print number using the simulator's

computer. One candidate was unable to perform portions of OPT-01.11, "Core Performance Parameter Check," on the simulator. The examiners identified no generic weaknesses during the operating examination.

c. Examination Development

Both the written and the operating examinations were well written. There were no adverse comments on the examination quality. The examiner identified only minor comments on the referencing of questions and the format in which they were presented for NRC review. The written examination not only contained plausible distractors but required an integral thought process to ascertain the correct answer. The written examination questions were very thought provoking thus requiring an inherent system knowledge and a thorough understanding of the EOPs. The examiner identified no apparent "direct look-up" questions on the operating examination. Each question that required a reference appeared to utilize thought processes requiring significant application and comprehension. The inspector identified examination development as a strength.

Most of the walkthroughs took in excess of 5 hours to complete 10 JPMs. The examiners noted that there were several areas that contained unnecessary overlap. Efforts should be made to shorten the length of the walkthrough examination without compromising quality. For example, if an SRO does an Emergency Action Level classification during the simulator exercise, that will satisfy the administrative requirement A.4. This will subsequently reduce the overall stress on the candidate as well as on the examiner.

d. Generic Fundamentals Examination

The licensee added one additional candidate on the day of the examination to take the Generic Fundamentals Examination that was administered on October 3, 1995. The candidate self-studied the material in accordance with the utility's procedure for the first four weeks of the seven and one half week utility training program. The candidate replaced a person that was removed from the training program at the beginning of week 5. The examiner conducted a review of the fundamentals training records for this candidate. His weeks 5 and 6 quiz grades were 90.0 percent and 94.3 percent respectively. The utility sequestered the April 1995 NRC GFES and administered it as an in-house certification examination. The candidate scored 91 percent. The candidate has completed the requirements of the utility fundamentals program and is enrolled in a license training class scheduled to be examined in April 1997.

e. Simulator facility

During the performance of scenario HLCX-006, the operators were led to believe the main turbine trip on high vibration was disabled due to a loss of UPS. This belief stemmed from a statement in the general discussion section of Procedure OAOP-12.0, "Loss of Uninterruptable

Power Supply (UPS)," that states if the Turbine Supervisory Instrumentation (TSI) panel lost power, vibration trips would not occur. Later in the scenario, the #3 bearing lost oil flow and the malfunction led to a main turbine trip on vibration.

The TSI cabinet is powered from UPS for Unit 1 only. The OI-50.5 (Electrical Load List) shows that this supply is from 1-V7A, circuit 6 (120 VAC UPS distribution panel). For Unit 2, OP-26 shows the TSI cabinet is powered from 2G-CB, circuit 21 (120 VAC conventional distribution panel) and is unaffected by a loss of UPS. These power supplies have been confirmed by the System Engineer. A Procedure Action Request (PAR) was submitted against Procedure OAOP-12.0 to clarify the general discussion section to specify TSI cabinet lost on UPS loss for Unit 1 only.

3. Exit Interview

At the conclusion of the site visit, the examiners met with representatives of the plant staff listed in paragraph 1 to discuss the results of the examinations. The licensee did not identify as proprietary any material provided to, or reviewed by the examiners. No dissenting comments were received.

SIMULATOR FACILITY REPORT

Facility Licensee: Brunswick

Facility Docket No.: 50-325

Operating Tests Administered On: October 23-28, 1995

This form is to be used only to report observations. These observations do not constitute, in and of themselves, audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required solely in response to these observations.

There were no simulator configuration of fidelity items identified. However, during the performance of scenario HLCX-006, the operators were led to believe the main turbine trip on high vibration was disabled due to a loss of UPS. This belief stemmed from a statement in the general discussion section of OAOP-12.0 (Loss of UPS) that states if the Turbine Supervisory Instrumentation (TSI) panel lost power, vibration trips would not occur. Later in the scenario, the #3 bearing lost oil flow and the malfunction led to a main turbine trip on vibration.

The TSI cabinet is powered from UPS for Unit 1 only. OI-50.5 (Electrical Load List) shows that this supply is from 1-V7A, circuit 6 (120 VAC UPS distribution panel). For Unit 2, OP-26 shows the TSI cabinet is powered from 2[illegible] CB, circuit 21 (120 VAC conventional distribution panel) and is unaffected by a loss of UPS. These power supplies have been confirmed by the System Engineer. A P[illegible]edure Action Request (PAR) was submitted against OAOP-12.0 to clarify the general discussion section to specify TSI cabinet lost on UPS loss for Unit 1 only.

Enclosure 2

RESOLUTION OF FACILITY COMMENTS

Facility Comments on the RO/SRO written examination:

The facility's post examination review of the written test for Hot License Class 94-01 shows that question 41 on the SRO exam and 52 on the RO exam (same question) has two correct answers. There is currently a plant modification in progress that is installing a new security system. At the time of the exam (and to this date), there are some new, modified security access card readers at various locations and some of the originally installed security card readers still installed at other locations. The question tests the candidates knowledge of proper use of security card readers when escorting a visitor. Answer "d" describes how the new system should be used, and answer "c" describes how the original system should be used. It is not our expectation that an individual know from memory which security entrance card readers have been modified, and which ones have not. The question as written doesn't specify which type of card reader is installed, and it doesn't specify which Reactor Building access (Unit 1 or Unit 2). Therefore, a candidate could have reasonably assumed either the old or the new system, and selected a correct answer based on their assumption. Therefore, the facility recommends the answer key to the written test for Hot License Class 94-01 be revised to reflect two correct answers to the question, and that the final grading be adjusted to reelect that change.

NRC Resolution:

Accept facility comment. Answer "c" (in addition to answer "d") on question 41 of the SRO exam and question 52 of the RO exam was accepted as correct.

MASTER EXAM

Master 95-301
Brunswick - Pilot

ANSWER KEY FOR **NRC 95-1 SRO, Rev 0**

EXAM DATE: **10/20/95**

CLASS: **HLC 95-1**

COURSE CODE: **ROA02B**

DATE PRINTED: **10/14/95**

PREPARED BY: **BOWDON**

MODIFIED BY: **Keith Bowdon**

100 QUESTIONS, **100.00** TOTAL POINTS ON THE EXAM.

~~4.72~~ HOURS ESTIMATED TO COMPLETE THE EXAM, **4.00** HOUR TIME LIMIT.

per 3.5 telecon with K. Bowdon 11/15/95

POINTS MISSED	SCORE	POINTS MISSED	SCORE
1	99.00	6	94.00
2	98.00	7	93.00
3	97.00	8	92.00
4	96.00	9	91.00
5	95.00	10	90.00

REFERENCES TO BE PROVIDED TO THE STUDENT:

2AOP-04.0 FIG 1&2, AOP-36.2 CALC SH 1, EOP CAUTION 1, EOP-01-UG FIG 14,17,18,19, EOP-01-UG FIG 2,3,8, EOP-01-UG FIG 20, EOP-01-UG FIG 4, EOP-04-RRCP, P&ID D-02520 SH 3A, T.S. FIGS. 3.1.5.1 & 3.1.5.2, TECH SPEC 3.0.5, TECH SPEC 3.5.3.2, TECH SPEC 3.8.1.1

Kim McCall
Exam Reviewer

Hal D. Wall
Approved For Use

(GENERAL USE EXAM CREATED FROM HLC EXAM DEVELOPMENT EXAM BANK)

QUESTION: 1 POINT VALUE: **1.00** RECORD: **623**
LESSON 1: **LOI-CLS-LP-002-A** Objective(s): **15a,15b**

Unit 2 is operating at 100% power. The following annunciators are received for the 2B recirculation pump.

SEAL STAGING LOW FLOW alarm sealed in
OUTER SEAL HIGH FLOW alarm sealed in

The 2B recirculation pump seal indications are as follows:

Seal #1 pressure	980 psig
Seal #2 pressure	10 psig

Which of the following resulted in the alarms and indications on the 2B recirculation pump?

a. Seal #1 has failed

b. Seal #2 has failed

c. #1 breakdown coil is plugged

d. #2 breakdown coil is plugged

ANSWER: 1

b.

a - #2 seal pressure would be @ equal to #1 seal pressure.
c - although #2 seal pressure lowers and the SEAL STAGING LOW FLOW annunciator alarms, the OUTER SEAL HIGH FLOW annunciator will <u>not</u> alarm.
d - #2 seal pressure would be @ equal to #1 seal pressure and the OUTER SEAL HIGH FLOW annunciator will <u>not</u> alarm.

created from Record 5050 which has <u>not</u> been used yet.

.....

QUESTION: 2 POINT VALUE: **1.00** RECORD: **760**
LESSON 1: **LOI-CLS-LP-002-A** Objective(s): **161**

Unit One (1) is operating at 55% power with Reactor Feed Pump (RFP) 1A running and RFP 1B idling. Both Recirculation Pump speeds are 53%. The 1A RFP trips, resulting in the following conditions:

Reactor Water Level Hi/Lo alarm sealed in
Reactor Vessel Lo Level Trip alarm sealed in
Master Feedwater Controller set down to +170"

Reactor water level drops to +128" before RFP 1B is brought on line to reverse the level trend. What should be the present status of Recirculation Pumps?

a. Running at 53% speed

b. Running at 45% speed

c. Running at 28% speed

d. Tripped on ATWS/RPT signal

ANSWER: 2

c. (new)

.....

QUESTION: 3 POINT VALUE: **1.00** RECORD: **766**
LESSON 1: **LOI-CLS-LP-003-A** Objective(s): **13**

A LOSS OF DIVISION I 125/250 VDC DC Switchboard 2A has has caused a Unit Two (2) Reactor Scram signal.

The Reactor fails to Auto scram. The operator depresses the Manual Scram push buttons, and notes the following indications:

Scram Channel A1-A4 white lights OUT
Scram Channel B1-B4 white lights LIT
APRM Indication 40%
ARI Did Not Initiate on High Reactor Pressure
Total Steam Flow 3.9 Mlbm/Hr

What required operator action may insert control rods?

a. Place the Mode Switch to SHUTDOWN.

b. Manually initiate Alternate Rod Injection (ARI).

c. Transfer RPS Bus B power to the alternate source.

d. Place RPS Keylock Test Switches B1 and B2 to TEST.

ANSWER: 3

d. (new question)

b would would not work due to loss of power
a & c not allowed per procedural guidance

QUESTION: 4 POINT VALUE: **1.00** RECORD: **619**
LESSON 1: **LOI-CLS-LP-004-A** Objective(s): **15e**

Unit One (1) has experienced a Loss Of Off-Site Power and a Reactor Scram. Group 10 isolated and the Backup Nitrogen System automatically aligned to the drywell. Plant conditions are:

Reactor Pressure	750 psig
Reactor Water Level	+100 inches
Drywell Pressure	1.2 psig
All E Buses	Energized

The Drywell Cooler Dampers are:

a. failed open, and the Drywell Cooler fans are running.

b. failed open, but the Drywell Cooler fans are tripped.

c. supplied by Backup Nitrogen, and the Drywell Cooler fans are running.

d. supplied by Backup Nitrogen, but the Drywell Cooler fans are tripped.

ANSWER: 4

a. (new question)

QUESTION: 5 POINT VALUE: **1.00** RECORD: **789**
LESSON 1: **LOI-CLS-LP-004-B** Objective(s): **071**

Unit One (1) is operating at power. An unisolable rupture in the Instrument Air System results in lowering air header pressure. Reactor Building Standby Air Compressor 1A and 1B auto start, then trip.

The following alarms are sealed in:

RB Instr Air Receiver 1A Press Low
RB Instr Air Receiver 1B Press Low

How will the air loss affect Secondary Containment?

a. Secondary Containment Isolation Dampers fail closed, SBGT auto starts to maintain integrity.

b. Secondary Containment Isolation Dampers fail closed, SBGT must be manually started to maintain integrity.

c. Secondary Containment Isolation Dampers must be manually closed, SBGT auto starts to maintain integrity.

d. Secondary Containment Isolation Dampers must be manually closed, SBGT must be manually started to maintain integrity.

ANSWER: 5

d. (New)

.....

QUESTION: 6 POINT VALUE: **1.00** RECORD: **621**
LESSON 1: **LOI-CLS-LP-005-A** Objective(s): **08f**

An ATWS condition exists on Unit Two (2). Emergency Procedures direct initiation of Standby Liquid Control (SLC). 480 VAC Bus E8 is De-Energized. How will SLC respond if the SLC Control Switch is placed in the PUMP A/B RUN position?

a. SLC Pump A starts, both squib valves fire.

b. SLC Pump B starts, both squib valves fire.

c. SLC Pump A starts, only one squib valve fires.

d. SLC Pump B starts, only one squib valve fires.

ANSWER: 6

c. (new question)

.....

QUESTION: 7 POINT VALUE: **1.00** RECORD: **775**
LESSON 1: **LOI-CLS-LP-008-A** Objective(s): **06d**

Unit two (2) is in OPERATIONAL CONDITION 1, with reactor pressure at 1000 psig. Individual Control Rod scram time testing per PT-14.2.1 is in progress. In preparation to scram rod 26-19, the HCU charging header isolation valve (V-113) is closed.

When 26-19 is scrammed, the ball check internal to the mechanism insert port FAILS to reposition. This failure will result in:

a. no rod motion on the scram.

b. faster than normal scram time.

c. slower than normal scram time.

d. partial rod motion on the scram.

ANSWER: 7

c. (Modified from ID 4663)

QUESTION: 8 POINT VALUE: **1.00** RECORD: **622**
LESSON 1: **LOI-CLS-LP-008-B** Objective(s): **13d**

During a low water level condition, CRD Flow maximization is being implemented per SEP-09. The operator is directed to to maintain Charging Water Header pressure ≥950 psig while opening the Flow Control and Pressure Control valves.

This limitation will prevent pump:

a. trip due to low suction pressure.

b. operation under runout conditions.

c. trip due to overcurrent protection.

d. discharge pressure dropping below reactor pressure.

ANSWER: 8

b. (new question)

.....

QUESTION: 9 POINT VALUE: **1.00** RECORD: **636**
LESSON 1: **LOI-CLG-LP-009-A** Objective(s): **10c**

A reactor startup is in progress per GP-09 following refueling, with the RPS shorting links removed. The reactor is approaching criticality.

A loss of 24/48 VDC power to SRM drawer B results in the following alarms:

SRM UPSCALE/INOP
NEUTRON MON SYS TRIP

How will the plant respond to this power loss?

a. Alarms only.

b. A Rod Out Block only.

c. A Rod Out Block and 1/2 Scram.

d. A Rod Out Block and Full Reactor Scram.

ANSWER: 9

d. (modified from Record ID 1380)

QUESTION: 10 POINT VALUE: **1.00** RECORD: **763**
LESSON 1: **LOI-CLS-LP-009-B** Objective(s): **10c**

A reactor shutdown is in progress. The reactor is subcritical with all IRMs on range 5, except for IRMs G and H which are Bypassed. The following IRM readings are obseved:

IRM channel A 10/40 of scale
IRM Channel B 6/40 of scale
IRM channel C 10/40 of scale
IRM Channel D 5/40 of scale
IRM channel E 9/40 of scale
IRM Channel F 11/40 of scale

All IRM Range Switches are placed to Range 4. What response is expected?

a. No protective functions.

b. A Control Rod Out Block only.

c. A Control Rod Out Block and 1/2 Scram.

d. A Control Rod block and a Full Reactor Scram.

ANSWER: 10

b. Rod block setpoint is 70/125 (TS ≤108/125), Scram setpoint is 117/125 (TS ≤120/125) Percent of scale on 125 basis increases by factor of 10 from odd to even range (New)

.....

QUESTION: 11 POINT VALUE: **1.00** RECORD: **637**
LESSON 1: **LOI-CLS-LP-009-D** Objective(s): 03**a**

Unit Two (2) is starting up following refueling. Power is currently 40% and is being raised per GP-04. How will the plant respond to a downscale failure of APRM Flow Unit A?

a. Alarm only.

b. Rod Out Block only.

c. Rod Out Block and a 1/2 Scram.

d. Rod Out Block and a Full Reactor Scram.

ANSWER: 11

b. (Modified from Record ID 4619)

with power at 40% the rod block/scram from flow biased trip units would not be exceeded, a rod block would be received from the comparator.

.....

QUESTION: 12 POINT VALUE: **1.00** RECORD: **633**
LESSON 1: **LOI-CLS-LP-010-A** Objective(s): **04**

Standby Gas Treatment (SBGT) System controls are aligned as follows:

Train A in PREF A
Train B in STBY

Due to a reactor scram, RPV level lowers to +123 inches. Containment parameters and radiation levels are normal. How will SBGT Train A and B respond?

a. SGBT Train A only will start.

b. SBGT Train B only will start.

c. Both SBGT Train A and B will start.

d. Both SBGT Trains A and B remain off.

ANSWER: 12

d. (new question)

QUESTION: 13 POINT VALUE: **1.00** RECORD: **787**
LESSON 1: **LOI-CLS-LP-011-B** Objective(s): **05a**

Following a LOCA, the Containment Hydrogen/Oxygen monitors have been placed in service using CAM overrides.

After placing the monitors in service, the following alarms and indications occur:

Reactor Building Vent Rad Hi alarm sealed in
Reactor Building Vent Rad Hi Hi alarm sealed in
Reactor Building Vent Radiation recorder channel A pegged high
Reactor Building Vent Radiation recorder channel B 0.5 mr/hr

How does this failure affect Hydrogen/Oxygen (H2/O2) monitor isolation valves?

a. Division I and II H2/O2 monitors remain in service.

b. Division I H2/O2 monitor isolates, but can be placed back in service.

c. Division I H2/O2 monitor isolates, and cannot be placed back in service.

d. Division I and II H2/O2 monitors isolate, but can be placed in service.

ANSWER: 13

a. The failure would normally isolate both divisions, but override is available. Since the CAM overrides are hard overrides vs. the soft CAC overrides the monitors remain in service. (New)

.....

QUESTION: 14 POINT VALUE: **1.00** RECORD: **634**
LESSON 1: **LOI-CLS-LP-012-A** Objective(s): **10**

During accident conditions on Unit One (1) the core has become uncovered. Plant conditions are now:

Reactor Water Level	+80"
Reactor Pressure	20 psig
MSL RADIATION HI-HI	Alarm sealed in
Condenser Vacuum	0" Hg

E&RC has requested the the Recirculation Sample valves 1-B32-F019 and 1-B32-F020 be opened for Post accident sampling. What operator action is required before the isolation for the sample valves can be reset?

a. Place the CAM Override Switches to OVERRIDE.

b. Raise RPV level above the isolation setpoint.

c. Reset the Main Steam Line Radiation Monitor NUMACS.

d. Place Low Condenser Vacuum Bypass Switches to BYPASS.

ANSWER: 14

d. (new question)

Plant mod 92-146 installed during 1995 Unit 1 outage deleted MSL Rad Hi-Hi isolation from Group 1 and added low condenser vacuum for sample valves. the level setpoit for isolation is +45".

QUESTION: 15 POINT VALUE: **1.00** RECORD: **790**
LESSON 1: **LOI-CLS-LP-013-A** Objective(s): **16b**

The Supplemental Spent Fuel Pool Cooling System (SSFPCS) is operating as follows:

1 primary pump (P-74A) and both heat exchangers in service
1 secondary pump (P-82A) and both cooling towers in service

The secondary pump trips due to a motor overload. How does the SSFPC System respond?

a. The primary pump trips on high primary loop temperature.

b. The primary pump trips on low secondary to primary loop d/p.

c. The standby secondary pump auto starts on low secondary loop flow.

d. The standby secondary pump auto starts on low secondary loop pressure.

ANSWER: 15

b. Recently added new plant system (Modified Exam Bank ID #5234)

.....

QUESTION: 16 POINT VALUE: **1.00** RECORD: **646**
LESSON 1: **LOI-CLS-LP-016-A** Objective(s): **12b,c**

The RCIC system is being used to restore reactor water level following a reactor scram and MSIV closure. The following indications are observed:

E51-F045, Turbine Steam Supply Valve, CLOSED
E51-F013, RCIC Injection Valve, CLOSED
RCIC Turbine Speed is ZERO

Which of the following caused the indications identified above?

a. Reactor water level was HIGH.

b. RCIC pump suction pressure was LOW.

c. RCIC steam line differential pressure was LOW.

d. RCIC steam leak detection temperature was HIGH.

ANSWER: 16

a. (new question)

b - incorrect, trip signal causes V8 and F013 to close and F019 to open.
c - incorrect, isolation signal causes F007, F008, V8, F013, F019, and F031 to close.
d - incorrect, this is an isolation signal also.

.....

QUESTION: 17 POINT VALUE: **1.00** RECORD: **627**
LESSON 1: **LOI-CLS-LP-016-A** Objective(s): **14,17c**

During performance of RCIC testing on Unit One (1), the RCIC Flow Controller is in MANUAL, with a manual output signal of zero.

A loss of reactor feedwater results in RPV level dropping to the RCIC initiation setpoint.

The RCIC Flow Controller will:

a. remain in MANUAL and raise demand to maximum with no operator action.

b. transfer to AUTO and raise demand to rated flow with no operator action.

c. remain in MANUAL and raise demand to maximum, provided the Programmable Function key is depressed.

d. transfer to AUTO and raise demand to rated flow, provided the Programmable Function key is depressed.

ANSWER: 17

d. PM 92-079 installed during 1995 unit 1 outage replaced RCIC GEMAC controllers. Modified from exam bank Rec ID 5315. Question outside sample plan to test recent p'ant modification

QUESTION: 18 POINT VALUE: **1.00** RECORD: **641**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **06j,k**

Given the following plant conditions:

Reactor Water Level	100 inches
Reactor Pressure	610 psig
Drywell Pressure	8.9 psig
Supp Chamber Pressure	8.5 psig
Supp Pool Water Temperature	97°F

Regarding the CONTAINMENT COOLING/SPRAY VALVE CONTROL switch (Think switch) and the 2/3 CORE HEIGHT LPCI INITIATION OVERRIDE switch, which control(s) must be operated to place the "A" loop of RHR into **Suppression Pool Cooling**?

a. Neither the CONTAINMENT COOLING/SPRAY VALVE CONTROL switch nor the 2/3 CORE HEIGHT LPCI INITIATION OVERRIDE switch need to be positioned.

b. Both the CONTAINMENT COOLING/SPRAY VALVE CONTROL switch and the 2/3 CORE HEIGHT LPCI INITIATION OVERRIDE switch need to be positioned.

c. Only the CONTAINMENT COOLING/SPRAY VALVE CONTROL switch needs to be positioned.

d. Only the the 2/3 CORE HEIGHT LPCI INITIATION OVERRIDE switch needs to be positioned.

ANSWER: 18

a. (New question created)
Since no LOCA signal, no overrides required

.....

QUESTION: 19 POINT VALUE: **1.00** RECORD: **761**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **07**

Unit One (1) is operating at 100% power. Both Loops of RHR are in the Standby alignment. A Loss Of Coolant Accident occurs.

The Division I ECCS Trip Cabinet experiences a fault and all trip functions from the cabinet are lost. Plant conditions are:

Reactor Level	Below Top Of Active Fuel
Reactcr Pressure	385 psig
Drywell Pressure	20 psig

How will the Low Pressure Coolant Injection (LPCI) System respond?

a. LPCI Loop A and B pumps are running with the injection valves open.

b. LPCI Loop A and B pumps are running with the injection valves closed.

c. LPCI Loop B pumps only are running with the injection valves open.

d. LPCI Loop B pumps only are running with the injection valves closed.

ANSWER: 19

a (Div I LPCI will not initiate, but the pumps will start and injection valves will open from the Div II logic. Pressure is below the injection valve permissive) (New)

.....

QUESTION: 20 POINT VALUE: **1.00** RECORD: **780**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **09**

During a Loss Of Coolant Accident, RHR Loop A has been placed in the Drywell and Suppression Chamber Spray by placing the 2/3 CORE HEIGHT LPCI INITIATION switch to MANUAL OVERRD and the CONTAINMENT SPRAY VALVE CONTROL (Think) switch to MANUAL. Current plant conditions are:

Reactor Water Level	+80 inches, dropping
Reactor Pressure	350 psig, dropping
Drywell pressure	10 psig, dropping
Supp Chamber Pressure	11 psig, dropping

When will the Spray Valves close?

a. RPV Level drops below Low level 3.

b. RPV level drops below -53 inches.

c. Drywell pressure drops below 2.7 psig.

d. Suppression Chamber pressure drops below 2.7 psig.

ANSWER: 20

c. 45" will not close valves because LPCI signal already sealed in.
-53 inches will not close because 2/3 core height is overriden
torus pressure does not input into logic
2.7 psig will de-energize containment spray logic, valves close on LPCI signal (From exam bank #688 modified)

.....

QUESTION: 21 POINT VALUE: **1.00** RECORD: **124**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **14**

The plant is in OPERATIONAL CONDITION 3 at 100 psig with RHR Loop B in Shutdown Cooling. A small steam leak in the drywell results in drywell pressure rising above 2.0 psig. How will the RHR Loop in shutdown cooling respond?

a. The shutdown cooling suction line only will isolate and the running RHR pump will trip.

b. The shutdown cooling suction and return lines will isolate and the running RHR pump will trip.

c. Shutdown cooling does not isolate but Heat Exchanger cooling water flow is lost.

d. Shutdown cooling does not isolate and continues to provide decay heat removal.

ANSWER: 21

c. No SDC isolation signal is generated by high drywell pressure, but since pressure is low a LPCI signal will trip the running RHR SW pump (would also start the standby RHR pump and fully open the F048B) (From Rec ID 4682, never used, deleted from Exam Bank)

.....

QUESTION: 22 POINT VALUE: **1.00** RECORD: **630**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **18b**

During normal full power operation of Unit One (1), a loss of Diesel Building DC distribution panel 1A occurs. Prior to any manual control power transfers, a Loss Of Coolant Accident results in the following plant conditions:

RPV Level	Below TAF
RPV Pressure	100 psig
Drywell Pressure	21 psig
Off-Site power	Available

How will the performance of RHR Loop 1A in the LPCI Mode be affected by the partial loss of DC power?

a. RHR Pumps 1A and 1C will both fail to auto start.

b. RHR Pump 1A only will auto start and inject to the RPV.

c. RHR Pump 1C only will auto start and inject to the RPV.

d. RHR Pumps 1A and 1C will both auto start and inject to the RPV.

ANSWER: 22

b. (new question)

DC panel 1A does not affect LPCI logic, but supplies normal control power to bus E1, which powers RHR pump 1C

.....

QUESTION: 23 POINT VALUE: **1.00** RECORD: **631**
LESSON 1: **LOI-CLS-LP-018-A** Objective(s): **11**

Following a LOCA, Emergency Depressurization was performed at TAF. The following plant conditions now exist:

RPV Water Level	+200 inches, rising
RPV Pressure	50 psig, dropping
Drywell Pressure	20 psig, steady
Core Spray A Flow	5500 gpm

The operator holds the Outboard Injection Valve (E21-F004A) and the Inboard Injection Valve (E21-F005A) control switches in CLOSE. How will the injection valves respond?

a. E21-F004A only will close.

b. E21-F005A only will close.

c. E21-F004A and E21-F005A will close.

d. E21-F004A and E21-F005A will remain open.

ANSWER: 23

b. (new question)

Only F005 has override capability

.....

QUESTION: 24 POINT VALUE: **1.00** RECORD: **126**
LESSON 1: **LOI-CLS-LP-019-A** Objective(s): **03f**

During a LOCA, HPCI automatically initiated, then tripped. The operator notes the following indications:

Turbine Stop Valve	Closed
HPCI Turbine RPM	Zero
HPCI TURB TRIPPED	Alarm Sealed In
HPCI TURB TRIP SOLENOID ENERG	Has **NOT** alarmed

What caused the HPCI turbine to trip?

a. loss of oil pressure.

b. high exhaust pressure.

c. high reactor water level.

d. low steam supply pressure.

ANSWER: 24

a. (question created for 1994 audit exam but never used. Question does not exist in general access bank)

.....

QUESTION: 25 POINT VALUE: **1.00** RECORD: **644**
LESSON 1: **LOI-CLS-LP-019-A** Objective(s): **03n,10**

Following a small break LOCA, HPCI is being used to control reactor water level. Conditions are:

Reactor Water Level	185 inches
Reactor Pressure	950 psig
Drywell Pressure	4.2 psig

Which of the following describes the HPCI system response if the Control Operator depresses the MANUAL ISOLATION pushbutton on P601.

a. HPCI will continue to inject.

b. Only the inboard isolation valves close.

c. Only the outboard isolation valves close.

d. Both the inboard and outboard isolation valves close.

ANSWER: 25

c. (new question created)

The manual isolation only initiates a logic A isolation and is only in effect when below LL2 (112") or above the drywell high pressure setpoint (2.5 psig).

a - incorrect, logic A isolation will occur.
b - incorrect, these valves close on logic B isolation.
d - incorrect, only the outboard isolation valves (logic A) will close.

QUESTION: 26 POINT VALUE: **1.00** RECORD: **635**
LESSON 1: **LOI-CLS-LP-020-A** Objective(s): **11,15c**

Unit Two (2) has experienced a Loss Of Off-Site Power concurrent with a LOCA. Unit One (1) is operating at 100% power. Unit Two (2) plant conditions are:

RPV Level	+150 inches, lowering rapidly
RPV Pressure	950 psig
Diesel #3	Running, tied to E3
Diesel #4	Tripped, E4 de-energized
Core Spray 2A	Under Clearance

Predict the response of the Automatic Depressurization System if no operator action is taken?

a. ADS will auto initiate 105 seconds after LL1.

b. ADS will auto initiate 105 seconds after LL3.

c. ADS will NOT auto initiate due inadaquate ECCS Pumps.

d. ADS will NOT auto initiate due to loss of AC control power.

ANSWER: 26

b. (Modified from Record ID 2174)

.....

QUESTION: 27 POINT VALUE: **1.00** RECORD: **764**
LESSON 1: **LOI-CLS-LP-020-A** Objective(s): **15d**

Following a Group 1 isolation and reactor scram, all SRVs initially lifted to control reactor pressure, and have reclosed. The operator places the Control Switch for SRV B21-F013F to OPEN for pressure control, and notes the following:

SRV F Red Indicating Lamp	OUT
SRV F Green Indicating Lamp	OUT
SRV F Amber Memory Lamp	LIT
ADS Control Power Failure alarm	Sealed In

SRV F can be opened by high reactor pressure:

a. only.

b. or Remote Shutdown Panel control.

c. or RTGB control, but will not indicate open.

d. or initiation of ADS logic.

ANSWER: 27

a. b is incorrect as SRV F does not have RSP control (could be correct for SRVs B,E,G)
c is incorrect but would be true for reverse lamp indication.
d is incorrect, SRV F has no ADS function.
(New)

.....

QUESTION: 28 POINT VALUE: **1.00** RECORD: **781**
LESSON 1: **LOI-CLS-LP-025-A** Objective(s): **06b**

Unit One (1) is at 5% power during plant startup. The Reactor Mode Switch is in START/HOT STBY. Reactor pressure is 820 psig. Which of the following would result in a closure of MSIVs and full reactor scram?

a. All Turbine Bypass Valves fail open.

b. Reactor Level rises above +208 inches.

c. Main Steam Line Radiation Hi-Hi alarms.

d. The Reactor Mode Switch is placed to RUN.

ANSWER: 28

d. a is correct for unit 2, or for unit 1 if mode switch in RUN. b would trip RFP and likely scram on low level, but not close MSIVs. c is correct for unit 2, but not unit 1 due to recent plant mod. d would cause MSIV closure on low steam pressure and direct scram due to MSIV closure with mode switch in RUN. (New)

.....

QUESTION: 29 POINT VALUE: **1.00** RECORD: **782**
LESSON 1: **LOI-CLS-LP-026-A** Objective(s): **11a**

Unit One (1) is starting up following refueling. Turbine roll is in progress, and turbine speed is 1000 RPM. The turbine will trip if:

a. Both stator coolant pumps are lost.

b. Bearing #9 vibration rises to 12 mils.

c. Main shaft oil pump discharge pressure is 100 psig.

d. LP rotor 12th stage temperature is below 120°F for 10 minutes.

ANSWER: 29

b. a would cause a runback, but not during turbine roll c will trip turbine if above 1440 rpm, d incorrect due to EDP 94-011 (recent plant mod - is correct for unit 2) (From exam bank #5316)

.....

QUESTION: 30 POINT VALUE: **1.00** RECORD: **701**
LESSON 1: **LOI-CLS-LP-026-D** Objective(s): **10e**

Unit Two (2) is operating at 28% power with the main turbine in service. A lowering condenser vacuum occurs. What automatic actions should occur if main condenser vacuum lowers to 8"hg?

a. A turbine trip causing a reactor scram, MSIVs close, MSL drains close, bypass valves close.

b. A turbine trip causing a reactor scram, MSIVs close, MSL drains close, reactor water sample valves close.

c. A turbine trip, MSIVs close causing a reactor scram, MSL drains close, reactor water sample valves close.

d. A turbine trip, MSIVs close causing a reactor scram, MSL drains close.

ANSWER: 30

d. (new question)

a - incorrect, turbine trip will <u>not</u> cause a reactor scram below 30% power and the bypass valves will <u>not</u> close.
b - incorrect, turbine trip will <u>not</u> cause a reactor scram below 30% power and reactor water sample valves only close on UNIT 1.
c - reactor water sample valves only close on UNIT 1.

.....

QUESTION: 31 POINT VALUE: **1.00** RECORD: **765**
LESSON 1: **LOI-CLS-LP-032-A** Objective(s): **05c**

Unit One (1) is operating at 60% power with the following Feedwater System configuration:

Reactor Feed Pump 1B operating
Reactor Feed Pump 1A under clearance
Level Instrument N004A selected for Feedwater Level Control

Which of the following would cause a trip of the 1B Reactor Feed Pump Turbine?

a. Power is lost to the trip solenoid.

b. Level instrument N004A fails downscale.

c. The operating AC powered lube oil pump trips.

d. Thrust bearing wear sensed in the Inactive direction.

ANSWER: 31

d. The oil system was replaced during recent Unit 1 outage to provide standby AC pump. Failure of the selected level instrument would auto select the other instrument. trip solenoid energize to trip.
(New)

QUESTION: 32 POINT VALUE: **1.00** RECORD: **640**
LESSON 1: **LOI-CLS-LP-032-C** Objective(s): **07c**

The unit is at 100% power with the Digital Feedwater Control System in three-element control and the N004A level instrument selected.

Which of the following describes the Digital Feedwater Control System response if the reference level instrument, N004C, fails DOWNSCALE?

a. The system will continue to use the N004A level instrument and will remain in three-element control.

b. The system will transfer to the N004B level instrument and will remain in three-element control.

c. The system will continue to use the N004A level instrument and will transfer to single-element control.

d. The system will transfer to the N004B level instrument and will transfer to single-element control.

ANSWER: 32

a. (new question)

b - incorrect, the selected instrument will <u>not</u> transfer
c - incorrect, the system will <u>not</u> change to single-element control
d - incorrect, the selected instrument will <u>not</u> transfer and the system will <u>not</u> change to single-element control

.....

QUESTION: 33 POINT VALUE: **1.00** RECORD: **638**
LESSON 1: **LOI-CLS-LP-037-A** Objective(s): **04a,04b,07d**

The Control Room Ventilation system is operating in the CONTINUOUS RECIRCULATION mode (normal operating alignment).

Which of the following describes how a single high radiation signal detected at the control building intake plenum affects the operating mode of the system?

a. The system will remain in the CONTINUOUS RECIRCULATION mode until a second high radiation signal is received.

b. All outside penetrations will isolate and the system will operate in a NON FILTERED RECIRCULATION mode.

c. The normal makeup and exhaust paths will isolate and the system will operate in a FILTERED RECIRCULATION mode.

d. Only the exhaust path will isolate and the system will operate in a PURGED RECIRCULATION mode.

ANSWER: 33

c.

new question

a - incorrect, any single radiation level high will change the mode
b - incorrect, this will occur if high chlorine is sensed
d - incorrect, this mode will not occur automatically and is not allowed to be manually lined up per procedure.

.....

QUESTION: 34 POINT VALUE: **1.00** RECORD: **791**
LESSON 1: **LOI-CLS-LP-037-B** Objective(s): **04**

A Loss of Off-Site Power has occured. Secondary Containment isolated. Reactor Building Ventilation was restarted using circuit alterations per SEP-04. Plant conditions are:

Reactor Water Level is +120 inches, slowly rising
Drywell Pressure is 1.2 psig, slowly rising
CAC Vent Purge Isol Ovrd (CAC-CS-5519) is in OVERRIDE

Which of the following would cause the Reactor Building to re-isolate with the circuit alterations installed?

a. Drywell pressure rises above 2.0 psig.

b. Reactor level drops to the Top Of Active Fuel.

c. Reactor Building Vent Exhaust temperature exceeds 140°F.

d. Main Stack Radiation Monitor exceeds the Hi-Hi setpoint.

ANSWER: 34

c. SEP-04 provides guidance for jumpers for low level and high drywell pressure. CAC-CS-5519 overrides main stack rad trips. (New)

.....

QUESTION: 35 POINT VALUE: **1.00** RECORD: **600**
LESSON 1: **LOI-CLS-LP-039-A** Objective(s): **10b,10f**

Following a Loss Of Off-Site Power to Unit Two (2), Diesel Generator (DG) #3 is running loaded, tied to E3.

480 VAC MCC DGC trips due to an overcurrent fault. How is operation of DG #3 affected?

a. The engine will immediately trip due to loss of 120 VAC control power to the governor.

b. The engine will immediately trip due to loss of lube oil pumps and low lube oil pressure.

c. The engine will run for a period of time then trip on high jacket water temperature.

d. The engine will run for a period of time then trip when available fuel or air is depleted.

ANSWER: 35

d. new question

a. governor powered from generator output
b. shaft driven LO pump backs up AC pump
c. jacket watr temp trip bypassed by auto start

QUESTION: 36 POINT VALUE: **1.00** RECORD: **784**
LESSON 1: **LOI-CLS-LP-050-B** Objective(s): **13b**

Unit One (1) has lost Off-Site Power. Diesel Generator (DG) #1 has received an auto start signal. The following alarms and indications are observed:

Bus E1 Undervoltage alarm sealed in
DG-1 Running alarm sealed in
DG #1 No Load lamp on RTGB control module is lit
DG #1 output breaker green lamp lit

What could be the cause of the above indications?

a. Bus E1 Slave Breaker overcurrent relays are tripped.

b. Conventional Service Water Pump 2C breaker is closed.

c. DG #1 failed to reach rated generator output voltage.

d. The 4KV feeder breaker to 480 V Substation E5 is closed.

ANSWER: 36

b. Overcurrent on normal incoming does not prevent DG breaker closure even if bus has fault. DG is at rated voltage as evidenced by DG running alarm and No Load lamp. Bus must be stripped of all 4KV loads except for E5 for breaker to close (CSW 2C powered from E1)
(Modified from exam bank #4703)

QUESTION: 37 POINT VALUE: **1.00** RECORD: **786**
LESSON 1: **LOI-CLS-LP-051-A** Objective(s): **07d**

A loss of feedwater causes an automatic initiation of RCIC. While monitoring RCIC operation, the operator notes the following alarm:

RCIC LOGIC BUS A PWR FAILURE alarm sealed in

How will the RCIC system respond?

a. RCIC continues to inject to the RPV and automatic shutdown on high RPV water level is lost.

b. RCIC will oscillate at low speed due to power loss to the inverter and flow controller.

c. RCIC governor valve fails full open due to EGM box power loss and RCIC trips on overspeed.

d. RCIC inboard Group 5 and 9 isolation valves close due to power loss to the inboard isolation logic.

ANSWER: 37

a. logic A powers 1/2 signal needed for hi lvl shutdown, b inverter is fed from B, c EGM is fed from B, d logic is energize to isolate (modified from Exam Bank ID 3515)

.....

QUESTION: 38 POINT VALUE: **1.00** RECORD: **785**
LESSON 1: **LOI-CLS-LP-052-B** Objective(s): **08c,08e,08f**

During full power operation of Unit Two (2), the following indications are noted:

Rod Full In/Full Out lamps on full core display all out
Digital Feedwater Control System controllers are blank
Group 6 isolates, Secondary Containment isolates, SBGT is running

How will the plant respond to this event?

a. Reactor Feed Pumps will run back to minimum speed causing a low level scram.

b. Steam Jet Air Ejectors will trip and the turbine will trip on low condenser vacuum.

c. Secondary containment temperatures cannot be controlled due to inability to restore ventilation.

d. Nuclear instrumentation recorders on P603 will NOT show any changes in reactor power.

ANSWER: 38

d. a is true for analog feed control but not for digital, b recent plant deleted SJAE low pressure trip, c vent can be restored by transfer of power supply to main stack rad monitor, NI recorders on P603 powered from UPS and fail as is. (New)

.....

QUESTION: 39 POINT VALUE: **1.00** RECORD: **869**
LESSON 1. **LOI-CLS-LP-102-A** Objective(s): **01**

The 10 CFR 20 annual limit to the lens of the eye is an eye dose equivalent of:

a. 1.5 rems.

b. 5.0 rems.

c. 15 rems.

d. 50 rems.

ANSWER: 39

c. (From Exam Bank 4777 - never used, deleted from bank)

.....

QUESTION: 40 POINT VALUE: **1.00** RECORD: **632**
LESSON 1: **LOI-CLS-LP-118-A** Objective(s): **05k**

Refer to the Attached P&ID D-02520

The reactor vessel reference leg associated with condensing pot B21-D004B has a constant backfill from the CRD system in service at a flowrate of 0.008 gpm from IV-2735.

The instrument line excess flow check (B21-F048B) fails closed. How will Level Instrument B21-LT-N017C-1, and Pressure Instrument B21-PT-N045C respond?

a. B21-LT-N017C-1 fails low, B21-PT-N045C fails high.

b. B21-LT-N017C-1 fails high, B21-PT-N045C fails low.

c. B21-LT-N017C-1 fails low, B21-PT-N045C fails low.

d. B21-LT-N017C-1 fails high, B21-PT-N045C fails high.

ANSWER: 40

a. (modified from Rec ID 4713)

QUESTION: 41 POINT VALUE: **1.00** RECORD: **843**
LESSON 1: **LOI-CLS-LP-200-A** Objective(s): **07**

You are escorting a visitor on a plant tour. Which one of the following is the correct method for accessing the Reactor Building 20' elevation?

a. the escort uses the card reader and the visitor and escort must pass through the turnstile together.

b. the visitor uses the card reader and waits, the escort uses the card reader and both pass through the turnstile together.

c. the visitor uses the card reader and waits, the escort uses the card reader, then both enter through the material access door.

d. the escort uses the card reader, then the visitor and escort enter through the material access door.

ANSWER: 41

d New

QUESTION: 42 POINT VALUE: **1.00** RECORD: **773**
LESSON 1: **LOI-CLS-LP-200-B** Objective(s): **02b**

Unit 2 is in a refueling outage with the vessel head removed. There is fuel in the vessel, however, all fuel assemblies around control rod 30-15 have been moved to the fuel pool.

Regarding the movement of control rod 30-15:

a. movement of the rod by normal CRD **is not** considered a CORE ALTERATION, but movement of the rod by any other means **is** considered a CORE ALTERATION.

b. movement of the rod by normal CRD **is** considered a CORE ALTERATION, but movement of the rod by any other means **is not** considered a CORE ALTERATION.

c. movement of the rod by any means **is not** considered a CORE ALTERATION.

d. movement of the rod by any means **is** considered a CORE ALTERATION.

ANSWER: 42

b. new

QUESTION: 43 POINT VALUE: **1.00** RECORD: **819**
LESSON 1: **LOI-CLS-LP-200-B** Objective(s): **05**

Unit 1 and 2 are both operating at 100% power. Diesel Generator #2 is under clearance.

The supply breaker on Substation E5 to MCC 2XA-2 Trips due on fault.

What actions are required by Technical Specifications?

a. Units 1 AND 2 must be in HOT SHUTDOWN within the next 6 hours, and COLD SHUTDOWN within the following 30 hours.

b. Unit 1 must be in HOT SHUTDOWN within the next 6 hours, and COLD SHUTDOWN within the following 30 hours. Unit 2 is in a LCO Action statement under Electrical Power Systems Specifications.

c. Unit 2 must be in HOT SHUTDOWN within the next 6 hours, and COLD SHUTDOWN within the following 30 hours. Unit 1 is in a LCO Action statement under Electrical Power Systems Specifications.

d. Units 1 AND 2 may continue POWER OPERATIONS provided the LCO Action statements are satisfied for the individual Units' Electrical Power and ECCS Systems Specifications.

ANSWER: 43

c. (New)

QUESTION: 44 POINT VALUE: **1.00** RECORD: **768**
LESSON 1: **LOI-CLS-LP-200-B** Objective(s): **06**

A turbine trip without Bypass has occurred on Unit Two (2). During the transient, RPV pressure crests at 1350 psig as all SRVs cycle. Level drops to 140 inches before HPCI is manually initiated. All rods fully insert.

What actions are required by Technical Specifications within the next twelve hours?

a. Be in HOT SHUTDOWN within two hours. Notify the NRC within 1 hour.

b. Be in HOT SHUTDOWN within six hours. Notify the NRC within 1 hour.

c. Be in HOT SHUTDOWN within two hours. Notify the NRC within 4 hour.

d. Be in HOT SHUTDOWN within six hours. Notify the NRC within 4 hour.

ANSWER: 44

a. Safety Limit violation 6.7 (new).

.....

QUESTION: 45 POINT VALUE: **1.00** RECORD: **875**
LESSON 1: **LOI-CLS-LP-200-B** Objective(s): **06i**

Which one of the following sets of conditions meets the requirements for OPERABILITY of the Standby Liquid Control System?

	TANK LEVEL	SOLUTION CONCENTRATION	SOLUTION TEMPERATURE
a.	3150 gal	14.1%	60°F
b.	3500 gal	12.5%	80°F
c.	3050 gal	14.5%	75°F
d.	3850 gal	17.2%	70°F

ANSWER: 45

c. From exam bank 3569 unmodified (correct answer changed from a to c)

.....

QUESTION: 46 POINT VALUE: **1.00** RECORD: **848**
LESSON 1: **LOI-CLS-LP-201-C** Objective(s): **05a**

Which of the following conditions would warrant a temporary procedure change being initiated?

a. relocation of a QC hold point within the procedure

b. procedure written for different plant conditions

c. addition of a caution to the procedure

d. typographical error on the valve name in a procedure

ANSWER: 46

b. new

.....

QUESTION: 47 POINT VALUE: **1.00** RECORD: **864**
LESSON 1: **LOI-CLS-LP-201-C** Objective(s): **07d**

A departure from an established procedure is performed to protect equipment important to reactor safety and that is in immediate jeopardy of severe damage.

Per AP-10, who at a MINIMUM, must approve this departure?

a. Shift Supervisor only.

b. any two SRO licensed personnel.

c. the Plant Manager and a second technically qualified member of plant staff.

d. Shift Supervisor and a second technically qualified member of plant staff.

ANSWER: 47

a. new

.....

QUESTION: 48 POINT VALUE: **1.00** RECORD: **863**
LESSON 1: **LOI-CLS-LP-201-C** Objective(s): **11b**

For which of the following situations would it be appropriate to waive the independent verification requirements of PLP-21?

a. When performing boundary change request after the initial clearance has been hung.

b. When entry into an airborne areas would require respiratory protection equipment to complete independent verification.

c. When manipulated equipment have required positions controlled by valve and equipment lineup sheets and current plant conditions do not require the system to be operable.

d. When the equipment is located in a normally inaccessable location and the only method of independent verification would be by remote position indication lights on the RTGB.

ANSWER: 48

c. New

.....

QUESTION: 49 POINT VALUE: **1.00** RECORD: **873**
LESSON 1: **LOI-CLS-LP-201-D** Objective(s): **01e**

The Unit is operating at 100% power. I&C has requested permission to perform a MST on high reactor pressure RPS trip units. The MST will result in 1/2 scram signals being received.

Per the guidance of OI-01, when should the MST **NOT** be performed?

a. HPCI or RCIC are INOPERABLE.

b. A Reactor Protection System Bus is powered from the alternate power supply.

c. Failure of the MST would place the Unit in an immediate Technical Specification shutdown statement.

d. Workers assigned to perform the MST have exceeded the 72 hour work week limit under administrative controls.

ANSWER: 49

a. from exam bank #4583 - modified

.....

QUESTION: 50 POINT VALUE: **1.00** RECORD: **877**
LESSON 1: **LOI-CLS-LP-201-D** Objective(s): **01f**

A Reactor Operator and Auxiliary Operator are performing an evolution that requires sequential actions to be performed in the Control Room and in a contaminated area within the Reactor Building. Most of the actions will be performed by the Auxiliary Operator.

How is the master copy of the procedure controlled and how is step execution and completion documented as the evolution is performed?

a. The Reactor Operator maintains the master copy and initials for all procedure steps on the master copy as they are completed.

b. The Auxiliary Operator maintains the master copy and initials for all procedure steps on the master copy as they are completed.

c. The Reactor Operator and the Auxiliary Operator each have a field copy and transfer their initials to the master copy after the evolution is completed.

d. The Reactor Operator initials the steps he performs on the master copy and the Auxiliary Operator transfers his/her initials to the master copy from a field copy.

ANSWER: 50

d. (question from exam bank - record #3573)

.....

QUESTION: 51 POINT VALUE: **1.00** RECORD: **853**
LESSON 1: **LOI-CLS-LP-201-D** Objective(s): **13**

Decay Heat Removal, a Key Safety Function with regards to outage risk management, is defined as:

a. the ability to maintain the reactor in mode 4 or 5.

b. the ability to maintain fuel pool temperature less than 212°F.

c. the ability to maintain the reactor and fuel pool temperatures less than 212°F.

d. the ability to maintain reactor temperature within the Tech Spec Pressure-Temperature limits, and fuel pool temperature less than 150°F.

ANSWER: 51

d. (New)

QUESTION: 52 POINT VALUE: **1.00** RECORD: **861**
LESSON 1: **LOI-CLS-LP-201-D** Objective(s): **27b**

A Unit 2 reactor startup is in progress, with reactor power 20%. The Main Generator has not been synchronized to the grid.

Whose permission is required for Drywell entry, and what reactor power restrictions apply?

a. The General Manager; power level will not be raised with the Drywell occupied.

b. The Manager - Operations; power level will not be raised with the Drywell occupied.

c. The Plant Operations Director; power level will not be raised above 25% with the Drywell occupied.

d. The Manager - E&RC; power level will not be raised above 25% with the Drywell occupied without approval of the General Manager.

ANSWER: 52

a. (new)

QUESTION: 53 POINT VALUE: **1.00** RECORD: **757**
LESSON 1: **LOI-CLS-LP-201-E** Objective(s): **10a**

A pneumatic valve that is equipped with a manual operator will be used as an isolation point for a clearance. The valve fails in the closed position.

Which of the following describes the conditions that must be satisfied to use this valve as a clearance boundary isolation once the valve is closed?

a. Only its' handwheel is tagged.

b. Only its' air supply is isolated and tagged.

c. Its' air supply is isolated and tagged and the handwheel is tagged.

d. The valve operator must be removed and an approved clamping device installed and tagged.

ANSWER: 53

c. (new question)

per AI-58:

a. Not true because both need to be tagged.

b. True if a pneumatically-operated valve without a handwheel that fails closed.

d. True if the operator is removed, however, this is not required to be done.

QUESTION: 54 POINT VALUE: **1.00** RECORD: **850**
LESSON 1: **LOI-CLS-LP-201-F** Objective(s): **02,10**

What is the purpose in performing an OG-6.1, Radioactive Gaseous Release Control?

a. To assess compliance with EPA-400 guidelines, and 40CFR190 requirements.

b. To assess compliance with 10CFR20 and Tech Spec Noble Gas release rate limits.

c. To assess compliance with the whole body (TEDE) dose rate of 2 mRem/hr to members of the General Public at, or beyond, the Site Boundary.

d. To assess compliance with the whole body (TEDE) and Thyroid (CDE) dose limits to members of the General Public at, or beyond, the Site Boundary.

ANSWER: 54

b. New

QUESTION: 55 POINT VALUE: **1.00** RECORD: **769**
LESSON 1: **LOI-CLS-LP-201-F** Objective(s): **05**

Following evacuation of the atmosphere within a confined space, the stable atmosphere sample concentrations are as follow:

oxygen concentration	18.5%
flammable gas	0
combustible airborne dust	0
contaminant concentrations	0

The confined space entry:

a. can be approved. The oxygen concentration is within the prescribed range for all confined space entries.

b. can be approved. Even though the oxygen concentration is <u>not</u> within the prescribed range for the presence of flammables, it is allowable with these concentrations at zero.

c. can NOT be approved. The oxygen concentration must be lowered at least 1% to be within the allowable range.

d. can NOT be approved. The oxygen concentration must be raised at least 1% to be within the allowable range.

ANSWER: 55

d. (new question)

Per AI-66 Oxygen concentration must be within 19.5% to 23.5% to approve the confined space permit.

QUESTION: 56 POINT VALUE: **1.00** RECORD: **806**
LESSON 1: **LOI-CLS-LP-300-A** Objective(s): **04**

Following initiation of a manual reactor scram due to a Total Loss of RBCCW, 29 Control Rods failed to fully insert. Plant Conditions are:

APRMs are downscale
IRMs are on range 2, lowering
SRM Period indication -80 seconds
Rods are being inserted with RMCS per LEP-02
Actions being taken in accordance with EOP-01-RSP

Due to the loss of RBCCW, drywell pressure rises above 2.0 psig. The operating crew should enter the:

a. Level Power Control procedure and excecute concurrently with the Reactor Scram Procedure.

b. Reactor Vessel Control Procedure and excecute concurrently with the Reactor Scram Procedure.

c. Level Power Control procedure and exit the Reactor Scram Procedure.

d. Reactor Vessel Control Procedure and exit the Reactor Scram Procedure.

ANSWER: 56

c. (new)

QUESTION: 57 POINT VALUE: **1.00** RECORD: **794**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **11**

A heavy influx of marsh grass on the Circulating Water Screens has caused a loss of all Circulating Water pumps and a reactor scram. Plant conditions are:

Group 1 isolated
Condenser vacuum is 0" Hg
Turbine speed is 500 rpm, dropping
EHC Electrical Malfunction in alarm due to loss of the PMG.

The marsh grass is now cleared and the Circulating Water System has been restarted. Is the Main Condenser available as a heat sink?

a. No, the MSIVs are closed.

b. No, the EHC system is not available.

c. No, the condenser is not under vacuum.

d. Yes, all required systems are available.

ANSWER: 57

d. (New)

QUESTION: 58 POINT VALUE: **1.00** RECORD: **876**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **13,14**
LESSON 2: **LOI-CLS-LP-201-D** Objective(s): **None Listed**

While executing EOP-01-RVCP, the Unit SRO directs circuit alterations to defeat the low pressure isolation on RCIC.

The SRO has determined that plant conditions are compatible with GP-05.

Which of the following describes the LCO applicability regarding the Technical Specifications for the RCIC low pressure isolation function?

a. The circuit alteration must be removed prior to exiting the EOPs.

b. Since the EOPs directed the circuit alteration, the EOPs may be exited and no LCO is required.

c. When the EOPs are exited, initiate a tracking LCO to remove the circuit alteration.

d. When the EOPs are exited initiate an active LCO until the circuit alteration is removed.

ANSWER: 58

d. modified from exam bank 5259

QUESTION: 59 POINT VALUE: **1.00** RECORD: **801**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **16**
LESSON 2: **LOI-CLS-LP-300-D** Objective(s): **08**

During a Station Blackout on Unit One (1), cross-tie of E Buses has been unsuccessful. Fuel Zone indicator N036 is the ONLY on scale Reactor Water Level instrument. Plant conditions are:

Reactor Water Level	-20 inches (N036)
Reactor Pressure	95 psig
Drywell Average Temp	295°F
Drywell Ref Leg Area Temp	320°F

Reactor Water Level is presently:

a. <u>below</u> the TAF, level indication will become inoperable if pressure drops by <u>25</u> psig.

b. <u>above</u> the TAF, level indication will become inoperable if pressure drops by <u>25</u> psig.

c. <u>below</u> the TAF, level indication will remain operable until pressure drops by <u>50</u> psig.

d. <u>above</u> the TAF, level indication will remain operable until pressure drops by <u>50</u> psig.

ANSWER: 59

a. (New)

QUESTION: 60 POINT VALUE: **1.00** RECORD: **799**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **21a**

During normal full power operation, Main Steam Isolation Valve B21-F028C disc becomes separated from the stem and rapidly shuts. During the transient the following indications are observed:

APRMs spike to 115% and within 1 second lower to 100%

Reactor Pressure spikes to 1050 psig and within 1 second lowers to 1000 psig

What Limiting Safety System Setting, if any, has been exceeded?

a. APRM neutron flux.

b. APRM flow biased thermal power.

c. reactor steam dome pressure.

d. no setpoint has been exceeded.

ANSWER: 60

c. (New)

QUESTION: 61 POINT VALUE: **1.00** RECORD: **808**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **21b**

Following a reactor scram and a group 1 isolation, SRVs are cycling on pressure to maintain RPV pressure 1050-1100 psig.

Which of the following conditions REQUIRES Seven ADS/SRVs to be opened for Emergency Depressurization?

a. Suppression Pool Level is -8' 3"
Suppression Pool Temperature is 105°F

b. Suppression Pool Level is -3' 3"
Suppression Pool Temperature is 146°F

c. Suppression Pool Level is -1' 6"
Suppression Pool Temperature is 152°F

d. Suppression Pool Level is +3' 3"
Suppression Pool Temperature is 95°F

ANSWER: 61

d. a ED required but not permitted to use SRVs, b&c safe regions of HCTL and HCLL, d unsafe on SRVTL curve (new)

QUESTION: 62 POINT VALUE: **1.00** RECORD: **834**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **21b**
LESSON 2: **LOI-CLS-LP-300-M** Objective(s): **06,08a**

An unisolable steam leak on RCIC caused temperatures in South RHR to exceed the Maximum Safe Operating (MSOT) value. Following intiation of RHR room coolers, temperature dropped below MSOT, but remains above the Maximum Normal Operating (MNOT) value.

Engineering reports that the temperature EQ envelope has been exceeded on the Reactor Building 20' elevation.

What actions are **required**?

a. Shutdown the reactor per GP-05.

b. Insert a manual scram, then initiate a normal plant cooldown.

c. Insert a manual scram, then Emergency Depressurize the reactor.

d. Insert a manual scram, then rapidly depressurize the reactor to the condenser.

ANSWER: 62

c. (New)

EQ envelope same as MSOT. Once an area has exceeded MSOT, then the EQ envelope has been exceeded. Two areas above MSOT require ED.

.....

QUESTION: 63 POINT VALUE: **1.00** RECORD: **798**
LESSON 1: **LOI-CLS-LP-300-C** Objective(s): **02**

A Unit Two (2) reactor scram has occurred. Seven Control rods failed to fully insert and are between positions 02 and 08. Conditions are:

All APRM Downscale lights are LIT
MSIVs open
Total Steam Flow 3.6 E6 lbm/Hr, dropping
Reactor Pressure 900 psig, dropping
Narrow Range Level Instruments (N004s) +155 inches, rising
Master Feedwater setpoint at +170"
Two Reactor Feed Pumps in operation

The operator is required to immediately:

a. Trip the Main Turbine.

b. Trip one Reactor Feed Pump.

c. Place the Mode Switch to SHUTDOWN.

d. Enter Alternate Control Rod Insertion.

ANSWER: 63

a. Recent procedure change allows trip main turbine prior to placing mode switch to shutdown. Mode switch cannot be placed in shutdown prior to steam flow below 3 Mlbm/hr or a Group 1 isolation occurs. One RFP is tripped when level on N004s +170" and rising, LEP-01 is not immediate action (New)

.....

QUESTION: 64 POINT VALUE: **1.00** RECORD: **815**
LESSON 1: **LOI-CLS-LP-300-E** Objective(s): **07**

During an ATWS on Unit One (1), all Bypass Valves are full open and one SRV is being used for pressure control. Conditions have arisen requiring injection to the Reactor vessel to be terminated and prevented.

With Reactor Water Level lowering, the following conditions are observed:

Reactor Power	22%
Reactor Water Level	+145 inches
Suppression Pool Temp	115 °F
Drywell Pressure	0.5 psig
Bypass Valves	3 1/2 open
SRVs	All Closed
SLC Tank Level	60%

What action is required?

a. Continue to lower level until Reactor Power is below 3% or Reactor Water Level reaches -37.5 inches.

b Continue to lower level until Reactor Power is below 3% or Reactor Water Level reaches [illegible] of Active Fuel.

c. Re-establish injection and establish a level band no higher than +145 inches and no lower than -37.5 inches.

d. Re-establish injection and slowly raise level to +170 to +200 inches as long as Bypass Valves maintain pressure control.

ANSWER: 64

c. (New)

.....

QUESTION: 65 POINT VALUE: **1.00** RECORD: **814**
LESSON 1: **LOI-CLS-LP-300-E** Objective(s): **08c**

During an ATWS emergency depressurization becomes required. Plant conditions are:

RPV level	80 inches
RPV pressure	1000 psig
Drywell pressure	1.0 psig
All 4KV Buses	Energized from Off-Site Power

Direction has been given to Terminate and Prevent injection from Core Spray during the depressurization. This is accomplished by placing the the Core Spray Pump control switch to STOP:

a. Immediately when RPV level drops to LL3.

b. 15 seconds after RPV level drops to LL3.

c. Immediately when RPV pressure drops below the injection valve pressure permissive.

d. 15 seconds after RPV pressure drops below the injection valve pressure permissive.

ANSWER: 65

b. exam bank 4739, never used, deleted from bank

.....

QUESTION: 66 POINT VALUE: 1.00 RECORD: **767**
LESSON 1: **LOI-CLS-LP-300-E** Objective(s): **17**

During an ATWS, when performing Emergency Depressurization, why is injection from certain systems terminated and prevented before ADS valves are opened?

a. With injection terminated, RPV level drops. This causes power to lower, and raises the rate of depressurization.

b. If injection were maintained, power production could exceed SRV relief capacity. The reactor may never depressurize.

c. The containment is threatened; level must be lowered to reduce power and preserve containment integrity.

d. If injection were not controlled during the depressurization, a large power excursion could cause substantial core damage.

ANSWER: 66

d. New

.....

QUESTION: 67 POINT VALUE: **1.00** RECORD: **857**
LESSON 1: **LOI-CLS-LP-300-F** Objective(s): **03**

An accident is in progress that has resulted in loss of all RPV level instrumentation. The reactor scrammed eight hours ago.

Conditions of the Reactor Flooding Procedure have been established that allow terminating all injection to the reactor. The Maximum Core Uncovery Time Limit is approximately:

a. 3.5 minutes.

b. 5.0 minutes.

c. 8.5 minutes.

d. 17.0 minutes.

ANSWER: 67

c. (From Exam Bank 4740 unmodified)

.....

QUESTION: 68 POINT VALUE: **1.00** RECORD: **812**
LESSON 1: **LOI-CLS-LP-300-G** Objective(s): **03**

During a Station Blackout, HPCI/RCIC have failed. LPCI cannot be aligned for injection.

An AO has been dispatched to align Fire Water Injection (the ONLY available injection source) and is in the process of manually operating MOVs due to loss of power. Plant Conditions are:

Reactor Pressure	300 psig
Reactor Level	-30 inches (Fuel Zone)
Drywell Ref Leg Area Temp	300°F

The Fire Water Injection lineup has not yet been established. When is the earliest that an Emergency Depressurizion is required?

a. Immediately since Reactor Level is currently below Top of Active Fuel.

b. When Reactor Water level indication drops below -50 inches on the Fuel Zone.

c. When Reactor Water level indication drops below -61 inches on the Fuel Zone.

d. When Reactor Water level indication drops below -72 inches on the Fuel Zone.

ANSWER: 68

c. (New)

.....

QUESTION: 69 POINT VALUE: **1.00** RECORD: **818**
LESSON 1: **LOI-CLS-LP-300-H** Objective(s): **04**

Unit One (1) was operating at 100% when a loss of 125 VDC panels 3A and 3B caused a high level Main Turbine trip and reactor scram.

A subsequent LOCA results in the following plant conditions:

Indicated RPV level -30 inches on N036/37
RPV pressure 950 psig
Primary Containment Average temperature 250°F
Drywell Average temperature 305°F
Drywell pressure 19 psig

What actions are required?

a. Defeat all Group 1 isolation signals, open the MSIVs and depressurize the RPV to the condenser.

b. Cooldown the plant at normal cooldown rates.

c. Anticipate Emergency Depressurization.

d. immediately open 7 ADS valves.

ANSWER: 69

a. New

.....

QUESTION: 70 POINT VALUE: **1.00** RECORD: **830**
LESSON 1: **LOI-CLS-LP-300-K** Objective(s): **18a**

During performance of EOP-01, HPCI suction transfer logic is defeated in order to:

a. ensure HPCI is properly self cooled by pumping only CST water.

b. maintain HPCI system Tech Spec OPERABLE during performance of EOPs.

c. reduce the radiation levels in the -17' elevation in the event of fuel failure.

d. ensure that HPCI could be aligned to inject boron per Alternate Boron Injection per LEP-03.

ANSWER: 70

a. new

.....

QUESTION: 71 POINT VALUE: **1.00** RECORD: **845**
LESSON 1: **LOI-CLS-LP-300-K** Objective(s): **18e**

During ATWS conditions, the MSIVs are open. A failed open Safety Relief Valve is causing Suppression Pool temperature to rise. The Feedwater system is operating in automatic to maintain Reactor Water Level. Plant conditions are:

Reactor Power	15%
Reactor Water Level	+170 inches
Suppression Pool Temperature	111°F

EOPs Direct installation of circuit alterations per SEP-10 for Group 1 Isolation Logic. These jumpers will:

a. Bypass all Group 1 Isolation signals to maintain the Feed Pumps available for level control.

b. Bypass all Group 1 Isolation signals to maintain heat rejection capability to the main condenser.

c. Bypass Group 1 Low Level Isolation signal only to maintain the Feed Pumps available for level control.

d. Bypass Group 1 Low Level Isolation signal only to maintain heat rejection capability to the main condenser.

ANSWER: 71

d. New

.....

QUESTION: 72 POINT VALUE: **1.00** RECORD: **807**
LESSON 1: **LOI-CLS-LP-300-L** Objective(s): **02**

A dual seal failure on a Reactor Recirculation Pump has caused drywell pressure to rise above the the scram setpoint. The Recirculation Pump was tripped and isolated per the guidance of AOP-01.0, and drywell pressure has stabilized.

What action should be performed to reduce drywell pressure?

a. Enter EOP-02-PCCP and operate all drywell coolers.

b. Enter EOP-02-PCCP and vent the drywell per OP-10.

c. Enter AOP-14.0 and operate all drywell coolers.

d. Enter AOP-14.0 and vent the drywell per OP-10.

ANSWER: 72

a. entry to PCCP same as scram setpoint. AOP-14 exited if parameter exceeds EOP entry. Drywell cannot be vented due to isolation signal from drywell pressure. (new)

QUESTION: 73 POINT VALUE: **1.00** RECORD: **793**
LESSON 1: **LOI-CLS-LP-300-L** Objective(s): **04h**

Operation below the Technical Specification Primary Containment Temperature limit ensures:

a. valid component operability calculations for SRVs and RPV level instruments.

b. Drywell temperature does not exceed 300°F in the event of a LOCA.

c. Suppression Chamber design temperature is not exceeded in the event of a ATWS.

d. equipment qualification is not exceeded for any component inside the drywell necessary for safe shutdown.

ANSWER: 73

b. New

QUESTION: 74 POINT VALUE: **1.00** RECORD: **858**
LESSON 1: **LOI-CLS-LP-300-M** Objective(s): **04c**

Maximum Safe Operating Radiation Level in Secondary Containment is defined as the radiation level above which:

a. equipment necessary for the safe shutdown of the plant will fail.

b. personnel access necessary for the safe shutdown of the plant will be precluded.

c. installed monitoring equipment pegs high and actual radiation levels are unknown.

d. releases from the reactor building will be in excess of Alert Classification limits.

ANSWER: 74

b. (From Exam Bank 4748 - one distractor modified, but not question)

.....

QUESTION: 75 POINT VALUE: **1.00** RECORD: **859**
LESSON 1: **LOI-CLS-LP-300-M** Objective(s): **06,08**

While performing PT 9.2, HPCI OPERABILITY TEST, the HPCI steam supply line ruptured. HPCI failed to automatically isolate and attempts to manually isolate HPCI are unsuccessful.

The following Steam Leak Detection NUMAC channels are in alarm:

B21-XY-5949A, Channel A3-3, reading 303°F
B21-XY-5949B, Channel A3-3, reading 298°F
B21-XY-5948A, Channel A5-1, reading 301°F
B21-XY-5948B, Channel A5-1, reading 296°F

No other channels are in alarm. Refer to the Secondary Containment Area Limits Tables. What action is required to be be taken?

a. Scram the reactor and commence a cooldown at normal rates.

b. Shutdown the reactor using GP-05 or scram the reactor as directed by the Shift Supervisor.

c. Scram the reactor and emergency depressurize.

d. Scram the reactor and rapidly depressurize to the main condenser.

ANSWER: 75

a. (New)

.....

QUESTION: 76 POINT VALUE: **1.00** RECORD: **795**
LESSON 1: **LOI-CLS-LP-300-N** Objective(s): **03**

The site is in a Station Blackout. The ONLY available injection system is HPCI. HPCI high temperature isolation has been defeated per AOP-36.2.

A steam leak on HPCI results in a off-site noble gas release requiring an Alert Classification, and the HPCI room exceeding Maximum Safe Operating Temperature.

What actions are required?

a. Emergency depressurize the reactor. Continue HPCI operation until it isolates on low steam line pressure.

b. Continue HPCI operation until another injection system becomes available, then isolate HPCI.

c. Immediately Isolate HPCI. When RPV level drops to TAF, enter the Steam Cooling procedure.

d. Continue HPCI operation until a second area exceeds Maximum Safe Operating Temperature, then isolate HPCI.

ANSWER: 76

b. New

QUESTION: 77 POINT VALUE: **1.00** RECORD: **772**
LESSON 1: **LOI-CLS-LP-300-N** Objective(s): **18**

During movement of irradiated fuel in the spent fuel pool, a fuel bundle is damaged, resulting in the following Off-Site release indications:

OG-6.1 on ERFIS shows release at 1500% of limit
Projected PEP 3.4.7 shows 60 mRem TEDE for a 4 hour release
Measured dose rate at the Site Boundary shows 10 mRem/hr

What EOP actions are required concerning reactor operation per EOP-04-RRCP?

a. no action is required.

b. reduce reactor power per GP-05.

c. insert a manual scram per EOP-01.

d. insert a manual scram, a cooldown of the reactor at normal cooldown rates is required.

ANSWER: 77

a. The release is not from a primary system (New)

.....

QUESTION: 78 POINT VALUE: **1.00** RECORD: **842**
LESSON 1: **LOI-CLS-LP-301-A** Objective(s): **03**

By definition of the Plant Emergency Procedure Classifications, the lowest emergency classification at which significant radiation releases may occur is:

a. Unusual Event

b. Alert

c. Site Area Emergency

d. General Emergency

ANSWER: 78

c. New

.....

QUESTION: 79 POINT VALUE: **1.00** RECORD: **871**
LESSON 1: **LOI-CLS-LP-301-A** Objective(s): **06**

A Site Area Emergency has been declared. The Emergency Response Manager has not yet arrived on site. Which of the following reponsibilities of the Site Emergency Coordinator **MAY** be delegated?

a. Approval of news releases.

b. Declaring the emergency over.

c. Upgrading to a General Emergency.

d. Initiating protective actions to be taken on-site.

ANSWER: 79

d. from exam bank, # 4752, never used and deleted from exam bank

.....

QUESTION: 80 POINT VALUE: **1.00** RECORD: **852**
LESSON 1: **LOI-CLS-LP-301-A** Objective(s): **30**

When is the minimum Protective Action Recommendation required to be expanded beyond the initial "keyhole" evacuation area?

a. Whenever the measured dose rate at the Site Boundary exceeds 100 mRem/hr, and continues to rise.

b. Whenever there is any indication of fuel melt, or if 3 out of 3 fission product barriers have been lost.

c. Whenever the projected thyroid (CDE) dose to the General Public exceeds 5 Rem in a non-evacuated area.

d. Whenever the projected wholebody (TEDE) dose to the General Public beyond the 10 mile EPZ exceeds 10CFR20 limits.

ANSWER: 80

c. new

.....

QUESTION: 81 POINT VALUE: **1.00** RECORD: **851**
LESSON 1: **LOI-CLS-LP-301-A** Objective(s): **31**

A Site Accountability required to be performed within:

a. 1 hour of activating ERDS.

b. 30 minutes of activating the TSC.

c. 30 minutes of conducting a site evacuation.

d. 1 hour of off-site Protective Action Reccomendations.

ANSWER: 81

c. New

.....

QUESTION: 82 POINT VALUE: **1.00** RECORD: **841**
LESSON 1: **LOI-CLS-LP-302-B** Objective(s): **01b**
LESSON 2: **LOI-CLS-LP-008-A** Objective(s): **06a**

During rated power operations, the in-service CRD System Flow Control Valve fails closed.

What adverse consequence could result in extended operation with the Flow Control Valve shut?

a. Recirculation Pump seal temperatures will rise, requiring the Recirculation Pumps to be secured.

b. Control Rod Drive Mechanism temperatures will rise and may result in a measurable delay in scram times.

c. Control Rods may begin to drift into the core due to the abnormally high charging water header pressure.

d. The running CRD Pump will be operating below the minimum flow requirements, resulting in pump overheating and damage.

ANSWER: 82

b. (New)

.....

QUESTION: 83 POINT VALUE: **1.00** RECORD: **816**
LESSON 1: **LOI-CLS-LP-302-C** Objective(s): **03,04**

Unit Two (2) has experienced a runback of BOTH Reactor Recirculation Pumps. Plant conditions are:

Total Core Flow Indication 33 Mlbm/Hr
Core Plate D/P indicates 4.8 psid
APRM Indications 58%, oscillating 2%
No LPRM Upscale/Downscale alarms being received

What action is required?

a. Initiate Select Rod Insert.

b. Insert a manual reactor scram.

c. Insert control rods per ENP-24.

d. Commence plant shutdown per GP-05.

ANSWER: 83

c. (new) If wrong Figure used or correct Figure incorrectly read (% Core Flow vs Mlbm/Hr) region A requires scram. SRI authorized only to prevent a manual scram.

QUESTION: 84 POINT VALUE: **1.00** RECORD: **802**
LESSON 1: **LOI-CLS-LP-302-D** Objective(s): **01b**

A Loss Of Offsite Power has caused a Reactor Scram and a Loss of drywell cooling. Plant Conditions are:

Average Drywell Temperature is 138°F, rising slowly
Average Primary Containment Temperature is 123°F, rising slowly
Drywell Pressure 1.5 psig, rising slowly
All RBCCW Pumps running, no cooling water to heat exchangers

What actions are required to mitigate Containment Parameters?

a. Enter AOP-14.0 and vent the drywell. Reopen RBCCW NSW cooling valves SW-V103/106 by using keylock overrides.

b. Enter AOP-14.0 and vent the drywell. Align RBCCW cooling to the CSW Header per Loss Of Off-Site Power procedure.

c. Enter EOP-02-PCCP and vent the drywell. Reopen RBCCW NSW cooling valves SW-V103/106 by using keylock overrides.

d. Enter EOP-02-PCCP and vent the drywell. Align RBCCW cooling to the CSW Header per Loss Of Off-Site Power procedure.

ANSWER: 84

b. (New)

QUESTION: 85 POINT VALUE: **1.00** RECORD: **827**
LESSON 1: **LOI-CLS-LP-302-E** Objective(s): **02**

The Shift Superintendent has determined that Control Room Evacuation is required. A manual Reactor Scram has been inserted. What is the correct SEQUENCE of immediate operator actions following the manual scram?

a. Trip the turbine, verify or manually transfer auxiliary power to the SAT, place the Mode Switch to shutdown.

b. Trip the turbine, place the Mode Switch to shutdown, verify or manually transfer auxiliary power to the SAT.

c. Place the Mode Switch to shutdown, trip the turbine, verify or manually transfer auxiliary power to the SAT.

d. Place the Mode Switch to shutdown, manually transfer auxiliary power to the SAT, trip the turbine.

ANSWER: 85

a. Modified from Exam Bank ID 1069

.....

QUESTION: 86 POINT VALUE: **1.00** RECORD: **822**
LESSON 1: **LOI-CLS-LP-302-G** Objective(s): **02b**

Unit Two (2) is operating at 100% power when a fault develops on 4KV Bus 2C. The plant scrams and the operator performs the immediate scram actions. The following alarms are sealed in:

4KV System Bus Undervoltage
Bus 2C UAT Incm Line Ovct Lockout
Gen-Xfrm Backup L/O Unit Trip

The operator has been directed to verify automatic actions per AOP-36.1. What should be the status of Diesel Generators (DGs)?

a. DG #3 only running and tied to Bus E3

b. DG #4 only running and tied to Bus E4

c. DG #3 running and tied to Bus E3, DG #1 running unloaded.

d. DG #4 running and tied to Bus E4, DG #2 running unloaded.

ANSWER: 86

d. 2C feeds E4, when turbine is tripped as immediate action, UAT de-energizes and completes Divisional start logic for DG2 (New)

.....

QUESTION: 87 POINT VALUE: **1.00** RECORD: **823**
LESSON 1: **LOI-CLS-LP-302-G** Objective(s): **02c**

Unit One is operating at 100% power, when the following alarms and indications occur:

250V Batt B Undervoltage alarm sealed in
Multiple ECCS Division II Logic Power Failure alarms sealed in
DG-2 Cntrl Power Supply Lost alarm sealed in
Loss of Division II DC MOV/DC Pump indications

Reactor Auto Scram Sys A alarm sealed in
Reactor Auto Scram Sys B alarm sealed in

What is the cause of the full Reactor Scram?

a. Group 1 isolation.

b. Power loss to RPS Analog Trip Cabinets.

c. Turbine Trip due to power loss to trip logic.

d. Low Reactor Level due to Digital Feedwater Control power loss.

ANSWER: 87

a. Loss Div II DC closes outboard MSIVs, b-only Div II RPS cabinets lose power, c-Loss of 125 VDC trip logic trips turbine below 1440 rpm (UPS supply also) d-DFLCS has UPS backup supply

.....

QUESTION: 88 POINT VALUE: **1.00** RECORD: **824**
LESSON 1: **LOI-CLS-LP-302-H** Objective(s): **12**

During normal operation of Unit One (1), a line rupture occurs at the discharge of the RBCCW pumps. The RBCCW pumps are tripped, and a manual Reactor Scram is inserted. Conditions are:

APRMs indicate downscale
Five Control Rods between position 02 and 48
All other Control Rods are Full In

The SRO has directed Control Rods be fully inserted using RMCS per LEP-02. How long can the CRD Pumps be operated without Cooling Water per AOP-16.0?

a. 10 minutes.

b. 20 minutes.

c. 30 minutes.

d. 40 minutes.

ANSWER: 88

b. (New)

QUESTION: 89 POINT VALUE: **1.00** RECORD: **817**
LESSON 1: **LOI-CLS-LP-302-I** Objective(s): **02b**

Unit One (1) is operating at 50% power with power acsension in progress per GP-04. The following alarms and indications occur;

Exh Hood A Vacuum Low alarm sealed in
Exh Hood B Vacuum Low alarm sealed in
Condenser Vacuum indicates 24.9 inches Hg

What is the minimum reduction in condenser vacuum that would result in a Turbine Trip?

a. 1.5 inches Hg

b. 2.5 inches Hg

c. 3.5 inches Hg

d. 4.5 inches Hg

ANSWER: 89

b. (New)

.....

QUESTION: 90 POINT VALUE: **1.00** RECORD: **839**
LESSON 1: **LOI-CLS-LP-302-K** Objective(s): **02**

During rated power operation, air compressors A, B and C have started. Service Air Press Low alarms and Service Air Isolation Valves (PV-706-1 and PV-706-2) close. Air Header pressure continues to lower.

When will the Interruptible Air Isolation Valves close?

a. When Interruptible Air Header pressure drops to 105 psig.

b. When Interruptible Air Header pressure drops to 95 psig.

c. When Non-Interruptible Air Header pressure drops to 95 psig.

d. ONLY when the operator places the RTGB control switch to CLOSE.

ANSWER: 90

d. Auto closure on interruptible air valves has been disabled by plant mod

.....

QUESTION: 91 POINT VALUE: **1.00** RECORD: **831**
LESSON 1: **LOI-CLS-LP-302-L** Objective(s): **03,07f**

Conditions for Alternate Shutdown Cooling are established per AOP-15.0. Plant conditions are:

Reactor Water Level +390 inches
Reactor Pressure 120 psig
One SRV open
RHR Pump A injecting to the Reactor at 8,000 gpm
RHR Pump B in Suppression Pool Cooling

It becomes desired to INCREASE to cooldown rate. This is accomplished by closing the open SRV and opening the next SRV in sequence:

a. away from the suction of RHR loop A.

b. closer to the suction of RHR loop A.

c. away from the suction of RHR loop B.

d. closer to the suction of RHR loop B.

ANSWER: 91

a. (New)

QUESTION: 92 POINT VALUE: **1.00** RECORD: **832**
LESSON 1: **LOI-CLS-LP-302-L** Objective(s): **06**

Alternate Shutdown Cooling has been established per AOP-15.0 using the RHR loop A in the LPCI mode. The B loop of RHR is in Suppression Pool cooling. One SRV is open.

Why must RPV pressure be maintained less than 164 psig?

a. The RPV Pressure-Temperature limit for a non-critical core will be violated.

b. A single RHR pump will not provide sufficient flow to remove decay heat.

c. The flowrate will cause the Tech Spec cooldown rate to be exceeded.

d. Minimum alternate flooding pressure is exceeded.

ANSWER: 92

b. new

QUESTION: 93 POINT VALUE: **1.00** RECORD: **805**
LESSON 1: **LOI-CLS-LP-302-M** Objective(s): **01a,03a**

Unit Two (2) is operating at 100% power (100% rod line) when the following alarms seal in:

Stator Coolant Pressure Low
Stator Coolant Inlet Flow Low
Loss Of Stat Coolant Trip Ckt Energ

The operator rapidly lowers Recirculation Flow to minimum allowed by ENP-24 (43 Mlbm/Hr) and selects a control rod for insertion using RMCS. The operator then notes Bypass Valves beginning to open. What action is allowed to be taken to prevent a reactor scram?

a. Manually initiate Select Rod Insert.

b. Lower Core Flow to no less than 31 Mlbm/Hr.

c. Lower Core Flow to no less than 34 Mlbm/Hr.

d. Open the Bypass Valves using the jack until turbine trip scram is bypassed.

ANSWER: 93

a. (New)

.....

QUESTION: 94 POINT VALUE: **1.00** RECORD: **874**
LESSON 1: **LOI-CLS-LP-302-M** Objective(s): **01c**

The unit is operating at rated power, with Feedwater Level Control in three element, controlling RPV level at 187 inches.

A Safety Relief Valve fails in the OPEN position. Feedwater Level Control remains in three element control.

How will Feedwater Level Control respond?

a. Indicated steam flow will exceed indicated feed flow and reactor level will be controlled below 187 inches.

b. Indicated feed flow will exceed indicated steam flow and reactor level will be controlled below 187 inches.

c. Indicated steam flow will exceed indicated feed flow and reactor level will be controlled above 187 inches.

d. Indicated feed flow will exceed indicated steam flow and reactor level will be controlled above 187 inches.

ANSWER: 94

b. Exam bank 4770 - never used, deleted from exam bank

.....

QUESTION: 95 POINT VALUE: **1.00** RECORD: **854**
LESSON 1: **LOI-CLS-LP-302-M** Objective(s): **18**

During a Chlorine emergency, who has resposibility to determine if chlorine personnel protection equipment is required to enter an area?

a. Shift Superintendent

b. LPU Shift Supervisor

c. Emergency Response Manager

d. Site Emergency Coordinator

ANSWER: 95

b. new (LPU a new orginization)

QUESTION: 96 POINT VALUE: **1.00** RECORD: **856**
LESSON 1: **LOI-CLS-LP-303-A** Objective(s): **05a**

Unit Two (2) is in a Station Blackout. E Buses are being cross-tied. The Reactor is being cooled down at 95°F/Hr.

The following Drywell Temperature readings are reported from the Remote Shutdown Panel:

CAC-TR-778, Point 1	313°F
CAC-TR-778, Point 3	302°F
CAC-TR-778, Point 4	290°F

Refer to AOP-36.2, Calculation Sheet 1. Average Drywell Temperature is:

a. below 300°F, maintain cooldown rate ≤100°F/Hr.

b. above 300°F, emergency depressurize the reactor.

c. below 300°F, increase cooldown rate to >100°F/Hr.

d. above 300°F, increase cooldown rate to >100°F/Hr.

ANSWER: 96

c. Ave DW Temp is 298. AOP-36.2 requires cooldown ≥100°F/Hr (New)

.....

QUESTION: 97 POINT VALUE: **1.00** RECORD: **872**
LESSON 1: **LOI-CLS-LP-303-A** Objective(s): **06f**

During Station Blackout conditions, outside air temperature drops below 32°F. HPCI is being used to maintain Reactor Water Level above TAF. AOP-36.2 directs HPCI suction valve breakers to be turned OFF.

This action will maintain HPCI suction from the:

a. CST to prevent a false low CST level suction transfer signal due to the level switches freezing.

b. Suppression Pool to prevent exceeding minimum reactor vessel feedwater nozzle temperature requirements.

c. CST to prevent inadequate flow causing loss of CST suction capability due to suction line freezing.

d. Suppression Pool to prevent loss of HPCI due to excessive cooling of the pump and turbine lube oil.

ANSWER: 97

a. (New)

QUESTION: 98 POINT VALUE: **1.00** RECORD: **821**
LESSON 1: **LOI-CLS-LP-304-A** Objective(s): **20**

There is a fire on the North side of the Unit 2 Reactor Building. The Shift Superintendent has decided that Unit 2 must be shutdown from outside the Control Room per ASSD-05; Train B Shutdown.

Initial actions per ASSD have been taken when Drywell Average Air temperature is calculated to be above 300°F.

What actions are required?

a. Initiate a plant cooldown ≤100°F/hr within 1 hour.

b. Open all SRVs at Remote Shutdown Panel, and execute EOP-01-AEDP locally.

c. Initiate LPCI. When LPCI is running, open all SRVs at Remote Shutdown Panel.

d. Cooldown the reactor with available SRVs in excess of 100°F/hr, but within the capacity of RCIC to maintain level above 20".

ANSWER: 98

c. new

.....

QUESTION: 99 POINT VALUE: **1.00** RECORD: **639**
LESSON 1: **LOI-CLS-LP-305-A** Objective(s): **16a,b,c**

A core offload is in progress. A fuel assembly has just been released in the fuel pool and the main hoist is raised to a safe elevation to pass through the transfer canal; it is **NOT** raised to the Normal-Up position.

The next step requires that a fuel assembly be removed from the reactor core and before the next step is commenced, one rod DRIFTS OUT.

Which refueling interlocks will actuate when the refueling bridge is positioned over the reactor vessel (the proximity switch is actuated).

a. Rod block only.

b. Bridge reverse motion stop only.

c. Bridge reverse motion stop and main hoist motion block only.

d. Rod block, bridge reverse motion stop, and main hoist motion block.

ANSWER: 99

d. (new question)

With the main hoist not full-up and the bridge over the reactor and a rod out, the conditions are satisfied for all three refueling interlock blocks.

QUESTION: 100 POINT VALUE: **1.00** RECORD: **866**
LESSON 1: **SRI-CLS-LP-202-D** Objective(s): **09,11**

Which one of the following is **NOT** a responsibility of the WCC SRO in regards to work on plant equipment per PLP-24:

a. determining if trouble tickets impair ASSD equipment.

b. determining post maintenance test requirements for all WR/JOs.

c. determining if trouble tickets impair fire protection system.

d. initiating WR/JOs for priority 2 work reported to the control room.

ANSWER: 100

b. new

.....

** END OF "NRC 95-1 SRO, Rev 0" ANSWER KEY **

MASTER EXAM

Master 95-301
Brunswick - Pilot

ANSWER KEY FOR **NRC 95-1 RO, Rev 0**

EXAM DATE: **10/20/95**

CLASS: **HLC 95-1**

COURSE CODE: **ROA01B**

DATE PRINTED: **10/14/95**

PREPARED BY: **BOWDON**

MODIFIED BY: **Keith Bowdon**

100 QUESTIONS, **100.00** TOTAL POINTS ON THE EXAM.

~~4.40~~ HOURS ESTIMATED TO COMPLETE THE EXAM, **4.00** HOUR TIME LIMIT.

per 3.5 telecon with K. Bowden 11/15/95

POINTS MISSED	SCORE	POINTS MISSED	SCORE
1	99.00	6	94.00
2	98.00	7	93.00
3	97.00	8	92.00
4	96.00	9	91.00
5	95.00	10	90.00

REFERENCES TO BE PROVIDED TO THE STUDENT:

2AOP-04.0 FIG 1&2, AOP-36.2 CALC SH 1, EOP-01-UG FIG 14,17,18,19, EOP-01-UG FIG 2,3,8, EOP-01-UG FIG 20, EOP-01-UG FIG 4, GP-10, SEQ. A2, PGS 2,3, P&ID D-02520 SH 3A, STEAM TABLES

Kim McCall
Exam Reviewer

Hal D. Wall
Approved For Use

(GENERAL USE EXAM CREATED FROM HLC EXAM DEVELOPMENT EXAM BANK)

** "NRC 95-1 RO, Rev 0" ANSWER KEY **

QUESTION: 1 POINT VALUE: **1.00** RECORD: **699**
LESSON 1: **LOI-CLS-LP-001-A** Objective(s): **13e**

Unit One (1) is performing a normal shutdown per GP-05, Unit Shutdown. The following parameters and values were recorded at the times listed:

	0600	0700
- Reactor pressure	485 psig	265 psig
- Recirc loop A/B temp	435°f	407°f
- Rx vessel shell temp	465°f	431°f
- Rx vessel flange temp	463°f	437°f
- Bottom head drain temp	402°f	338°f

CALCULATE the cooldown rate.

a. 28°F/Hr

b. 34°F/Hr

c. 56°F/Hr

d. 64°F/Hr

ANSWER: 1

c. (modified qeustion - from record numbers 5232 and 5242)

>212°, use saturation temperature for stem dome pressure

500 psia = 467°f
280 psia = 411°f
467°f-411°f = 56°f

a. incorrect, uses the difference between the recirc loop suction temperatures which is the preferred means when <212°f
b. incorrect, uses the difference between the reactor vessel shell temperatures
d. incorrect, uses the difference between the reactor vessel bottom head drain temperatures

.....

QUESTION: 2 POINT VALUE: **1.00** RECORD: **623**
LESSON 1: **LOI-CLS-LP-002-A** Objective(s): **15a,15b**

Unit 2 is operating at 100% power. The following annunciators are received for the 2B recirculation pump.

SEAL STAGING LOW FLOW alarm sealed in
OUTER SEAL HIGH FLOW alarm sealed in

The 2B recirculation pump seal indications are as follows:

Seal #1 pressure	980 psig
Seal #2 pressure	10 psig

Which of the following resulted in the alarms and indications on the 2B recirculation pump?

a. Seal #1 has failed

b. Seal #2 has failed

c. #1 breakdown coil is plugged

d. #2 breakdown coil is plugged

ANSWER: 2

b.

a - #2 seal pressure would be @ equal to #1 seal pressure.
c - although #2 seal pressure lowers and the SEAL STAGING LOW FLOW annunciator alarms, the OUTER SEAL HIGH FLOW annunciator will not alarm.
d - #2 seal pressure would be @ equal to #1 seal pressure and the OUTER SEAL HIGH FLOW annunciator will not alarm.

created from Record 5050 which has not been used yet.

.....

QUESTION: 3 POINT VALUE: **1.00** RECORD: **760**
LESSON 1: **LOI-CLS-LP-002-A** Objective(s): **161**

Unit One (1) is operating at 55% power with Reactor Feed Pump (RFP) 1A running and RFP 1B idling. Both Recirculation Pump speeds are 53%. The 1A RFP trips, resulting in the following conditions:

Reactor Water Level Hi/Lo alarm sealed in
Reactor Vessel Lo Level Trip alarm sealed in
Master Feedwater Controller set down to +170"

Reactor water level drops to +128" before RFP 1B is brought on line to reverse the level trend. What should be the present status of Recirculation Pumps?

a. Running at 53% speed

b. Running at 45% speed

c. Running at 28% speed

d. Tripped on ATWS/RPT signal

ANSWER: 3

c. (new)

QUESTION: 4 POINT VALUE: **1.00** RECORD: **766**
LESSON 1: **LOI-CLS-LP-003-A** Objective(s): **13**

A LOSS OF DIVISION I 125/250 VDC DC Switchboard 2A has has caused a Unit Two (2) Reactor Scram signal.

The Reactor fails to Auto scram. The operator depresses the Manual Scram push buttons, and notes the following indications:

Scram Channel A1-A4 white lights OUT
Scram Channel B1-B4 white lights LIT
APRM Indication 40%
ARI Did Not Initiate on High Reactor Pressure
Total Steam Flow 3.9 Mlbm/Hr

What required operator action may insert control rods?

a. Place the Mode Switch to SHUTDOWN.

b. Manually initiate Alternate Rod Injection (ARI).

c. Transfer RPS Bus B power to the alternate source.

d. Place RPS Keylock Test Switches B1 and B2 to TEST.

ANSWER: 4

d. (new question)

b would would not work due to loss of power
a & c not allowed per procedural guidance

QUESTION: 5 POINT VALUE: **1.00** RECORD: **619**
LESSON 1: **LOI-CLS-LP-004-A** Objective(s): **15e**

Unit One (1) has experienced a Loss Of Off-Site Power and a Reactor Scram. Group 10 isolated and the Backup Nitrogen System automatically aligned to the drywell. Plant conditions are:

Reactor Pressure	750 psig
Reactor Water Level	+100 inches
Drywell Pressure	1.2 psig
All E Buses	Energized

The Drywell Cooler Dampers are:

a. failed open, and the Drywell Cooler fans are running.

b. failed open, but the Drywell Cooler fans are tripped.

c. supplied by Backup Nitrogen, and the Drywell Cooler fans are running.

d. supplied by Backup Nitrogen, but the Drywell Cooler fans are tripped.

ANSWER: 5

a. (new question)

.....

QUESTION: 6 POINT VALUE: **1.00** RECORD: **789**
LESSON 1: **LOI-CLS-LP-004-B** Objective(s): **071**

Unit One (1) is operating at power. An unisolable rupture in the Instrument Air System results in lowering air header pressure. Reactor Building Standby Air Compressor 1A and 1B auto start, then trip.

The following alarms are sealed in:

RB Instr Air Receiver 1A Press Low
RB Instr Air Receiver 1B Press Low

How will the air loss affect Secondary Containment?

a. Secondary Containment Isolation Dampers fail closed, SBGT auto starts to maintain integrity.

b. Secondary Containment Isolation Dampers fail closed, SBGT must be manually started to maintain integrity.

c. Secondary Containment Isolation Dampers must be manually closed, SBGT auto starts to maintain integrity.

d. Secondary Containment Isolation Dampers must be manually closed, SBGT must be manually started to maintain integrity.

ANSWER: 6

d. (New)

.....

QUESTION: 7 POINT VALUE: **1.00** RECORD: **621**
LESSON 1: **LOI-CLS-LP-005-A** Objective(s): **08f**

An ATWS condition exists on Unit Two (2). Emergency Procedures direct initiation of Standby Liquid Control (SLC). 480 VAC Bus E8 is De-Energized. How will SLC respond if the SLC Control Switch is placed in the PUMP A/B RUN position?

a. SLC Pump A starts, both squib valves fire.

b. SLC Pump B starts, both squib valves fire.

c. SLC Pump A starts, only one squib valve fires.

d. SLC Pump B starts, only one squib valve fires.

ANSWER: 7

c. (new question)

QUESTION: 8 POINT VALUE: **1.00** RECORD: **758**
LESSON 1: **LOI-CLS-LP-007-A** Objective(s): **11c**

The unit is at 10% power during reactor startup. The operator withdraws rod 22-19 to position 48. The following indications are noted:

Rod Drift alarm seals in
Rod Overtravel alarm seals in
Rod 22-19 four rod display is blank

What operator action is required?

a. Enter substitute rod position data into the RWM.

b. Insert rod 22-19 to position 46 to attempt recoupling.

c. Move rod 22-19 to a position with an operable reed switch.

d. Fully insert rod 22-19 and disarm the HCU electrically or hydraulically.

ANSWER: 8

d. (New) (Per guidance of APP recoupling attempt not permitted below the RWM LPSP)

QUESTION: 9 POINT VALUE: 1.00 RECORD: **776**
LESSON 1: **LOI-CLS-LP-007-B** Objective(s): **18d**

Unit Two (2) is raising reactor power per GP-04. Control Rod 22-11 (Group 1 BPWS) drifts from position 48 into the core. Rod 22-11 is selected and the following indications are noted:

Control Rod Drift alarm is sealed in
Rod 22-11 full in green lamp on full core display is lit
Rod 22-11 display on 4 rod display is blank
Total Steam Flow and Feed Flow are 3.5 Mlbm/Hr

The Rod Worth Minimizer (RWM) Operator Display will show:

a. SR: 22-11 00, insert and withdraw blocks are enforced.

b. SR: 22-11 FF, insert and withdraw blocks are enforced.

c. SR: 22-11 00, insert and withdraw blocks are NOT enforced.

d. SR: 22-11 FF, insert and withdraw blocks are NOT enforced.

ANSWER: 9

c. RWM retains memory of position 00 reed switch on overtravel in condition. Since power as sensed by steam flow is above the LPSP, blocks are not enforced. (New)

QUESTION: 10 POINT VALUE: **1.00** RECORD: **775**
LESSON 1: **LOI-CLS-LP-008-A** Objective(s): **06d**

Unit two (2) is in OPERATIONAL CONDITION 1, with reactor pressure at 1000 psig. Individual Control Rod scram time testing per PT-14.2.1 is in progress. In preparation to scram rod 26-19, the HCU charging header isolation valve (V-113) is closed.

When 26-19 is scrammed, the ball check internal to the mechanism insert port FAILS to reposition. This failure will result in:

a. no rod motion on the scram.

b. faster than normal scram time.

c. slower than normal scram time.

d. partial rod motion on the scram.

ANSWER: 10

c. (Modified from ID 4663)

.....

QUESTION: 11 POINT VALUE: **1.00** RECORD: **622**
LESSON 1: **LOI-CLS-LP-008-B** Objective(s): **13d**

During a low water level condition, CRD Flow maximization is being implemented per SEP-09. The operator is directed to to maintain Charging Water Header pressure ≥950 psig while opening the Flow Control and Pressure Control valves.

This limitation will prevent pump:

a. trip due to low suction pressure.

b. operation under runout conditions.

c. trip due to overcurrent protection.

d. discharge pressure dropping below reactor pressure.

ANSWER: 11

b. (new question)

.....

QUESTION: 12 POINT VALUE: **1.00** RECORD: **636**
LESSON 1: **LOI-CLS-LP-009-A** Objective(s): **10c**

A reactor startup is in progress per GP-09 following refueling, with the RPS shorting links removed. The reactor is approaching criticality.

A loss of 24/48 VDC power to SRM drawer B results in the following alarms:

SRM UPSCALE/INOP
NEUTRON MON SYS TRIP

How will the plant respond to this power loss?

a. Alarms only.

b. A Rod Out Block only.

c. A Rod Out Block and 1/2 Scram.

d. A Rod Out Block and Full Reactor Scram.

ANSWER: 12

d. (modified from Record ID 1380)

QUESTION: 13 POINT VALUE: **1.00** RECORD: **763**
LESSON 1: **LOI-CLS-LP-009-B** Objective(s): **10c**

A reactor shutdown is in progress. The reactor is subcritical with all IRMs on range 5, except for IRMs G and H which are Bypassed. The following IRM readings are obseved:

IRM channel A 10/40 of scale
IRM Channel B 6/40 of scale
IRM channel C 10/40 of scale
IRM Channel D 5/40 of scale
IRM channel E 9/40 of scale
IRM Channel F 11/40 of scale

All IRM Range Switches are placed to Range 4. What response is expected?

a. No protective functions.

b. A Control Rod Out Block only.

c. A Control Rod Out Block and 1/2 Scram.

d. A Control Rod block and a Full Reactor Scram.

ANSWER: 13

b. Rod block setpoint is 70/125 (TS ≤108/125), Scram setpoint is 117/125 (TS ≤120/125) Percent of scale on 125 basis increases by factor of 10 from odd to even range (New)

QUESTION: 14 POINT VALUE: **1.00** RECORD: **637**
LESSON 1: **LOI-CLS-LP-009-D** Objective(s): **03a**

Unit Two (2) is starting up following refueling. Power is currently 40% and is being raised per GP-04. How will the plant respond to a downscale failure of APRM Flow Unit A?

a. Alarm only.

b. Rod Out Block only.

c. Rod Out Block and a 1/2 Scram.

d. Rod Out Block and a Full Reactor Scram.

ANSWER: 14

b. (Modified from Record ID 4619)

with power at 40% the rod block/scram from flow biased trip units would not be exceeded, a rod block would be received from the comparator.

.....

QUESTION: 15 POINT VALUE: **1.00** RECORD: **778**
LESSON 1: **LOI-CLS-LP-009-E** Objective(s): **07b**

Unit Two (2) is operating at 55% power with APRM Channel C failed downscale and bypassed. Control Rod withdrawal is in progress for plant startup. The following indications and alarms occur:

Rod 26-27 is selected
Rod Out Block alarm sealed in
APRM Downscale/Inop alarm sealed in
APRM Channel E indicates 0% power

Rod Block Monitor (RBM) Channel A will:

a. be bypassed automatically.

b. fail upscale resulting in a Rod Block.

c. fail downscale resulting in a Rod Block.

d. transfer to APRM Channel A for reference power.

ANSWER: 15

a. APRM C normal reference, transfers to E if C is bypassed, APRM A not used by RBM, reference input <29% auto bypasses channel. (New)

.....

QUESTION: 16 POINT VALUE: **1.00** RECORD: **633**
LESSON 1: **LOI-CLS-LP-010-A** Objective(s): **04**

Standby Gas Treatment (SBGT) System controls are aligned as follows:

Train A in PREF A
Train B in STBY

Due to a reactor scram, RPV level lowers to +123 inches. Containment parameters and radiation levels are normal. How will SBGT Train A and B respond?

a. SGBT Train A only will start.

b. SBGT Train B only will start.

c. Both SBGT Train A and B will start.

d. Both SBGT Trains A and B remain off.

ANSWER: 16

d. (new question)

.....

QUESTION: 17 POINT VALUE: **1.00** RECORD: **787**
LESSON 1: **LOI-CLS-LP-011-B** Objective(s): **05a**

Following a LOCA, the Containment Hydrogen/Oxygen monitors have been placed in service using CAM overrides.

After placing the monitors in service, the following alarms and indications occur:

Reactor Building Vent Rad Hi alarm sealed in
Reactor Building Vent Rad Hi Hi alarm sealed in
Reactor Building Vent Radiation recorder channel A pegged high
Reactor Building Vent Radiation recorder channel B 0.5 mr/hr

How does this failure affect Hydrogen/Oxygen (H2/O2) monitor isolation valves?

a. Division I and II H2/O2 monitors remain in service.

b. Division I H2/O2 monitor isolates, but can be placed back in service.

c. Division I H2/O2 monitor isolates, and cannot be placed back in service.

d. Division I and II H2/O2 monitors isolate, but can be placed in service.

ANSWER: 17

a. The failure would normally isolate both divisions, but override is available. Since the CAM overrides are hard overrides vs. the soft CAC overrides the monitors remain in service. (New)

.....

QUESTION: 18 POINT VALUE: **1.00** RECORD: **868**
LESSON 1: **LOI-CLS-LP-012-A** Objective(s): **06**

Power has been lost to the Division 1 and Division II Steam Leak Detection NUMAC modules. Which Group isolations will occur due to leak detection?

a. Group 1 only.

b. Group 3 only.

c. Groups 1, 4 and 5 only.

d. Groups 3, 4 and 5 only.

ANSWER: 18

b. (new) Group 3 deenergizes to function, groups 4 and 5 energize to function, group 1 isolates on leak detection independent of the NUMACs

.....

QUESTION: 19 POINT VALUE: **1.00** RECORD: **634**
LESSON 1: **LOI-CLS-LP-012-A** Objective(s): **10**

During accident conditions on Unit One (1) the core has become uncovered. Plant conditions are now:

Reactor Water Level	+80"
Reactor Pressure	20 psig
MSL RADIATION HI-HI	Alarm sealed in
Condenser Vacuum	0" Hg

E&RC has requested the the Recirculation Sample valves 1-B32-F019 and 1-B32-F020 be opened for Post accident sampling. What operator action is required before the isolation for the sample valves can be reset?

a. Place the CAM Override Switches to OVERRIDE.

b. Raise RPV level above the isolation setpoint.

c. Reset the Main Steam Line Radiation Monitor NUMACS.

d. Place Low Condenser Vacuum Bypass Switches to BYPASS.

ANSWER: 19

d. (new question)

Plant mod 92-146 installed during 1995 Unit 1 outage deleted MSL Rad Hi-Hi isolation from Group 1 and added low condenser vacuum for sample valves. the level setpoit for isolation is +45".

.....

QUESTICN: 20 POINT VALUE: **1.00** RECORD: **790**
LESSON 1: **LOI-CLS-LP-013-A** Objective(s): **16b**

The Supplemental Spent Fuel Pool Cooling System (SSFPCS) is operating as follows:

1 primary pump (P-74A) and both heat exchangers in service
1 secondary pump (P-82A) and both cooling towers in service

The secondary pump trips due to a motor overload. How does the SSFPC System respond?

a. The primary pump trips on high primary loop temperature.

b. The primary pump trips on low secondary to primary loop d/p.

c. The standby secondary pump auto starts on low secondary loop flow.

d. The standby secondary pump auto starts on low secondary loop pressure.

ANSWER: 20

b. Recently added new plant system (Modified Exam Bank ID #5234)

.....

QUESTION: 21 POINT VALUE: **1.00** RECORD: **777**
LESSON 1: **LOI-CLS-LP-014-A** Objective(s): **08,09d**

A Loss Of Feedwater results in a Reactor Scram. Reactor Water Level drops to as low as +125 inches. CRD flow is maximized per SEP-09. SLC is aligned to Demin Water and started per LEP-01. Reactor Water Level is currently +165 inches and rising.

What should be the current status of RWCU Isolation Valves?

a. Inboard Isolation Valve (G31-F001) only should be closed.

b. Outboard Isolation Valve (G31-F004) only should be closed.

c. Both Inboard and Outboard Isolation Valves should be closed.

d. Both Inboard and Outboard Isolation Valves should be open.

ANSWER: 21

b. Isolation setpoint on level is 112 inches (118 actual)
SLC initiation (even with demin water) should isolate F004.
(New)

.....

QUESTION: 22 POINT VALUE: **1.00** RECORD: **646**
LESSON 1: **LOI-CLS-LP-016-A** Objective(s): **12b,c**

The RCIC system is being used to restore reactor water level following a reactor scram and MSIV closure. The following indications are observed:

E51-F045, Turbine Steam Supply Valve, CLOSED
E51-F013, RCIC Injection Valve, CLOSED
RCIC Turbine Speed is ZERO

Which of the following caused the indications identified above?

a. Reactor water level was HIGH.

b. RCIC pump suction pressure was LOW.

c. RCIC steam line differential pressure was LOW.

d. RCIC steam leak detection temperature was HIGH.

ANSWER: 22

a. (new question)

b - incorrect, trip signal causes V8 and F013 to close and F019 to open.
c - incorrect, isolation signal causes F007, F008, V8, F013, F019, and F031 to close.
d - incorrect, this is an isolation signal also.

.....

QUESTION: 23 POINT VALUE: **1.00** RECORD: **627**
LESSON 1: **LOI-CLS-LP-016-A** Objective(s): **14,17c**

During performance of RCIC testing on Unit One (1), the RCIC Flow Controller is in MANUAL, with a manual output signal of zero.

A loss of reactor feedwater results in RPV level dropping to the RCIC initiation setpoint.

The RCIC Flow Controller will:

a. remain in MANUAL and raise demand to maximum with no operator action.

b. transfer to AUTO and raise demand to rated flow with no operator action.

c. remain in MANUAL and raise demand to maximum, provided the Programmable Function key is depressed.

d. transfer to AUTO and raise demand to rated flow, provided the Programmable Function key is depressed.

ANSWER: 23

d. PM 92-079 installed during 1995 unit 1 outage replaced RCIC GEMAC controllers. Modified from exam bank Rec ID 5315. Question outside sample plan to test recent plant modification

QUESTION: 24 POINT VALUE: **1.00** RECORD: **641**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **06j,k**

Given the following plant conditions:

Reactor Water Level	100 inches
Reactor Pressure	610 psig
Drywell Pressure	8.9 psig
Supp Chamber Pressure	8.5 psig
Supp Pool Water Temperature	97°F

Regarding the CONTAINMENT COOLING/SPRAY VALVE CONTROL switch (Think switch) and the 2/3 CORE HEIGHT LPCI INITIATION OVERRIDE switch, which control(s) must be operated to place the "A" loop of RHR into **Suppression Pool Cooling**?

a. Neither the CONTAINMENT COOLING/SPRAY VALVE CONTROL switch nor the 2/3 CORE HEIGHT LPCI INITIATION OVERRIDE switch need to be positioned.

b. Both the CONTAINMENT COOLING/SPRAY VALVE CONTROL switch and the 2/3 CORE HEIGHT LPCI INITIATION OVERRIDE switch need to be positioned.

c. Only the CONTAINMENT COOLING/SPRAY VALVE CONTROL switch needs to be positioned.

d. Only the the 2/3 CORE HEIGHT LPCI INITIATION OVERRIDE switch needs to be positioned.

ANSWER: 24

a. (New question created)
Since no LOCA signal, no overrides required

QUESTION: 25 POINT VALUE: **1.00** RECORD: **761**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **07**

Unit One (1) is operating at 100% power. Both Loops of RHR are in the Standby alignment. A Loss Of Coolant Accident occurs.

The Division I ECCS Trip Cabinet experiences a fault and all trip functions from the cabinet are lost. Plant conditions are:

Reactor Level	Below Top Of Active Fuel
Reactor Pressure	385 psig
Drywell Pressure	20 psig

How will the Low Pressure Coolant Injection (LPCI) System respond?

a. LPCI Loop A and B pumps are running with the injection valves open.

b. LPCI Loop A and B pumps are running with the injection valves closed.

c. LPCI Loop B pumps only are running with the injection valves open.

d. LPCI Loop B pumps only are running with the injection valves closed.

ANSWER: 25

a (Div I LPCI will not initiate, but the pumps will start and injection valves will open from the Div II logic. Pressure is below the injection valve permissive) (New)

.....

QUESTION: 26 POINT VALUE: **1.00** RECORD: **780**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **09**

During a Loss Of Coolant Accident, RHR Loop A has been placed in the Drywell and Suppression Chamber Spray by placing the 2/3 CORE HEIGHT LPCI INITIATION switch to MANUAL OVERRD and the CONTAINMENT SPRAY VALVE CONTROL (Think) switch to MANUAL. Current plant conditions are:

Reactor Water Level	+80 inches, dropping
Reactor Pressure	350 psig, dropping
Drywell pressure	10 psig, dropping
Supp Chamber Pressure	11 psig, dropping

When will the Spray Valves close?

a. RPV Level drops below Low level 3.

b. RPV level drops below -53 inches.

c. Drywell pressure drops below 2.7 psig.

d. Suppression Chamber pressure drops below 2.7 psig.

ANSWER: 26

c. 45" will not close valves because LPCI signal already sealed in.
-53 inches will not close because 2/3 core height is overriden
torus pressure does not input into logic
2.7 psig will de-energize containment spray logic, valves close on LPCI signal (From exam bank #688 modified)

.....

QUESTION: 27 POINT VALUE: **1.00** RECORD: **124**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **14**

The plant is in OPERATIONAL CONDITION 3 at 100 psig with RHR Loop B in Shutdown Cooling. A small steam leak in the drywell results in drywell pressure rising above 2.0 psig. How will the RHR Loop in shutdown cooling respond?

a. The shutdown cooling suction line only will isolate and the running RHR pump will trip.

b. The shutdown cooling suction and return lines will isolate and the running RHR pump will trip.

c. Shutdown cooling does not isolate but Heat Exchanger cooling water flow is lost.

d. Shutdown cooling does not isolate and continues to provide decay heat removal.

ANSWER: 27

c. No SDC isolation signal is generated by high drywell pressure, but since pressure is low a LPCI signal will trip the running RHR SW pump (would also start the standby RHR pump and fully open the F048B) (From Rec ID 4682, never used, deleted from Exam Bank)

.....

QUESTION: 28 POINT VALUE: **1.00** RECORD: **110**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **15**

When placing the RHR System in the Shutdown Cooling Mode of operation, the initial cooldown rate is established by throttling closed the RHR Heat Exchanger Bypass Valve (E11-F048), while throttling open the:

a. Heat Exchanger Outlet Valve (E11-F003).

b. Inboard LPCI Injection Valve (E11-F015).

c. Outboard LPCI Injection Valve (E11-F017).

d. Heat Exchanger Service Water Valve (E11-F068).

ANSWER: 28

a. from exam bank

QUESTION: 29 POINT VALUE: **1.00** RECORD: **630**
LESSON 1: **LOI-CLS-LP-017-A** Objective(s): **18b**

During normal full power operation of Unit One (1), a loss of Diesel Building DC distribution panel 1A occurs. Prior to any manual control power transfers, a Loss Of Coolant Accident results in the following plant conditions:

RPV Level	Below TAF
RPV Pressure	100 psig
Drywell Pressure	21 psig
Off-Site power	Available

How will the performance of RHR Loop 1A in the LPCI Mode be affected by the partial loss of DC power?

a. RHR Pumps 1A and 1C will both fail to auto start.

b. RHR Pump 1A only will auto start and inject to the RPV.

c. RHR Pump 1C only will auto start and inject to the RPV.

d. RHR Pumps 1A and 1C will both auto start and inject to the RPV.

ANSWER: 29

b. (new question)

DC panel 1A does not affect LPCI logic, but supplies normal control power to bus E1, which powers RHR pump 1C

.....

QUESTION: 30 POINT VALUE: **1.00** RECORD: **762**
LESSON 1: **LOI-CLS-LP-018-A** Objective(s): **07**

A Feedwater line has ruptured in the MSIV pit. The Feedwater line check valve in the drywell failed to close. Plant conditions are:

Reactor Level	+60 inches
Reactor Pressure	235 psig
Drywell pressure	1.0 psig

What is the expected response of the Core Spray Sysyem?

a. Core Spray Pumps remain off and the injection valves are closed.

b. Core Spray Pumps are running and the injection valves are closed.

c. Core Spray Pumps are running on minimum flow with the injection valves open.

d. Core Spray Pumps are running and injecting to the reactor vessel.

ANSWER: 30

a. The initiation logic has not yet been satisfied (New)

.....

QUESTION: 31 POINT VALUE: **1.00** RECORD: **631**
LESSON 1: **LOI-CLS-LP-018-A** Objective(s): **11**

Following a LOCA, Emergency Depressurization was performed at TAF. The following plant conditions now exist:

RPV Water Level	+200 inches, rising
RPV Pressure	50 psig, dropping
Drywell Pressure	20 psig, steady
Core Spray A Flow	5500 gpm

The operator holds the Outboard Injection Valve (E21-F004A) and the Inboard Injection Valve (E21-F005A) control switches in CLOSE. How will the injection valves respond?

a. E21-F004A only will close.

b. E21-F005A only will close.

c. E21-F004A and E21-F005A will close.

d. E21-F004A and E21-F005A will remain open.

ANSWER: 31

b. (new question)

Only F005 has override capability

QUESTION: 32 POINT VALUE: **1.00** RECORD: **126**
LESSON 1: **LOI-CLS-LP-019-A** Objective(s): **03f**

During a LOCA, HPCI automatically initiated, then tripped. The operator notes the following indications:

Turbine Stop Valve	Closed
HPCI Turbine RPM	Zero
HPCI TURB TRIPPED	Alarm Sealed In
HPCI TURB TRIP SOLENOID ENERG	Has **NOT** alarmed

What caused the HPCI turbine to trip?

a. loss of oil pressure.

b. high exhaust pressure.

c. high reactor water level.

d. low steam supply pressure.

ANSWER: 32

a. (question created for 1994 audit exam but never used. Question does not exist in general access bank)

QUESTION: 33 POINT VALUE: **1.00** RECORD: **644**
LESSON 1: **LOI-CLS-LP-019-A** Objective(s): **03n,10**

Following a small break LOCA, HPCI is being used to control reactor water level. Conditions are:

Reactor Water Level	185 inches
Reactor Pressure	950 psig
Drywell Pressure	4.2 psig

Which of the following describes the HPCI system response if the Control Operator depresses the MANUAL ISOLATION pushbutton on P601.

a. HPCI will continue to inject.

b. Only the inboard isolation valves close.

c. Only the outboard isolation valves close.

d. Both the inboard and outboard isolation valves close.

ANSWER: 33

c. (new question created)

The manual isolation only initiates a logic A isolation and is only in effect when below LL2 (112") or above the drywell high pressure setpoint (2.5 psig).

a - incorrect, logic A isolation will occur.
b - incorrect, these valves close on logic B isolation.
d - incorrect, only the outboard isolation valves (logic A) will close.

QUESTION: 34 POINT VALUE: **1.00** RECORD: **635**
LESSON 1: **LOI-CLS-LP-020-A** Objective(s): **11,15c**

Unit Two (2) has experienced a Loss Of Off-Site Power concurrent with a LOCA. Unit One (1) is operating at 100% power. Unit Two (2) plant conditions are:

RPV Level	+150 inches, lowering rapidly
RPV Pressure	950 psig
Diesel #3	Running, tied to E3
Diesel #4	Tripped, E4 de-energized
Core Spray 2A	Under Clearance

Predict the response of the Automatic Depressurization System if no operator action is taken?

a. ADS will auto initiate 105 seconds after LL1.

b. ADS will auto initiate 105 seconds after LL3.

c. ADS will NOT auto initiate due inadaquate ECCS Pumps.

d. ADS will NOT auto initiate due to loss of AC control power.

ANSWER: 34

b. (Modified from Record ID 2174)

.....

QUESTION: 35 POINT VALUE: **1.00** RECORD: **764**
LESSON 1: **LOI-CLS-LP-020-A** Objective(s): **15d**

Following a Group 1 isolation and reactor scram, all SRVs initially lifted to control reactor pressure, and have reclosed. The operator places the Control Switch for SRV B21-F013F to OPEN for pressure control, and notes the following:

SRV F Red Indicating Lamp	OUT
SRV F Green Indicating Lamp	OUT
SRV F Amber Memory Lamp	LIT
ADS Control Power Failure alarm	Sealed In

SRV F can be opened by high reactor pressure:

a. only.

b. or Remote Shutdown Panel control.

c. or RTGB control, but will not indicate open.

d. or initiation of ADS logic.

ANSWER: 35

a. b is incorrect as SRV F does not have RSP control (could be correct for SRVs B,E,G)
c is incorrect but would be true for reverse lamp indication.
d is incorrect, SRV F has no ADS function.
(New)

.....

QUESTION: 36 POINT VALUE: **1.00** RECORD: **781**
LESSON 1: **LOI-CLS-LP-025-A** Objective(s): **06b**

Unit One (1) is at 5% power during plant startup. The Reactor Mode Switch is in START/HOT STBY. Reactor pressure is 820 psig. Which of the following would result in a closure of MSIVs and full reactor scram?

a. All Turbine Bypass Valves fail open.

b. Reactor Level rises above +208 inches.

c. Main Steam Line Radiation Hi-Hi alarms.

d. The Reactor Mode Switch is placed to RUN.

ANSWER: 36

d. a is correct for unit 2, or for unit 1 if mode switch in RUN. b would trip RFP and likely scram on low level, but not close MSIVs. c is correct for unit 2, but not unit 1 due to recent plant mod. d would cause MSIV closure on low steam pressure and direct scram due to MSIV closure with mode switch in RUN. (New)

.....

QUESTION: 37 POINT VALUE: **1.00** RECORD: **782**
LESSON 1: **LOI-CLS-LP-026-A** Objective(s): **11a**

Unit One (1) is starting up following refueling. Turbine roll is in progress, and turbine speed is 1000 RPM. The turbine will trip if:

a. Both stator coolant pumps are lost.

b. Bearing #9 vibration rises to 12 mils.

c. Main shaft oil pump discharge pressure is 100 psig.

d. LP rotor 12th stage temperature is below 120°F for 10 minutes.

ANSWER: 37

b. a would cause a runback, but not during turbine roll c will trip turbine if above 1440 rpm, d incorrect due to EDP 94-011 (recent plant mod - is correct for unit 2) (From exam bank #5316)

.....

QUESTION: 38 POINT VALUE: **1.00** RECORD: **701**
LESSON 1: **LOI-CLS-LP-026-D** Objective(s): **10e**

Unit Two (2) is operating at 28% power with the main turbine in service. A lowering condenser vacuum occurs. What automatic actions should occur if main condenser vacuum lowers to 8"hg?

a. A turbine trip causing a reactor scram, MSIVs close, MSL drains close, bypass valves close.

b. A turbine trip causing a reactor scram, MSIVs close, MSL drains close, reactor water sample valves close.

c. A turbine trip, MSIVs close causing a reactor scram, MSL drains close, reactor water sample valves close.

d. A turbine trip, MSIVs close causing a reactor scram, MSL drains close.

ANSWER: 38

d. (new question)

a - incorrect, turbine trip will <u>not</u> cause a reactor scram below 30% power and the bypass valves will <u>not</u> close.
b - incorrect, turbine trip will <u>not</u> cause a reactor scram below 30% power and reactor water sample valves only close on UNIT 1.
c - reactor water sample valves only close on UNIT 1.

QUESTION: 39 POINT VALUE: **1.00** RECORD: **783**
LESSON 1: **LOI-CLS-LP-032-A** Objective(s): **05a,06a**

Unit Two (2) is at 100% power. Condensate pumps 2B and 2C are in operation with pump 2A in standby, selected to AUTO.

A loss of 4KV bus 2C occurs. How will the Condensate System respond?

a. Condensate pump 2B trips. Condensate pump 2A auto starts when booster pump suction header pressure drops to 20 psig.

b. Condensate pump 2B trips. Condensate pump 2A auto starts when condensate discharge header pressure drops to 145 psig.

c. Condensate pump 2C trips. Condensate pump 2A auto starts when booster pump suction header pressure drops to 20 psig.

d. Condensate pump 2C trips. Condensate pump 2A auto starts when condensate discharge header pressure drops to 145 psig.

ANSWER: 39

a. (From Exam Bank #3770)

.....

QUESTION: 40 POINT VALUE: **1.00** RECORD: **765**
LESSON 1: **LOI-CLS-LP-032-A** Objective(s): **05c**

Unit One (1) is operating at 60% power with the following Feedwater System configuration:

Reactor Feed Pump 1B operating
Reactor Feed Pump 1A under clearance
Level Instrument N004A selected for Feedwater Level Control

Which of the following would cause a trip of the 1B Reactor Feed Pump Turbine?

a. Power is lost to the trip solenoid.

b. Level instrument N004A fails downscale.

c. The operating AC powered lube oil pump trips.

d. Thrust bearing wear sensed in the Inactive direction.

ANSWER: 40

d. The oil system was replaced during recent Unit 1 outage to provide standby AC pump. Failure of the selected level instrument would auto select the other instrument. trip solenoid energize to trip.
(New)

.....

QUESTION: 41 POINT VALUE: **1.00** RECORD: **640**
LESSON 1: **LOI-CLS-LP-032 C** Objective(s): **07c**

The unit is at 100% power with the Digital Feedwater Control System in three-element control and the N004A level instrument selected.

Which of the following describes the Digital Feedwater Control System response if the reference level instrument, N004C, fails DOWNSCALE?

a. The system will continue to use the N004A level instrument and will remain in three-element control.

b. The system will transfer to the N004B level instrument and will remain in three-element control.

c. The system will continue to use the N004A level instrument and will transfer to single-element control.

d. The system will transfer to the N004B level instrument and will transfer to single-element control.

ANSWER: 41

a. (new question)

b - incorrect, the selected instrument will <u>not</u> transfer
c - incorrect, the system will <u>not</u> change to single-element control
d - incorrect, the selected instrument will <u>not</u> transfer and the system will <u>not</u> change to single-element control

.....

QUESTION: 42 POINT VALUE: **1.00** RECORD: **638**
LESSON 1: **LOI-CLS-LP-037-A** Objective(s): **04a,04b,07d**

The Control Room Ventilation system is operating in the CONTINUOUS RECIRCULATION mode (normal operating alignment).

Which of the following describes how a single high radiation signal detected at the control building intake plenum affects the operating mode of the system?

a. The system will remain in the CONTINUOUS RECIRCULATION mode until a second high radiation signal is received.

b. All outside penetrations will isolate and the system will operate in a NON FILTERED RECIRCULATION mode.

c. The normal makeup and exhaust paths will isolate and the system will operate in a FILTERED RECIRCULATION mode.

d. Only the exhaust path will isolate and the system will operate in a PURGED RECIRCULATION mode.

ANSWER: 42

c.

new question

a - incorrect, any single radiation level high will change the mode
b - incorrect, this will occur if high chlorine is sensed
d - incorrect, this mode will not occur automatically and is not allowed to be manually lined up per procedure.

.....

QUESTION: 43 POINT VALUE: **1.00** RECORD: **791**
LESSON 1: **LOI-CLS-LP-037-B** Objective(s): **04**

A Loss of Off-Site Power has occured. Secondary Containment isolated. Reactor Building Ventilation was restarted using circuit alterations per SEP-04. Plant conditions are:

Reactor Water Level is +120 inches, slowly rising
Drywell Pressure is 1.2 psig, slowly rising
CAC Vent Purge Isol Ovrd (CAC-CS-5519) is in OVERRIDE

Which of the following would cause the Reactor Building to re-isolate with the circuit alterations installed?

a. Drywell pressure rises above 2.0 psig.

b. Reactor level drops to the Top Of Active Fuel.

c. Reactor Building Vent Exhaust temperature exceeds 140°F.

d. Main Stack Radiation Monitor exceeds the Hi-Hi setpoint.

ANSWER: 43

c. SEP-04 provides guidance for jumpers for low level and high drywell pressure. CAC-CS-5519 overrides main stack rad trips. (New)

.....

QUESTION: 44 POINT VALUE: **1.00** RECORD: **600**
LESSON 1: **LOI-CLS-LP-039-A** Objective(s): **10b,10f**

Following a Loss Of Off-Site Power to Unit Two (2), Diesel Generator (DG) #3 is running loaded, tied to E3.

480 VAC MCC DGC trips due to an overcurrent fault. How is operation of DG #3 affected?

a. The engine will immediately trip due to loss of 120 VAC control power to the governor.

b. The engine will immediately trip due to loss of lube oil pumps and low lube oil pressure.

c. The engine will run for a period of time then trip on high jacket water temperature.

d. The engine will run for a period of time then trip when available fuel or air is depleted.

ANSWER: 44

d. new question

a. governor powered from generator output
b. shaft driven LO pump backs up AC pump
c. jacket watr temp trip bypassed by auto start

QUESTION: 45 POINT VALUE: **1.00** RECORD: **770**
LESSON 1: **LOI-CLS-LP-039-A** Objective(s): **10g**

Diesel Generator #3 is running in response to a Loss Of Coolant Accident concurrent with a Loss Of Off-Site Power. The NORMAL DC supply breaker to the Engine Control cabinet trips.

Diesel Generator #3 will:

a. Remain tied to E3 without any engine trip protection.

b. Remain tied to E3 due to auto control power transfer.

c. Trip due to loss of power to the engine run control relays.

d. Trip due to loss of power to the generator protective relays.

ANSWER: 45

c. alternate DC source available, but manual transfer. Engine protection devices and generator protective relays energize to trip engine. (New)

.....

QUESTION: 46 POINT VALUE: **1.00** RECORD: **788**
LESSON 1: **LOI-CLS-LP-041-A** Objective(s): **13**

During a Station Blackout, the Diesel Driven Fire Pump is providing inventory makup to the Unit Two (2) Reactor Vessel due to failure of RCIC and HPCI.

Fire Water Storage Tank level is rapidly dropping due to a breach of tank integrity. Where should the Diesel Driven Fire Pump suction be aligned to?

a. County Water Storage Tank.

b. Unit 1 Condensate Storage Tank.

c. Unit 2 Condensate Storage Tank.

d. Makeup Demineralized Water Tank.

ANSWER: 46

d. (new)

QUESTION: 47 POINT VALUE: **1.00** RECORD: **784**
LESSON 1: **LOI-CLS-LP-050-B** Objective(s): **13b**

Unit One (1) has lost Off-Site Power. Diesel Generator (DG) #1 has received an auto start signal. The following alarms and indications are observed:

Bus E1 Undervoltage alarm sealed in
DG-1 Running alarm sealed in
DG #1 No Load lamp on RTGB control module is lit
DG #1 output breaker green lamp lit

What could be the cause of the above indications?

a. Bus E1 Slave Breaker overcurrent relays are tripped.

b. Conventional Service Water Pump 2C breaker is closed.

c. DG #1 failed to reach rated generator output voltage.

d. The 4KV feeder breaker to 480 V Substation E5 is closed.

ANSWER: 47

b. Overcurrent on normal incoming does not prevent DG breaker closure even if bus has fault. DG is at rated voltage as evidenced by DG running alarm and No Load lamp. Bus must be stripped of all 4KV loads except for E5 for breaker to close (CSW 2C powered from E1)
(Modified from exam bank #4703)

QUESTION: 48 POINT VALUE: **1.00** RECORD: **786**
LESSON 1: **LOI-CLS-LP-051-A** Objective(s): **07d**

A loss of feedwater causes an automatic initiation of RCIC. While monitoring RCIC operation, the operator notes the following alarm:

RCIC LOGIC BUS A PWR FAILURE alarm sealed in

How will the RCIC system respond?

a. RCIC continues to inject to the RPV and automatic shutdown on high RPV water level is lost.

b. RCIC will oscillate at low speed due to power loss to the inverter and flow controller.

c. RCIC governor valve fails full open due to EGM box power loss and RCIC trips on overspeed.

d. RCIC inboard Group 5 and 9 isolation valves close due to power loss to the inboard isolation logic.

ANSWER: 48

a. logic A powers 1/2 signal needed for hi lvl shutdown, b inverter is fed from B, c EGM is fed from B, d logic is energize to isolate (modified from Exam Bank ID 3515)

.....

QUESTION: 49 POINT VALUE: **1.00** RECORD: **785**
LESSON 1: **LOI-CLS-LP-052-B** Objective(s): **08c,08e,08f**

During full power operation of Unit Two (2), the following indications are noted:

Rod Full In/Full Out lamps on full core display all out
Digital Feedwater Control System controllers are blank
Group 6 isolates, Secondary Containment isolates, SBGT is running

How will the plant respond to this event?

a. Reactor Feed Pumps will run back to minimum speed causing a low level scram.

b. Steam Jet Air Ejectors will trip and the turbine will trip on low condenser vacuum.

c. Secondary containment temperatures cannot be controlled due to inability to restore ventilation.

d. Nuclear instrumentation recorders on P603 will NOT show any changes in reactor power.

ANSWER: 49

d. a is true for analog feed control but not for digital, b recent plant deleted SJAE low pressure trip, c vent can be restored by transfer of power supply to main stack rad monitor, NI recorders on P603 powered from UPS and fail as is. (New)

QUESTION: 50 POINT VALUE: **1.00** RECORD: **869**
LESSON 1: **LOI-CLS-LP-102-A** Objective(s): **01**

The 10 CFR 20 annual limit to the lens of the eye is an eye dose equivalent of:

a. 1.5 rems.

b. 5.0 rems.

c. 15 rems.

d. 50 rems.

ANSWER: 50

c. (From Exam Bank 4777 - never used, deleted from bank)

QUESTION: 51 POINT VALUE: **1.00** RECORD: **632**
LESSON 1: **LOI-CLS-LP-118-A** Objective(s): **05k**

Refer to the Attached P&ID D-02520

The reactor vessel reference leg associated with condensing pot B21-D004B has a constant backfill from the CRD system in service at a flowrate of 0.008 gpm from IV-2735.

The instrument line excess flow check (B21-F048B) fails closed. How will Level Instrument B21-LT-N017C-1, and Pressure Instrument B21-PT-N045C respond?

a. B21-LT-N017C-1 fails low, B21-PT-N045C fails high.

b. B21-LT-N017C-1 fails high, B21-PT-N045C fails low.

c. B21-LT-N017C-1 fails low, B21-PT-N045C fails low.

d. B21-LT-N017C-1 fails high, B21-PT-N045C fails high.

ANSWER: 51

a. (modified from Rec ID 4713)

QUESTION: 52 POINT VALUE: **1.00** RECORD: **843**
LESSON 1: **LOI-CLS-LP-200-A** Objective(s): **07**

You are escorting a visitor on a plant tour. Which one of the following is the correct method for accessing the Reactor Building 20' elevation?

a. the escort uses the card reader and the visitor and escort must pass through the turnstile together.

b. the visitor uses the card reader and waits, the escort uses the card reader and both pass through the turnstile together.

c. the visitor uses the card reader and waits, the escort uses the card reader, then both enter through the material access door.

d. the escort uses the card reader, then the visitor and escort enter through the material access door.

ANSWER: 52

d New

QUESTION: 53 POINT VALUE: **1.00** RECORD: **797**
LESSON 1: **LOI-CLS-LP-200-B** Objective(s): **03**

Which of the following conditions will cause a SAFETY LIMIT to be exceeded?

a. Reactor vessel steam dome pressure rises to 1275 psig.

b. MINIMUM CRITICAL POWER RATIO lowers to 1.06 while at 42% reactor power.

c. Reactor vessel steam dome pressure lowers to 860 psig with THERMAL POWER at 30%.

d. Core flow lowers to 9% of rated flow with THERMAL POWER at 20%.

ANSWER: 53

b. (new question)

a. incorrect, 1325 psig is SAFETY LIMIT
c. incorrect, steam dome pressure must lower below 800 psia with THERMAL POWER >25%.
d. incorrect, core flow may be below 10% of rated when THERMAL POWER is below 25%.

.....

QUESTION: 54 POINT VALUE: **1.00** RECORD: **848**
LESSON 1: **LOI-CLS-LP-201-C** Objective(s): **05a**

Which of the following conditions would warrant a temporary procedure change being initiated?

a. relocation of a QC hold point within the procedure

b. procedure written for different plant conditions

c. addition of a caution to the procedure

d. typographical error on the valve name in a procedure

ANSWER: 54

b. new

QUESTION: 55 POINT VALUE: **1.00** RECORD: **835**
LESSON 1: **LOI-CLS-LP-201-C** Objective(s): **07b**

A situation has occurred which requires a temporary change to an operations procedure to be <u>immediately</u> implemented.

Which one of the following correctly describes the <u>MINIMUM</u> actions that are required to execute the procedure?

a. May be executed immediately, SRO must document his approval on the procedure following execution.

b. May be executed after logbook entry is made and signed by SRO and Shift Supervisor.

c. May be executed after the procedure is marked with the change and initialed by an SRO and the SS.

d. May be executed after a temporary procedure change form has been completed and recieved interim approval.

ANSWER: 55

c. new

.....

QUESTION: 56 POINT VALUE: **1.00** RECORD: **800**
LESSON 1: **LOI-CLS-LP-201-C** Objective(s): **08**
LESSON 2: **LOI-CLS-LP-201-D** Objective(s): **01f**

Following maintenance on the RCIC system during a refueling outage, the RCIC Valve and Electrical Lineup Prestartup Checklists will be performed.

Which of the following classifies the level of use of this procedure?

a. Information Use

b. Continuous Use

c. Reference Use

d. Multiple Use

ANSWER: 56

b. (new question)

All Valve and Electrical Lineups are CONTINUOUS USE procedures.

.....

QUESTION: 57 POINT VALUE: **1.00** RECORD: **877**
LESSON 1: **LOI-CLS-LP-201-D** Objective(s): **01f**

A Reactor Operator and Auxiliary Operator are performing an evolution that requires sequential actions to be performed in the Control Room and in a contaminated area within the Reactor Building. Most of the actions will be performed by the Auxiliary Operator.

How is the master copy of the procedure controlled and how is step execution and completion documented as the evolution is performed?

a. The Reactor Operator maintains the master copy and initials for all procedure steps on the master copy as they are completed.

b. The Auxiliary Operator maintains the master copy and initials for all procedure steps on the master copy as they are completed.

c. The Reactor Operator and the Auxiliary Operator each have a field copy and transfer their initials to the master copy after the evolution is completed.

d. The Reactor Operator initials the steps he performs on the master copy and the Auxiliary Operator transfers his/her initials to the master copy from a field copy.

ANSWER: 57

d. (question from exam bank - record #3573)

QUESTION: 58 POINT VALUE: **1.00** RECORD: **838**
LESSON 1: **LOI-CLS-LP-201-D** Objective(s): **07d**

Which one of the following correctly states the dot color on a MCC breaker for equipment that periodically cycles?

a. white

b. black

c. green

d. red

ANSWER: 58

a. New

QUESTION: 59 POINT VALUE: **1.00** RECORD: **757**
LESSON 1: **LOI-CLS-LP-201-E** Objective(s): **10a**

A pneumatic valve that is equipped with a manual operator will be used as an isolation point for a clearance. The valve fails in the closed position.

Which of the following describes the conditions that must be satisfied to use this valve as a clearance boundary isolation once the valve is closed?

a. Only its' handwheel is tagged.

b. Only its' air supply is isolated and tagged.

c. Its' air supply is isolated and tagged and the handwheel is tagged.

d. The valve operator must be removed and an approved clamping device installed and tagged.

ANSWER: 59

c. (new question)

per AI-58:

a. Not true because both need to be tagged.

b. True if a pneumatically-operated valve without a handwheel that fails closed.

d. True if the operator is removed, however, this is not required to be done.

QUESTION: 60 POINT VALUE: **1.00** RECORD: **769**
LESSON 1: **LOI-CL3-LP-201-F** Objective(s): **05**

Following evacuation of the atmosphere within a confined space, the stable atmosphere sample concentrations are as follow:

oxygen concentration	18.5%
flammable gas	0
combustible airborne dust	0
contaminant concentrations	0

The confined space entry:

a. can be approved. The oxygen concentration is within the prescribed range for all confined space entries.

b. can be approved. Even though the oxygen concentration is <u>not</u> within the prescribed range for the presence of flammables, it is allowable with these concentrations at zero.

c. can NOT be approved. The oxygen concentration must be lowered at least 1% to be within the allowable range.

d. can NOT be approved. The oxygen concentration must be raised at least 1% to be within the allowable range.

ANSWER: 60

d. (new question)

Per AI-66 Oxygen concentration must be within 19.5% to 23.5% to approve the confined space permit.

.....

QUESTION: 61 POINT VALUE: **1.00** RECORD: **806**
LESSON 1: **LOI-CLS-LP-300-A** Objective(s): **04**

Following initiation of a manual reactor scram due to a Total Loss of RBCCW, 29 Control Rods failed to fully insert. Plant Conditions are:

APRMs are downscale
IRMs are on range 2, lowering
SRM Period indication -80 seconds
Rods are being inserted with RMCS per LEP-02
Actions being taken in accordance with EOP-01-RSP

Due to the loss of RBCCW, drywell pressure rises above 2.0 psig. The operating crew should enter the:

a. Level Power Control procedure and excecute concurrently with the Reactor Scram Procedure.

b. Reactor Vessel Control Procedure and excecute concurrently with the Reactor Scram Procedure.

c. Level Power Control procedure and exit the Reactor Scram Procedure.

d. Reactor Vessel Control Procedure and exit the Reactor Scram Procedure.

ANSWER: 61

c. (new)

QUESTION: 62 POINT VALUE: **1.00** RECORD: **794**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **11**

A heavy influx of marsh grass on the Circulating Water Screens has caused a loss of all Circulating Water pumps and a reactor scram. Plant conditions are:

Group 1 isolated
Condenser vacuum is 0" Hg
Turbine speed is 500 rpm, dropping
EHC Electrical Malfunction in alarm due to loss of the PMG.

The marsh grass is now cleared and the Circulating Water System has been restarted. Is the Main Condenser available as a heat sink?

a. No, the MSIVs are closed.

b. No, the EHC system is not available.

c. No, the condenser is not under vacuum.

d. Yes, all required systems are available.

ANSWER: 62

d. (New)

QUESTION: 63 POINT VALUE: **1.00** RECORD: **801**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **16**
LESSON 2: **LOI-CLS-LP-300-D** Objective(s): **08**

During a Station Blackout on Unit One (1), cross-tie of E Buses has been unsuccessful. Fuel Zone indicator N036 is the ONLY on scale Reactor Water Level instrument. Plant conditions are:

Reactor Water Level	-20 inches (N036)
Reactor Pressure	95 psig
Drywell Average Temp	295°F
Drywell Ref Leg Area Temp	320°F

Reactor Water Level is presently:

a. <u>below</u> the TAF, level indication will become inoperable if pressure drops by <u>25</u> psig.

b. <u>above</u> the TAF, level indication will become inoperable if pressure drops by <u>25</u> psig.

c. <u>below</u> the TAF, level indication will remain operable until pressure drops by <u>50</u> psig.

d. <u>above</u> the TAF, level indication will remain operable until pressure drops by <u>50</u> psig.

ANSWER: 63

a. (New)

QUESTION: 64 POINT VALUE: **1.00** RECORD: **809**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **20**

During ATWS conditions, Emergency Depressurization becomes required.

What is the minimum number of SRVs required for Emergency Depressurization, and the basis for this number?

a. 3, the highest minimum alternate flooding pressure at which RHR will provide sufficient makeup to maintain core cooling.

b, 4, the highest minimum alternate flooding pressure at which RHR will provide sufficient makeup to maintain core cooling.

c. 3, the minimum steam flow through the uncovered portion of the core to maintain clad temperatures below 1800°F during the depressurization.

d. 4, the minimum steam flow through the uncovered portion of the core to maintain clad temperatures below 1800°F during the depressurization.

ANSWER: 64

b. (new)

.....

QUESTION: 65 POINT VALUE: **1.00** RECORD: **799**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **21a**

During normal full power operation, Main Steam Isolation Valve B21-F028C disc becomes separated from the stem and rapidly shuts. During the transient the following indications are observed:

APRMs spike to 115% and within 1 second lower to 100%

Reactor Pressure spikes to 1050 psig and within 1 second lowers to 1000 psig

What Limiting Safety System Setting, if any, has been exceeded?

a. APRM neutron flux.

b. APRM flow biased thermal power.

c. reactor steam dome pressure.

d. no setpoint has been exceeded.

ANSWER: 65

c. (New)

QUESTION: 66 POINT VALUE: **1.00** RECORD: **808**
LESSON 1: **LOI-CLS-LP-300-B** Objective(s): **21b**

Following a reactor scram and a group 1 isolation, SRVs are cycling on pressure to maintain RPV pressure 1050-1100 psig.

Which of the following conditions REQUIRES Seven ADS/SRVs to be opened for Emergency Depressurization?

a. Suppression Pool Level is -8' 3"
   Suppression Pool Temperature is 105°F

b. Suppression Pool Level is -3' 3"
   Suppression Pool Temperature is 146°F

c. Suppression Pool Level is -1' 6"
   Suppression Pool Temperature is 152°F

d. Suppression Pool Level is +3' 3"
   Suppression Pool Temperature is 95°F

ANSWER: 66

d. a ED required but not permitted to use SRVs, b&c safe regions of HCTL and HCLL, d unsafe on SRVTL curve (new)

.....

QUESTION: 67 POINT VALUE: **1.00** RECORD: **798**
LESSON 1: **LOI-CLS-LP-300-C** Objective(s): **02**

A Unit Two (2) reactor scram has occurred. Seven Control rods failed to fully insert and are between positions 02 and 08. Conditions are:

All APRM Downscale lights are LIT
MSIVs open
Total Steam Flow 3.6 E6 lbm/Hr, dropping
Reactor Pressure 900 psig, dropping
Narrow Range Level Instruments (N004s) +155 inches, rising
Master Feedwater setpoint at +170"
Two Reactor Feed Pumps in operation

The operator is required to immediately:

a. Trip the Main Turbine.

b. Trip one Reactor Feed Pump.

c. Place the Mode Switch to SHUTDOWN.

d. Enter Alternate Control Rod Insertion.

ANSWER: 67

a. Recent procedure change allows trip main turbine prior to placing mode switch to shutdown. Mode switch cannot be placed in shutdown prior to steam flow below 3 Mlbm/hr or a Group 1 isolation occurs. One RFP is tripped when level on N004s +170" and rising, LEP-01 is not immediate action (New)

.....

QUESTION: 68 POINT VALUE: **1.00** RECORD: **815**
LESSON 1: **LOI-CLS-LP-300-E** Objective(s): **07**

During an ATWS on Unit One (1), all Bypass Valves are full open and one SRV is being used for pressure control. Conditions have arisen requiring injection to the Reactor vessel to be terminated and prevented.

With Reactor Water Level lowering, the following conditions are observed:

Reactor Power	22%
Reactor Water Level	+145 inches
Suppression Pool Temp	115 °F
Drywell Pressure	0.5 psig
Bypass Valves	3 1/2 open
SRVs	All Closed
SLC Tank Level	60%

What action is required?

a. Continue to lower level until Reactor Power is below 3% or Reactor Water Level reaches -37.5 inches.

b Continue to lower level until Reactor Power is below 3% or Reactor Water Level reaches Top of Active Fuel.

c. Re-establish injection and establish a level band no higher than +145 inches and no lower than -37.5 inches.

d. Re-establish injection and slowly raise level to +170 to +200 inches as long as Bypass Valves maintain pressure control.

ANSWER: 68

c. (New)

.....

QUESTION: 69 POINT VALUE: **1.00** RECORD: **814**
LESSON 1: **LOI-CLS-LP-300-E** Objective(s): **08c**

During an ATWS emergency depressurization becomes required. Plant conditions are:

RPV level	80 inches
RPV pressure	1000 psig
Drywell pressure	1.0 psig
All 4KV Buses	Energized from Off-Site Power

Direction has been given to Terminate and Prevent injection from Core Spray during the depressurization. This is accomplished by placing the the Core Spray Pump control switch to STOP:

a. Immediately when RPV level drops to LL3.

b. 15 seconds after RPV level drops to LL3.

c. Immediately when RPV pressure drops below the injection valve pressure permissive.

d. 15 seconds after RPV pressure drops below the injection valve pressure permissive.

ANSWER: 69

b. exam bank 4739, never used, deleted from bank

.....

QUESTION: 70 POINT VALUE: **1.00** RECORD: **857**
LESSON 1: **LOI-CLS-LP-300-F** Objective(s): **03**

An accident is in progress that has resulted in loss of all RPV level instrumentation. The reactor scrammed eight hours ago.

Conditions of the Reactor Flooding Procedure have been established that allow terminating all injection to the reactor. The Maximum Core Uncovery Time Limit is approximately:

a. 3.5 minutes.

b. 5.0 minutes.

c. 8.5 minutes.

d. 17.0 minutes.

ANSWER: 70

c. (From Exam Bank 4740 unmodified)

.....

QUESTION: 71 POINT VALUE: **1.00** RECORD: **812**
LESSON 1: **LOI-CLS-LP-300-G** Objective(s): **03**

During a Station Blackout, HPCI/RCIC have failed. LPCI cannot be aligned for injection.

An AO has been dispatched to align Fire Water Injection (the ONLY available injection source) and is in the process of manually operating MOVs due to loss of power. Plant Conditions are:

Reactor Pressure	300 psig
Reactor Level	-30 inches (Fuel Zone)
Drywell Ref Leg Area Temp	300°F

The Fire Water Injection lineup has not yet been established. When is the earliest that an Emergency Depressurizion is required?

a. Immediately since Reactor Level is currently below Top of Active Fuel.

b. When Reactor Water level indication drops below -50 inches on the Fuel Zone.

c. When Reactor Water level indication drops below -61 inches on the Fuel Zone.

d. When Reactor Water level indication drops below -72 inches on the Fuel Zone.

ANSWER: 71

c. (New)

.....

QUESTION: 72 POINT VALUE: **1.00** RECORD: **860**
LESSON 1: **LOI-CLS-LP-300-I** Objective(s): **02,03**

During accident conditions, Reactor Water level cannot be restored above the Top of Active Fuel. Service Water is injecting to the Reactor Vessel to raise Containment Level.

Service Water injection MUST be secured, IRRESPECTIVE of Adequate Core Cooling when Primary containment level reaches:

a. 63 feet, to prevent covering the highest reactor vessel vent path capable of rejecting all decay heat.

b. 63 feet, to prevent covering the highest primary containment vent path capable of rejecting all decay heat.

c. 68.5 feet, to prevent covering the highest reactor vessel vent path capable of rejecting all decay heat.

d. 68.5 feet, to prevent covering the highest primary containment vent path capable of rejecting all decay heat.

ANSWER: 72

d. (new)

.....

QUESTION: 73 POINT VALUE: **1.00** RECORD: **862**
LESSON 1: **LOI-CLS-LP-300-J** Objective(s): **05**

A Condensate header rupture in the cable spread area of the Control Building has resulted in a loss of all UPS and RPS power.

Plant status is as follows:

Blue scram lights	137 illuminated
IRM Indications	50 on Range 10

What method of EOP-01-LEP-02, Alternate Control Rod Insertion, would be MOST effective in inserting the withdrawn rods?

a. Vent the scram air header.

b. Vent the overpiston area of control rods.

c. Scram individual rods with the scram test switches.

d. Insert control rods with the Reactor Manual Control System.

ANSWER: 73

b. (Exam bank 4744 unmodified)

.....

QUESTION: 74 POINT VALUE: **1.00** RECORD: **849**
LESSON 1: **LOI-CLS-LP-300-K** Objective(s): **06**

The maximum Suppression Pool Level that will allow Drywell Spray to be initiated is:

a. +21 inches, at this level the Torus to Drywell vacuum breakers are submerged.

b. -6 inches, at this level the Torus to Drywell vacuum breakers are submerged.

c. +21 inches, at this level the Reactor Building to Torus vacuum breaker openings are submerged.

d. -6 inches, at this level the Reactor Building to Torus vacuum breaker openings are submerged.

ANSWER: 74

a. (New) The RB to torus vacuum breakers are at -6", basis is torus to drywell

QUESTION: 75 POINT VALUE: **1.00** RECORD: **845**
LESSON 1: **LOI-CLS-LP-300-K** Objective(s): **18e**

During ATWS conditions, the MSIVs are open. A failed open Safety Relief Valve is causing Suppression Pool temperature to rise. The Feedwater system is operating in automatic to maintain Reactor Water Level. Plant conditions are:

Reactor Power	15%
Reactor Water Level	+170 inches
Suppression Pool Temperature	111°F

EOPs Direct installation of circuit alterations per SEP-10 for Group 1 Isolation Logic. These jumpers will:

a. Bypass all Group 1 Isolation signals to maintain the Feed Pumps available for level control.

b. Bypass all Group 1 Isolation signals to maintain heat rejection capability to the main condenser.

c. Bypass Group 1 Low Level Isolation signal only to maintain the Feed Pumps available for level control.

d. Bypass Group 1 Low Level Isolation signal only to maintain heat rejection capability to the main condenser.

ANSWER: 75

d. New

.....

QUESTION: 76 POINT VALUE: **1.00** RECORD: **807**
LESSON 1: **LOI-CLS-LP-300-L** Objective(s): **02**

A dual seal failure on a Reactor Recirculation Pump has caused drywell pressure to rise above the the scram setpoint. The Recirculation Pump was tripped and isolated per the guidance of AOP-01.0, and drywell pressure has stabilized.

What action should be performed to reduce drywell pressure?

a. Enter EOP-02-PCCP and operate all drywell coolers.

b. Enter EOP-02-PCCP and vent the drywell per OP-10.

c. Enter AOP-14.0 and operate all drywell coolers.

d. Enter AOP-14.0 and vent the drywell per OP-10.

ANSWER: 76

a. entry to PCCP same as scram setpoint. AOP-14 exited if parameter exceeds EOP entry. Drywell cannot be vented due to isolation signal from drywell pressure. (new)

.....

QUESTION: 77 POINT VALUE: **1.00** RECORD: **826**
LESSON 1: **LOI-CLS-LP-300-L** Objective(s): **20a**
LESSON 2: **LOI-CLS-LP-300-B** Objective(s): **08**

During a high power ATWS, the following plant conditions exist:

Reactor Power	5%
Reactor Water Level	Between TAF and -37.5
Reactor Pressure	1000 psig
Suppression Pool Temperature	165°F
Drywell Pressure	1.2 psig
Drywell Temperature	130°F

SLC injection unavailable

What limit will be exceeded if Emergency Depressurization is performed?

a. Maximum Core Uncovery Time Limit.

b. Peak Fuel Clad Temperature 1800°F.

c. Reactor Saturation Temperature Limit.

d. Suppression Chamber Design Temperature.

ANSWER: 77

d. In unsafe region of HCTL (new)

QUESTION: 78 POINT VALUE: **1.00** RECORD: **825**
LESSON 1: **LOI-CLS-LP-300-L** Objective(s): **21**

Following a Loss Of Off-site Power, a LOCA occurs on Unit Two (2). Plant conditions are:

Reactor Water Level	+170 inches, steady
Average Drywell Temperature	250°F, rising
Suppression Chamber Pressure	18 psig, rising
Diesel Generators 3 & 4 loaded	
Group 10 isolated	
All Drywell Coolers running	

Initiation of Drywell Sprays has been directed. How can the Drywell Coolers be stopped per SEP-02?

a. By Placing all Drywell Cooler control switches on the RTGB to the OFF (L/O) position.

b. By Placing the PLACE D/W CLR A&D and B&C OVERRIDE Switches in XU-27 and XU-28 to the STOP position.

c. Only by placing the the 480 VAC MCC breakers in the Reactor Building for all Drywell Coolers in OFF.

d. Only by placing the Group 10 Valve control switches on the RTGB to the OVERRIDE/RESET position, then to OPEN.

ANSWER: 78

b. will work as long as all E buses have power. a will not work due to group 10, c would only be required if control power lost, d not allowed by procedural guidance (New)

.....

QUESTION: 79 POINT VALUE: **1.00** RECORD: **810**
LESSON 1: **LOI-CLS-LP-300-M** Objective(s): **03**

Secondary containment conditions are as follows:

South RHR room water level	4 inches above floor
Rx Bldg pressure	positive
Rx Bldg 20' area temperature	116°F
Rx Bldg vent exh radiation	2 mr/hr

Which of the following describes if entry into EOP-03-SCCP, Secondary Containment Control Procedure, is required?

a. NO entry is required at this time.

b. Entry is required due to high 20' area temperature.

c. Entry is required due to high South RHR room water level.

d. Entry is required due to positive pressure in the reactor building.

ANSWER: 79

d. (new question)

If the reactor building negative pressure becomes positive, entry is required.

a. incorrect, there is one entry condition.
b. 20' area temperature entry is 140°F.
c. Area water level entry is 6" above the floor

.....

QUESTION: 80 POINT VALUE: **1.00** RECORD: **858**
LESSON 1: **LOI-CLS-LP-300-M** Objective(s): **04c**

Maximum Safe Operating Radiation Level in Secondary Containment is defined as the radiation level above which:

a. equipment necessary for the safe shutdown of the plant will fail.

b. personnel access necessary for the safe shutdown of the plant will be precluded.

c. installed monitoring equipment pegs high and actual radiation levels are unknown.

d. releases from the reactor building will be in excess of Alert Classification limits.

ANSWER: 80

b. (From Exam Bank 4748 - one distractor modified, but not question)

QUESTION: 81 POINT VALUE: **1.00** RECORD: **859**
LESSON 1: **LOI-CLS-LP-300-M** Objective(s): **06,08**

While performing PT 9.2, HPCI OPERABILITY TEST, the HPCI steam supply line ruptured. HPCI failed to automatically isolate and attempts to manually isolate HPCI are unsuccessful.

The following Steam Leak Detection NUMAC channels are in alarm:

B21-XY-5949A, Channel A3-3, reading 303°F
B21-XY-5949B, Channel A3-3, reading 298°F
B21-XY-5948A, Channel A5-1, reading 301°F
B21-XY-5948B, Channel A5-1, reading 296°F

No other channels are in alarm. Refer to the Secondary Containment Area Limits Tables. What action is <u>required</u> to be be taken?

a. Scram the reactor and commence a cooldown at normal rates.

b. Shutdown the reactor using GP-05 or scram the reactor as directed by the Shift Supervisor.

c. Scram the reactor and emergency depressurize.

d. Scram the reactor and rapidly depressurize to the main condenser.

ANSWER: 81

a. (New)

.....

QUESTION: 82 POINT VALUE: **1.00** RECORD: **829**
LESSON 1: **LOI-CLS-LP-300-N** Objective(s): **02**

Which of the following alarms requires entry into EOP-04-RRCP, Radioactivity Release Control Procedure?

a. RBCCW Liquid Process Rad High.

b. Process Rx Bldg Vent Rad High.

c. Process OG Vent Pipe Rad High.

d. Turbine Building Area Rad High.

ANSWER: 82

c. Exam Bank record ID 4749 Unmodified

.....

QUESTION: 83 POINT VALUE: **1.00** RECORD: **842**
LESSON 1: **LOI-CLS-LP-301-A** Objective(s): **03**

By definition of the Plant Emergency Procedure Classifications, the lowest emergency classification at which significant radiation releases may occur is:

a. Unusual Event

b. Alert

c. Site Area Emergency

d. General Emergency

ANSWER: 83

c. New

.....

QUESTION: 84 POINT VALUE: **1.00** RECORD: **841**
LESSON 1: **LOI-CLS-LP-302-B** Objective(s): **01b**
LESSON 2: **LOI-CLS-LP-008-A** Objective(s): **06a**

During rated power operations, the in-service CRD System Flow Control Valve fails closed.

What adverse consequence could result in extended operation with the Flow Control Valve shut?

a. Recirculation Pump seal temperatures will rise, requiring the Recirculation Pumps to be secured.

b. Control Rod Drive Mechanism temperatures will rise and may result in a measurable delay in scram times.

c. Control Rods may begin to drift into the core due to the abnormally high charging water header pressure.

d. The running CRD Pump will be operating below the minimum flow requirements, resulting in pump overheating and damage.

ANSWER: 84

b. (New)

QUESTION: 85 POINT VALUE: **1.00** RECORD: **816**
LESSON 1: **LOI-CLS-LP-302-C** Objective(s): **03,04**

Unit Two (2) has experienced a runback of BOTH Reactor Recirculation Pumps. Plant conditions are:

Total Core Flow Indication 33 Mlbm/Hr
Core Plate D/P indicates 4.8 psid
APRM Indications 58%, oscillating 2%
No LPRM Upscale/Downscale alarms being received

What action is required?

a. Initiate Select Rod Insert.

b. Insert a manual reactor scram.

c. Insert control rods per ENP-24.

d. Commence plant shutdown per GP-05.

ANSWER: 85

c. (new) If wrong Figure used or correct Figure incorrectly read (% Core Flow vs Mlbm/Hr) region A requires scram. SRI authorized only to prevent a manual scram.

.....

QUESTION: 86 POINT VALUE: **1.00** RECORD: **802**
LESSON 1: **LOI-CLS-LP-302-D** Objective(s): **01b**

A Loss Of Offsite Power has caused a Reactor Scram and a Loss of drywell cooling. Plant Conditions are:

Average Drywell Temperature is 138°F, rising slowly
Average Primary Containment Temperature is 123°F, rising slowly
Drywell Pressure 1.5 psig, rising slowly
All RBCCW Pumps running, no cooling water to heat exchangers

What actions are required to mitigate Containment Parameters?

a. Enter AOP-14.0 and vent the drywell. Reopen RBCCW NSW cooling valves SW-V103/106 by using keylock overrides.

b. Enter AOP-14.0 and vent the drywell. Align RBCCW cooling to the CSW Header per Loss Of Off-Site Power procedure.

c. Enter EOP-02-PCCP and vent the drywell. Reopen RBCCW NSW cooling valves SW-V103/106 by using keylock overrides.

d. Enter EOP-02-PCCP and vent the drywell. Align RBCCW cooling to the CSW Header per Loss Of Off-Site Power procedure.

ANSWER: 86

b. (New)

QUESTION: 87 POINT VALUE: **1.00** RECORD: **827**
LESSON 1: **LOI-CLS-LP-302-E** Objective(s): **02**

The Shift Superintendent has determined that Control Room Evacuation is required. A manual Reactor Scram has been inserted. What is the correct SEQUENCE of immediate operator actions following the manual scram?

a. Trip the turbine, verify or manually transfer auxiliary power to the SAT, place the Mode Switch to shutdown.

b. Trip the turbine, place the Mode Switch to shutdown, verify or manually transfer auxiliary power to the SAT.

c. Place the Mode Switch to shutdown, trip the turbine, verify or manually transfer auxiliary power to the SAT.

d. Place the Mode Switch to shutdown, manually transfer auxiliary power to the SAT, trip the turbine.

ANSWER: 87

a. Modified from Exam Bank ID 1069

.....

QUESTION: 88 POINT VALUE: **1.00** RECORD: **822**
LESSON 1: **LOI-CLS-LP-302-G** Objective(s): **02b**

Unit Two (2) is operating at 100% power when a fault develops on 4KV Bus 2C. The plant scrams and the operator performs the immediate scram actions. The following alarms are sealed in:

4KV System Bus Undervoltage
Bus 2C UAT Incm Line Ovct Lockout
Gen-Xfrm Backup L/O Unit Trip

The operator has been directed to verify automatic actions per AOP-36.1. What should be the status of Diesel Generators (DGs)?

a. DG #3 only running and tied to Bus E3

b. DG #4 only running and tied to Bus E4

c. DG #3 running and tied to Bus E3, DG #1 running unloaded.

d. DG #4 running and tied to Bus E4, DG #2 running unloaded.

ANSWER: 88

d. 2C feeds E4, when turbine is tripped as immediate action, UAT de-energizes and completes Divisional start logic for DG2 (New)

.....

QUESTION: 89 POINT VALUE: **1.00** RECORD: **823**
LESSON 1: **LOI-CLS-LP-302-G** Objective(s): **02c**

Unit One is operating at 100% power, when the following alarms and indications occur:

250V Batt B Undervoltage alarm sealed in
Multiple ECCS Division II Logic Power Failure alarms sealed in
DG-2 Cntrl Power Supply Lost alarm sealed in
Loss of Division II DC MOV/DC Pump indications

Reactor Auto Scram Sys A alarm sealed in
Reactor Auto Scram Sys B alarm sealed in

What is the cause of the full Reactor Scram?

a. Group 1 isolation.

b. Power loss to RPS Analog Trip Cabinets.

c. Turbine Trip due to power loss to trip logic.

d. Low Reactor Level due to Digital Feedwater Control power loss.

ANSWER: 89

a. Loss Div II DC closes outboard MSIVs, b-only Div II RPS cabinets lose power, c-Loss of 125 VDC trip logic trips turbine below 1440 rpm (UPS supply also) d-DFLCS has UPS backup supply

.....

QUESTION: 90 POINT VALUE: **1.00** RECORD: **824**
LESSON 1: **LOI-CLS-LP-302-H** Objective(s): **12**

During normal operation of Unit One (1), a line rupture occurs at the discharge of the RBCCW pumps. The RBCCW pumps are tripped, and a manual Reactor Scram is inserted. Conditions are:

APRMs indicate downscale
Five Control Rods between position 02 and 48
All other Control Rods are Full In

The SRO has directed Control Rods be fully inserted using RMCS per LEP-02. How long can the CRD Pumps be operated without Cooling Water per AOP-16.0?

a. 10 minutes.

b. 20 minutes.

c. 30 minutes.

d. 40 minutes.

ANSWER: 90

b. (New)

QUESTION: 91 POINT VALUE: **1.00** RECORD: **817**
LESSON 1: **LOI-CLS-LP-302-I** Objective(s): **02b**

Unit One (1) is operating at 50% power with power acsension in progress per GP-04. The following alarms and indications occur;

Exh Hood A Vacuum Low alarm sealed in
Exh Hood B Vacuum Low alarm sealed in
Condenser Vacuum indicates 24.9 inches Hg

What is the minimum reduction in condenser vacuum that would result in a Turbine Trip?

a. 1.5 inches Hg

b. 2.5 inches Hg

c. 3.5 inches Hg

d. 4.5 inches Hg

ANSWER: 91

b. (New)

.....

QUESTION: 92 POINT VALUE: **1.00** RECORD: **839**
LESSON 1: **LOI-CLS-LP-302-K** Objective(s): **02**

During rated power operation, air compressors A, B and C have started. Service Air Press Low alarms and Service Air Isolation Valves (PV-706-1 and PV-706-2) close. Air Header pressure continues to lower.

When will the Interruptible Air Isolation Valves close?

a. When Interruptible Air Header pressure drops to 105 psig.

b. When Interruptible Air Header pressure drops to 95 psig.

c. When Non-Interruptible Air Header pressure drops to 95 psig.

d. ONLY when the operator places the RTGB control switch to CLOSE.

ANSWER: 92

d. Auto closure on interruptible air valves has been disabled by plant mod

.....

QUESTION: 93 POINT VALUE: **1.00** RECORD: **803**
LESSON 1: **LOI-CLS-LP-302-L** Objective(s): **02**

Unit 2 is shutdown with the RHR system in the following modes:

A loop RHR: Suppression Pool Cooling
B loop RHR: Shutdown Cooling

How will the A loop and B loop of RHR respond if reactor pressure rises to 174 psig?

a. Only SDC isolation valves, E11-F008 & E11-F009, close and the P loop RHR pumps trip.

b. Only SDC isolation valves, E11-F008 & E11-F009, close and the B loop RHR pumps run on minimum flow.

c. SDC isolation valves, E11-F008 & E11-F0C9, and only LPCI Inboard Injection Valve, E11-F015B, close and the B loop RHR pumps trip.

d. SDC isolation valves, E11-F008 & E11-F009, and LPCI Inboard Injection Valves, E11-F015A and E11-F015B, close and the B loop RHR pumps trip.

ANSWER: 93

a. (modified from record #1222 and record #2158)

A group 8 isolation signal on high pressure only causes the SDC isolation valves to close.

If the group 8 isolation signal is received on LL1 (166"), then the LPCI Inboard Injection Valves close in addition to the SDC isolation valves.

.....

QUESTION: 94 POINT VALUE: **1.00** RECORD: **831**
LESSON 1: **LOI-CLS-LP-302-L** Objective(s): **03,07f**

Conditions for Alternate Shutdown Cooling are established per AOP-15.0. Plant conditions are:

Reactor Water Level +390 inches
Reactor Pressure 120 psig
One SRV open
RHR Pump A injecting to the Reactor at 8,000 gpm
RHR Pump B in Suppression Pool Cooling

It becomes desired to INCREASE to cooldown rate. This is accomplished by closing the open SRV and opening the next SRV in sequence:

a. away from the suction of RHR loop A.

b. closer to the suction of RHR loop A.

c. away from the suction of RHR loop B.

d. closer to the suction of RHR loop B.

ANSWER: 94

a. (New)

.....

QUESTION: 95 POINT VALUE: **1.00** RECORD: **805**
LESSON 1: **LOI-CLS-LP-302-M** Objective(s): **01a,03a**

Unit Two (2) is operating at 100% power (100% rod line) when the following alarms seal in:

Stator Coolant Pressure Low
Stator Coolant Inlet Flow Low
Loss Of Stat Coolant Trip Ckt Energ

The operator rapidly lowers Recirculation Flow to minimum allowed by ENP-24 (43 Mlbm/Hr) and selects a control rod for insertion using RMCS. The operator then notes Bypass Valves beginning to open. What action is allowed to be taken to prevent a reactor scram?

a. Manually initiate Select Rod Insert.

b. Lower Core Flow to no less than 31 Mlbm/Hr.

c. Lower Core Flow to no less than 34 Mlbm/Hr.

d. Open the Bypass Valves using the jack until turbine trip scram is bypassed.

ANSWER: 95

a. (New)

.....

QUESTION: 96 POINT VALUE: **1.00** RECORD: **874**
LESSON 1: **LOI-CLS-LP-302-M** Objective(s): **01c**

The unit is operating at rated power, with Feedwater Level Control in three element, controlling RPV level at 187 inches.

A Safety Relief Valve fails in the OPEN position. Feedwater Level Control remains in three element control.

How will Feedwater Level Control respond?

a. Indicated steam flow will exceed indicated feed flow and reactor level will be controlled below 187 inches.

b. Indicated feed flow will exceed indicated steam flow and reactor level will be controlled below 187 inches.

c. Indicated steam flow will exceed indicated feed flow and reactor level will be controlled above 187 inches.

d. Indicated feed flow will exceed indicated steam flow and reactor level will be controlled above 187 inches.

ANSWER: 96

b. Exam bank 4770 - never used, deleted from exam bank

QUESTION: 97 POINT VALUE: **1.00** RECORD: **856**
LESSON 1: **LOI-CLS-LP-303-A** Objective(s): **05a**

Unit Two (2) is in a Station Blackout. E Buses are being cross-tied. The Reactor is being cooled down at 95°F/Hr.

The following Drywell Temperature readings are reported from the Remote Shutdown Panel:

CAC-TR-778, Point 1	313°F
CAC-TR-778, Point 3	302°F
CAC-TR-778, Point 4	290°F

Refer to AOP-36.2, Calculation Sheet 1. Average Drywell Temperature is:

a. below 300°F, maintain cooldown rate ≤100°F/Hr.

b. above 300°F, emergency depressurize the reactor.

c. below 300°F, increase cooldown rate to >100°F/Hr.

d. above 300°F, increase cooldown rate to >100°F/Hr.

ANSWER: 97

c. Ave DW Temp is 298. AOP-36.2 requires cooldown ≥100°F/Hr (New)

QUESTION: 98 POINT VALUE: **1.00** RECORD: **639**
LESSON 1: **LOI-CLS-LP-305-A** Objective(s): **16a,b,c**

A core offload is in progress. A fuel assembly has just been released in the fuel pool and the main hoist is raised to a safe elevation to pass through the transfer canal; it is **NOT** raised to the Normal-Up position.

The next step requires that a fuel assembly be removed from the reactor core and before the next step is commenced, one rod DRIFTS OUT.

Which refueling interlocks will actuate when the refueling bridge is positioned over the reactor vessel (the proximity switch is actuated).

a. Rod block only.

b. Bridge reverse motion stop only.

c. Bridge reverse motion stop and main hoist motion block only.

d. Rod block, bridge reverse motion stop, and main hoist motion block.

ANSWER: 98

d. (new question)

With the main hoist not full-up and the bridge over the reactor and a rod out, the conditions are satisfied for all three refueling interlock blocks.

QUESTION: 99 POINT VALUE: **1.00** RECORD: **796**
LESSON 1: **LOI-CLS-LP-307-A** Objective(s): **b01a,b01b**

Note: ROD SEQUENCE CHECKOFF SHEET, SEQUENCE A2, pages 2 and 3 attached.

A Unit 2 reactor startup is in progress following a refueling outage. During the approach to criticality using the A2 sequence, a notch withdrawal of control rod 18-39 (item 78) results in a 16 second reactor period.

Using the attached page(s) from the A2 sequence, which of the following describes the action(s) to be taken by the control operator?

a. Insert the control rods for the present item and the previous items in the step to position 08.

b. Insert the control rods for the present item and the previous items in the step to position 00.

c. Insert the control rod for the present item and previous items as necessary to achieve a stable period >100 seconds.

d. Insert all control rods in this step and the previous step to position 00.

ANSWER: 99

c. (modified from record #4774)

If single notch withdrawals result in reactor periods approaching 20 seconds, the control rod(s) should be inserted to achieve a stable period of greater than 100 seconds.

This is accomplished by inserting the present item to 00 any previous items in reverse order as necessary to stabilize the reactor period above 100 seconds.

.....

QUESTION: 100 POINT VALUE: **1.00** RECORD: **846**
LESSON #: **LOI-CLS-LP-307-B** Objective(s): **D04**

When must actual rod position be recorded in black ink on the ROD SEQUENCE CHECKOFF SHEETS in GP-10?

a. Any time a control rod is repositioned.

b. If the RWM is inoperable at any power level.

c. Only when reactor power is below the RWM low power setpoint.

d. When steps are completed out of sequence as directed by the Nuclear Engineer.

ANSWER: 100

c. new

.....