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

ENCLOSURE 1

REPORT DETAILS

Facility Licensee: Florida Power Corporation
P. O. Box 1240
Crystal River, FL 32629

Facility Docket No.: 50-302

Facility License No.: DPR-72

Examinations were administered at Crystal River Power Station near Crystal River, Florida.

Chief Examiner: Charles A. Casto — Charles A. Casto — 1-31-90 — Date

Approved By: T A Peebles — Thomas A. Peebles, Chief, Operations Branch, Division of Reactor Safety — 2-2-90 — Date

Summary

Examinations were administered during the period December 18 - 20, 1989.

Written examinations and operator tests were administered to three SRO applicants. All three SROs passed these examinations.

REPORT DETAILS

1. Examiners

*C. Casto, NRC, Region II

*Chief Examiner

2. Exit Meeting

At the conclusion of the site visit the examiners met with representatives of the plant staff to discuss the results of the examinations. The examiners made the following observations concerning your training program:

a. The candidates exhibited some weakness in locating correct procedural sections for certain tasks, e. g., control element assembly recovery.

b. Strength was noted in the candidates' control board manipulations.

During the conduct of the control room walk-through examinations, the examiner observed the control room operators' response to two events. One event was a medical emergency; the other was a spurious trip of a flux/delta flux/flow channel. Overall, their response to both events was well directed and controlled. There was some confusion during the instrument trip, the operators reset the RPS channel and responded to the event without reference to a procedure.

The examiner also noted improvements in operator professionalism and control room environment. The use of "repeat-backs" by the operators was also noted as positive.

Nuclear Regulatory Commission
Operator Licensing
Examination

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date of examination.

U. S. NUCLEAR REGULATORY COMMISSION
SENIOR REACTOR OPERATOR LICENSE EXAMINATION
REGION 2

FACILITY: Crystal River 3

REACTOR TYPE: PWR-B&W177

DATE ADMINSTERED: 89/12/18

CANDIDATE:

INSTRUCTIONS TO CANDIDATE:

Points for each question are indicated in parentheses after the question. The passing grade requires at least 80% correct overall. Examination papers will be picked up four and one half (4 1/2) hours after the examination starts.

CATEGORY VALUE	% OF TOTAL	NUMBER CORRECT	CATEGORY
34.00	42.50		EMERGENCY AND ABNORMAL PLANT EVOLUTIONS (43%)
46.00	57.50		PLANT SYSTEMS (40%) AND PLANT-WIDE GENERIC RESPONSIBILITIES (17%)
80.00		OVERALL	

% CORRECT OVERALL

All work done on this examination is my own. I have neither given nor received aid.

Candidate's Signature

ANSWER SHEET

SENIOR REACTOR OPERATOR

EMERGENCY AND ABNORMAL PLANT EVOLUTIONS (43%)

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

Ø1	A	B	C	D	_____
Ø2	A	B	C	D	_____
Ø3	A	B	C	D	_____
Ø4	A	B	C	D	_____
Ø5	A	B	C	D	_____
Ø6	A	B	C	D	_____
Ø7	A	B	C	D	_____
Ø8	A	B	C	D	_____
Ø9	A	B	C	D	_____
1Ø	A	B	C	D	_____
11	A	B	C	D	_____
12	A	B	C	D	_____
13	A	B	C	D	_____
14	A	B	C	D	_____
15	A	B	C	D	_____
16	A	B	C	D	_____
17	A	B	C	D	_____
18	A	B	C	D	_____
19	A	B	C	D	_____
2Ø	A	B	C	D	_____
21	A	B	C	D	_____
22	A	B	C	D	_____

ANSWER SHEET

SENIOR REACTOR OPERATOR

EMERGENCY AND ABNORMAL PLANT EVOLUTIONS (43%)

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

23	A	B	C	D	_____
24	A	B	C	D	_____
25	A	B	C	D	_____
26	A	B	C	D	_____
27	A	B	C	D	_____
28	A	B	C	D	_____
29	A	B	C	D	_____

ANSWER 30

a.

b.

c.

ANSWER 31

ANSWER 32

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT SYSTEMS (40%)

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

01	A	B	C	D	_____
02	A	B	C	D	_____
03	A	B	C	D	_____
04	A	B	C	D	_____
05	A	B	C	D	_____
06	A	B	C	D	_____
07	A	B	C	D	_____
08	A	B	C	D	_____
09	A	B	C	D	_____
10	A	B	C	D	_____
11	A	B	C	D	_____
12	A	B	C	D	_____
13	A	B	C	D	_____
14	A	B	C	D	_____
15	A	B	C	D	_____
16	A	B	C	D	_____
17	A	B	C	D	_____
18	A	B	C	D	_____
19	A	B	C	D	_____
20	A	B	C	D	_____
21	A	B	C	D	_____
22	A	B	C	D	_____

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT SYSTEMS (40%)

ANSWER 23

a.

b.

c.

d.

e.

f.

g.

h.

i.

j.

ANSWER 24

1.

2.

ANSWER 25

1.

2.

ANSWER 26

a.

b.

c.

d.

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT SYSTEMS (40%)

ANSWER 27

a.

b.

ANSWER 28

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT-WIDE GENERIC RESPONSIBILITIES (17%)

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

29	A	B	C	D	_____
30	A	B	C	D	_____
31	A	B	C	D	_____
32	A	B	C	D	_____
33	A	B	C	D	_____

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT-WIDE GENERIC RESPONSIBILITIES (17%)

ANSWER 34

1.

2.

ANSWER 35

1.

2.

ANSWER 36

a.

b.

c.

d.

e.

f.

g.

h.

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT-WIDE GENERIC RESPONSIBILITIES (17%)

ANSWER 37

a.

b.

c.

d.

e.

ANSWER 38

1.

2.

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

3. Restroom trips are to be limited and only one candidate at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil only to facilitate legible reproductions.

5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet.

6. Fill in the date on the cover sheet of the examination (if necessary).

7. You may write your answers on the examination question page or on a separate sheet of paper. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

8. If you write your answers on the examination question page and you need more space to answer a specific question, use a separate sheet of the paper provided and insert it directly after the specific question. DO NOT WRITE ON THE BACK SIDE OF THE EXAMINATION QUESTION PAGE.

9. Print your name in the upper right-hand corner of the first page of each section of your answer sheets whether you use the examination question pages or separate sheets of paper. Initial each page.

10. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.

11. If you are using separate sheets, number each answer as to category and number (i.e. Plant Systems # Ø4, EPE # 1Ø) and skip at least 3 lines between answers to allow space for grading

12. Write "End of Category " at the end of your answers to a category.

13. Start each category on a new page.

14. Write "Last Page" on the last answer sheet.

15. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.

16. The point value for each question is indicated in parentheses after the question. The amount of blank space on an examination question page is NOT an indication of the depth of answer required.

17. Show all calculations, methods, or assumptions used to obtain an answer.

18. Partial credit may be given. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK. NOTE: partial credit will NOT be given on multiple choice questions.

19. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth Ø.25 points, and you give five responses, each of your responses will be worth Ø.2Ø points. If one of your five responses is incorrect, Ø.2Ø will be deducted and your total credit for that question will be Ø.8Ø instead of 1.ØØ even though you got the four correct answers.

2Ø. If the intent of a question is unclear, ask questions of the examiner only.

21. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

22. To pass the examination, you must achieve an overall grade of 8Ø% or greater.

23. There is a time limit of (4 1/2) hours for completion of the examination. (or some other time if less than the full examination is taken.)

24. When you are done and have turned in your examination, leave the examination area as defined by the examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: Ø1 (1.ØØ)

Which one of the choices will correctly complete the following statement as described in STS 3/4.1.3 LCO 3.1.3.1 "Movable Control Rod Assemblies?

All control (safety and regulating) rods shall be OPERABLE and positioned so that their group average height is within +/- __?__. (Indicated Position)

a. 6 %

b. 6.5 %

c. 7 %

d. 7.5 %

QUESTION: Ø2 (1.ØØ)

All of the following are part of the bases for the limits on Control Rod operability as described in B3/4.1.3 on the STS except;

a. Ensure that acceptable power distribution limits are maintained.

b. Ensure that the minimum SHUTDOWN MARGIN is maintained.

c. Limits the potential effect of a slow reactivity addition accident.

d. Limits the potential effect of a rod ejection accident.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: Ø3 (1.ØØ)

All of the following are entry conditions for EP-14Ø "Emergency Reactivity Control" except;

a. An unexplained rise in neutron flux

b. Continuous control rod motion exists

c. In modes 1 or 2 with regulating rods in the unacceptable region of the rod index curves

d. Less than required shutdown margin

QUESTION: Ø4 (1.ØØ)

In accordance with AP-545 "Plant Runback" the first immediate step states "Ensure Auto plant runback to </= maximum %FP".

Which one of the following is the maximum Full Power limit for an Asymmetric Rod?

a. 5Ø%

b. 55%

c. 6Ø%

d. 65%

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: Ø5 (1.ØØ)

AP-38Ø "Engineered Safeguards Actuation" refers to stopping the Reactor Coolant Pumps within 2 minutes.

Which one of the following is the condition requiring the Reactor Coolant Pumps to be stopped within that two minute time period?

a. A LOCA occurred

b. Reactor Protection initiates a Reactor Trip

c. High Pressure Injection System Initiates

d. Subcooling Margin is lost

QUESTION: Ø6 (1.ØØ)

During a Loss of Coolant Accident, the initiating event for tripping the Reactor Coolant Pumps has occurred and the two minute time limit for tripping the Reactor Coolant Pumps has passed and they were NOT tripped. The Nuclear Operator has tripped one Reactor Coolant Pump per loop as required.

Which one of the following is the required OTSG level limit for this plant condition?

a. 95%

b. 8Ø%

c. 65%

d. 5Ø%

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: Ø7 (1.ØØ)

Which one of the following conditions would require an immediate trip of the effected Reactor Coolant Pump?

a. High Controlled Bleed - off temperature is 164 F

b. Cooling Water Temperature leaving the pump is 182 F

c. Total seal outflow is 2.8 gpm and increasing rapidly

d. Thrust Bearing Temperature is 215 F

QUESTION: Ø8 (1.ØØ)

It has been determined that Emergency Boration is required.

Which one of the following choices accurately describes the source of water and the required flow rate to meet Emergency Boration requirements for the mode of operation it which it is applicable ?

a. Mode 4, 1Ø gpm from BWST

b. Mode 6, 55 gpm from BAST

c. Mode 2, 35 gpm from BWST

d. Mode 5, 1Ø gpm from BAST

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: Ø9 (1.ØØ)

Which one of the following is an Limiting Condition for Operations concerning Movable Control Assemblies Technical Specifications, 3/4.1.3.x?

a. All safety, regulating and axial power shaping control reed switch position indicator channels and pulse stepping position indicator channels shall be operable and capable of determining the control rod position within +/- 2%.

b. The position of each regulating group shall be determined to be within the insertion, sequence and overlap limits at least once every 24 hours.

c. The individual safety and regulating rod drop time from the fully withdrawn position shall be less than or equal to 2.1 seconds from power interruption at the control rod drive breakers to 3/5 insertion with Tave greater than or equal to 525 F and all RCPs operating.

d. All axial power shaping rods (APSR) shall be operable, unless fully withdrawn, and shall be positioned within +/- 2.5% (indicated position) of their group average height.

QUESTION: 1Ø (1.ØØ)

Which one of the following choices is the immediate action step, that when not met, requires the implementation of EP-14Ø, "Emergency Reactivity Control." as described in AP-58Ø "Reactor Trip"?

a. Ensure CRD group 1 through 7 are fully inserted.

b. Ensure Intermediate range flux is decreasing.

c. Verify Shutdown margin less than 1%.

d. Verify TVs and GVs are closed.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 11 (1.ØØ)

Which one of the following is an accurate list of five (5) valves that must be verified closed when performing the IMMEDIATE ACTION of procedure AP-46Ø, "Steam Generator Isolation Actuation"?

Assume a OTSG 'B' isolation.

a. MSV-411 "MSIV"
FWV-32 "Low Load Block Vlv"
FWV-15 "MFWP Suction"
EFV-33 "EFW Isol"
EFV-57 "EFW Flow Cntrl Vlv"

b. MSV-412 "MSIV"
FWV-33 "Startup Block Vlv"
FWV-15 "MFWP Suction"
FWV-31 "Low Load Block Vlv"
EFV-55 "EFW Flow Cntrl Vlv"

c. MSV-413 "MSIV"
FWV-32 "Low Load Block Vlv"
FWV-28 "Cross - Tie"
FWV-15 "MFWP Suction"
FWV-29 "Main Block Vlv"

d. MSV-414 "MSIV"
FWV-32 "Low Load Block Vlv"
FWV-15 "MFWP Suction"
EFV-32 "EFW Isol"
EFV-55 "EFW Flow Cntrl Vlv"

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 12 (1.00)

According to a NOTE found in AP-460, "Steam Generator Isolation Actuation":

Which one of the following is the reason for the expected level change of approximately 10% on various instruments following a steam leak inside the reactor building?

a. Pressure increase in the containment.

b. Temperature increases in the containment.

c. Humidity changes in the containment.

d. Flooding of instruments in the lower containment.

QUESTION: 13 (1.00)

According to EM-216, "Duties of the Nuclear Plant Fire Brigade"

Which one of the following is the most desirable method of fighting a high voltage electrical fire with water?

a. Straight stream directly on fire from at least 50 ft.

b. Wide fog pattern from at least 10 ft.

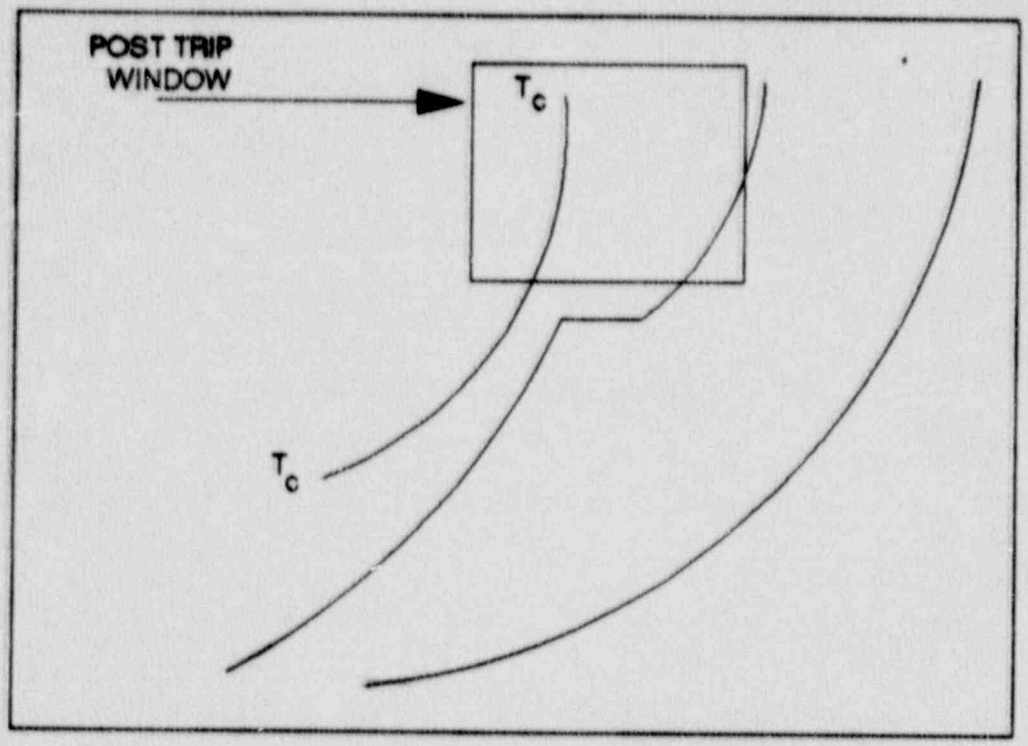
c. Fog/stream combination from as close as possible.

d. Narrow fog pattern from at least 40 ft.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 14 (1.00)

The following Post Trip Window is an indication of which one of the four choices?



a. Loss of Heat Transfer

b. Excessive Heat Transfer

c. Inadequate Core Cooling

d. Loss of Subcooling Margin

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 15 (1.00)

Which one of the four choices will correctly complete the following statement?

According to OP-607 section 4.5 "Loss of Condenser Vacuum" the Caution Note states that the Main Turbine must be tripped if delta T between condensers exceeds __?__ F.

a. 50

b. 40

c. 30

d. 20

QUESTION: 16 (1.00)

According to Technical Specifications 3/4 .3.3.8 Table 3.3-12 Action 21:

When conducting a Liquid Radwaste discharge from the Auxiliary Building Waste Treatment System and RML-2 "Aux Bldg Liquid Radwaste Eff Line Monitor" is out of service. All of the following actions are required except;

With less than the required number of OPERABLE channels, effluent releases via this pathway may continue, provided that prior to initiating a release:

a. At least two independent samples are analyzed in accordance with specification 4.11.1.1.1,

b. A portable monitor is attached to the discharge path to allow for continuous monitoring during the release,

c. An Independent Verification of release rate calculations is performed,

d. An Independent Verification of discharge valve lineup is performed,

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 17 (1.00)

EP-290 "Inadequate Core Cooling", requires the RCP's to be started, in the event the incore temperatures enter Region 4.

Which one of the following conditions would require tripping the RCP if it was started in accordance with EP-290?

a. Cooling water leaving the RCP is 195 F

b. Seal Injection flow and NSCCCW flow is lost

c. Excessive current is indicated on the RCP

d. Thrust bearing temperature is 283 F

QUESTION: 18 (1.00)

Which one of the following is the reason for closing or verifying the Main Turbine Throttle and Governor Valves are closed following a reactor trip per the IMMEDIATE ACTIONS of AP-580, "Reactor Trip?"

a. To ensure the Main Generator is removed from the grid and power is transferred to off-site for the Vital buses.

b. To allow the Turbine bypass valves to control the OTSG pressure and plant cooldown rate.

c. Stop overcooling leading to possible emptying the PZR and a saturated RCS.

d. To allow the rapid breaking of the condenser vacuum so plant temperature control can be transferred to the atmospheric relief valves.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 19 (1.ØØ)

Which one of the following immediate steps of AP-58Ø "Reactor Trip" if NOT met requires the Main Feedwater Pumps to be tripped?

a. Ensure TVs or GVs are closed

b. Ensure ICS and NNI power is available

c. Ensure "LO LOAD FW BLOCK" valves are closing

d. Ensure PZR level is >/= 5Ø"

QUESTION: 2Ø (1.ØØ)

Which one of the following is the reason that the cooldown rate, during natural circulation, is limited to </= 5Ø F/hr?

a. Thermal stresses in the OTSG

b. Waterhammer in the EFW lines

c. Brittle fracture of the RCS loop welds

d. Voiding of the Rx Vessel head

QUESTION: 21 (1.ØØ)

Which one of the following is the purpose of ensuring that Pressurizer Level is greater than or equal to 5Ø inches in the IMMEDIATE ACTIONS of AP-58Ø, "Reactor Trip?"

a. To provide the operator with a setpoint at which additional action is required.

b. To prevent thermal shocking the pressurizer

c. To provide automatic pressurizer level control.

d. To prevent loss of letdown from the RCS.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 22 (1.00)

Which one of the following is an entry condition for AP-360, "Loss of Decay Heat Removal?"

a. Refueling is in progress with the core off-loaded to the spent fuel area when a leak develops in the "A" RCP seal package.

b. During cooldown at 250 F the "A" train DHR pump trips on overload leaving only the "B" train pump to continue cooldown.

c. Loss of off-site power during cold shutdown conditions prior to start of refueling and the failure of the "B" train EDG to start on an undervoltage condition.

d. Cooldown to cold shutdown is continuing with both trains of DHR when DHV-42 sump suction valve is opened causing air binding of both pumps.

QUESTION: 23 (1.00)

The unit is operating at 80% power and all systems are in Automatic. If the temperature compensation circuit for the selected pressurizer level failed such that the indication is uncompensated, which of the below best describes the units response?
Assume NO operator action!

a. The control room will receive a low pressurizer level alarm and the level will transfer to the alternate channel. (LT2-1)

b. MUV-31 (Pressurizer level control valve) will open to return level to the program band.

c. The selected channel (LT1-1) power available indication from bus RPS "A" will extinguish alerting the operator of the malfunction.

d. All the pressurizer heaters will immediately deenergize as indicated by the PZR HTR LVL AUX RELAY PWR FAIL white light being energized.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 24 (1.00)

While performing a reactor startup, the operator must verify Intermediate Range Instrumentation is on scale and indicating prior to Source Range Instrumentation indicating >10 E5 cps, while withdrawing regulating rods.

Which one of the following indicates the minimum number of decades overlap ensure by the above mentioned step?

a. one half

b. one

c. one and one half

d. two

QUESTION: 25 (1.00)

EP-390 "Steam Generator Tube Leak" step 3.23 states: "When RCS Th is </= 540 F and affected OTSG is identified, then isolate affected OTSG".

Which one of the following choices is the reason for isolating the OTSG at this time?

At this point:

a. Pressure in the affected SG should be below the lowest MSSV setpoint.

b. Natural Circulation has been established and ensured of continuing with only one SG steaming.

c. The pressure is such that the ADV's can be placed in Auto without adjusting the null, so when the SG is isolated the pressure will not fluctuate.

d. The leak rate has slowed to the point the OTSG will not go solid if SG blow down is established.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 26 (1.00)

While at power a trip of both Main Feed Water Pumps occurs. Emergency Feed Water actuates, but is only feeding to the 'A' OTSG.

Which one of the choices completes the following statement?

According to AP-450 "Emergency Feedwater Actuation" 'B' OTSG is considered dry when on the EFIC Low Range, level is less than __?__.

a. 10"

b. 8"

c. 6"

d. 4"

QUESTION: 27 (1.00)

Which one of the following statements accurately gives three conditions that should be met to feed a dry SG, as out lined in AP-450 "Emergency Feedwater Actuation"?

Feed rate should be:

a. </= 150 pgm, Feed should be thru the low OTSG nozzles, and 2 RCPs operating in the loop with the dry OTSG.

b. </= 125 gpm, feed should be thru the high OTSG nozzles, and no RCPs operating in the loop with the dry OTSG.

c. </= 100 gpm, feed should be thru the high OTSG nozzles, and >/= 1 RCP operating in the loop with the dry OTSG.

d. </= 75 gpm, feed should be thru the low OTSG nozzles, and </= 1 RCP operating in the loop with the dry OTSG.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 28 (1.ØØ)

The diesel driven Fire Water Pump (FSP-2A) will auto start at a fire header pressure of ___?___ psi decreasing.

a. 85

b. 85

c. 75

d. 65

QUESTION: 29 (1.ØØ)

If during fuel handling, a problem arises which prohibits the completion of the step-by-step performance of a procedure:

Which one of the following is the correct action to be taken?

a. Immediately perform those actions to maintain 23 feet of water above the fuel. (including any fuel on one of the cranes)

b. Continue fuel handling operations and process the appropriate temporary procedure change forms.

c. Suspend fuel handling and receive permission from the Nuclear Plant Manager for corrective action.

d. Enter applicable step of another section of procedure if the Refueling Consultant, Refueling Supervisor, and CCRO agree.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 30 (1.50)

Complete the following table as applicable to the entry conditions of EP-220 "Pressurized Thermal Shock".

If RCS temperature is < 500 F, AND STS cooldown rate limits are exceeded:

RCS TEMP	C/D LIMIT
__a__	</= 10 F/hr
__b__	</= 50 F/hr
__c__	</= 100 F/hr

QUESTION: 31 (2.00)

Which of the following controls and indications are available ON the Remote Shutdown Panel?

a. Wide Range RCS Pressure
b. Normal Makeup Flow
c. MUP-1A
d. MUV-49 "Normal Letdown"
e. Loop "A" Narrow Range T cold
f. SWP-1A
g. Loop "A" Delta Temperature
h. Makeup Tank Level
i. DHV-91 "Aux Pzr Spray Isol"
j. Condensate Storage Tank Level
k. PZR Htr Group 10
l. EFP-1

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 32 (1.50)

According to EM-201 "Duties of an Individual Who Discovers an Emergency" an individual who discovers an emergency condition shall notify the Control Room by dialing 311 on a PAX or conventional intra-plant telephone, and give specific information.

Which of the following items of information are required to be given, as a minimum, by EM-201 for an accidental gaseous release?

a. The safe area for personnel
b. Type of Emergency
c. Location of Emergency
d. Names of personnel in the area
e. Visible damage to plant components
f. What action (if any) has been taken
g. Power supplies to the effected equipment
h. Name of person making the report
i. Whether or not there are any injured personnel
j. Recommendations on equipment to secure

(***** END OF CATEGORY 5 *****)

QUESTION: Ø1 (1.ØØ)

Which one of the following combinations of control rod drive breakers and contacts will cause all rods to be inserted in the core?

a. Breaker A, Breaker C, Contact F.

b. Breaker A, Breaker D, Contact E.

c. Breaker B, Breaker C, Contact E.

d. Breaker B, Breaker D, Contact F.

QUESTION: Ø2 (1.ØØ)

A loss of makeup has occurred from a trip of the Makeup pump due to an electrical fault. Seal Injection Isolation Valve has been closed manually due to flow being lost for more than 2 minutes.

Which one of the following gives the reason why the special precaution of slowly increasing the flow must be used in the restoration of seal injection flow?

a. Prevents waterhammer.

b. Ensures the MUP maintains NPSH.

c. Avoids thermal shock to seal parts.

d. Allows time for the PZR level control valve to respon

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: Ø3 (1.ØØ)

The reactor is at 1ØØ% of full power when a regulating rod has become misaligned resulting in a Quadrant Power Tilt of 12%. Action to reduce reactor power must be taken to bring the QPT to within 4.12%.

Which one of the following is the MINIMUM value by which reactor power must be reduced?

a. 7.88%

b. 11.82%

c. 15.76%

d. 19.7Ø%

QUESTION: Ø4 (1.ØØ)

Which one of the following components will have its service water flow isolated following a valid ES RBI&C signal?

a. Letdown coolers.

b. RB Main Fan Assemblies.

c. Makeup pumps.

d. Spent fuel coolers.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 05 (1.00)

Which one of the following Decay Heat valves provides overpressure protection for the Decay Heat System?

a. DHV-41 Outside containment suction isolation valve.

b. DHV-91 Outside containment pressurizer spray isolation valve.

c. DHV-3 Inside containment suction isolation valve.

d. DHV-5 Outside containment return isolation valve.

QUESTION: 06 (1.00)

Which one of the following conditions will result in the 50 psi bias be applied to the turbine bypass valves operating setpoint?

a. The reactor is tripped as indicated by a trip CONF light on the diamond panel and decreasing reactor flux.

b. The reactor is not tripped, and the main turbine is tripped.

c. The reactor and turbine are not tripped. Steam header pressure deviation is 5 psig below setpoint.

d. The reactor and turbine are not tripped, all turbine bypass valves are closed and ULD is at 10%.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: Ø7 (1.ØØ)

Which one of the choices will accurately complete the following statement?

Total feedwater flow control will be implemented when a 1Ø% RCS flow error exists, there are three RCP's running:

a. 'A' and 'B' OTSG's are on low level limits and the 'A' feedwater master is in auto and the 'B' feedwater master is in manual.

b. 'A' OTSG is NOT on low level limits and the 'B' OTSG is on low level limits and the 'A' feedwater master is in auto and the 'B' feedwater master is in manual.

c. 'A' OTSG is NOT on low level limits and the 'B' OTSG is on low level limits and the 'A' feedwater master is in manual and the 'B' feedwater master is in auto.

d. 'A' and 'B' OTSG's are NOT on low level limits and the 'A' and 'B' feedwater masters are in auto.

QUESTION: Ø8 (1.ØØ)

Which one of the following best describes the sequence of events causing the trip of the Main Feedwater Pumps (MFWPs)?

The initiating event is a trip of both FWBPs as the FWBPDVs close:

a. When the FWBPDVs are 6Ø% open, the MFWPSVs start closing. The MFWPs trip when the MFWPSVs leave the open seats.

b. When the FWBPDVs leave the open seats the MFWPSVs start closing. The MFWPs trip when the MFWPSVs are 25% open.

c. When the FWBPDVs are 4Ø% open, the MFWPSVs start closing. The MFWPs trip when the MFWPSVs leaves the open seat.

d. When the FWBPDVs leave the open seats the MFWPSVs start closing. The MFWPs trip when the MFWPSVs are 75% open.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 09 (1.00)

Which one of the following is an accurate statement regarding the Source Range Excore Nuclear Instrument detector count rate as the core uncovers during a LOCA with the RCP's off?

a. The detector count rate will increase as the core begins to uncover. The count rate will reach a maximum level then begin to fall as the water level continues to decrease.

b. The detector count rate will decrease as the core begins to uncover. The count rate will reach a minimum level then begin to increase as the water level continues to decrease.

c. The detector count rate will increase as the core begins to uncover. The count rate will continue to increase as the core level continues to decrease.

d. The detector count rate will decrease as the core begins to uncover. The count rate will continue to decrease as the core level continues to decrease.

QUESTION: 10 (1.00)

Which one of the following is the transient the Code Safety Valves are sized for?

a. Loss of Feedwater Flow at 100% power.

b. Complete loss of all power at 100% power.

c. Turbine trip from 100% power.

d. Control Rod Withdrawal from 0% power.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

QUESTION: 11 (1.00)

Which one of the following choices is an accurate list of four (4) automatic initiating conditions for Emergency Feedwater Actuation?

[All four of the initiating conditions must initiate EFW for the choice to be correct.]

a. - Both MFW pumps trip with Rx Pwr at 15%
   - 'A' OTSG at 500 psig,
   - 'B' OTSG level at 5",
   - 4 RCP's tripped with Rx Pwr at 15%.

b. - 'B' OTSG at 550 psig,
   - 'A' OTSG level at 10",
   - 4 RCP's tripped with Rx Pwr at 12%,
   - HPI initiated on both 'A' and 'B' ES channels.

c. - 'B' OTSG at 5",
   - 4 RCP's tripped with Rx Pwr at 15%,
   - HPI initiated on both 'A' and 'B' ES channels,
   - both MFW pumps trip with Rx Pwr at 25%

d. - 4 RCP's tripped with Rx Pwr at 8%,
   - HPI initiated on both 'A' and 'B' ES channels,
   - 'A' OTSG at 550 psig,
   - 'B' OTSG at 5".

cc deleted 1/9/90

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 12 (1.00)

Which one of the following is an accurate description of the start sequencing of BSP-1A (Reactor Building Spray pump) and EFP-1 (Emergency Feedwater pump)?

If HPI/EFIC and RB Spray are actuated, and the RB Spray actuation occurred:

a. less than 5 seconds after the EFW actuation, BSP-1A will start as a block 6 load, and EFP-1 will start as a block 5 load.

b. greater than 5 seconds after the EFW actuation, BSP-1A will start as a block 4 load, and EFP-1 will start as a block 6 load.

c. less than 5 seconds after the EFW actuation, BSP-1A will start as a block 5 load, and EFP-1 will start as a block 4 load.

d. greater than 5 seconds after the EFW actuation, BSP-1A will start as a block 6 load, and EFP-1 will start as a block 5 load.

QUESTION: 13 (1.00)

Which one of the following statements regarding the Emergency Core Cooling Systems operation is correct?

a. Automatic initiation of HPI by the ES system starts BOTH selected HPI pumps and all pumps necessary for LPI.

b. The HPI pumps may be started at their local 480 V breakers located on ESMCC 3AB on the 119' elevation.

c. The LPI pumps are automatically lined up to supply the HPI Pumps from the RB sump when the BWST reaches a specified minimum level.

d. The system is designed such that during a low pressure condition, as long as only two HPI pumps are running, pump runout is not an operational concern.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 14 (1.00)

Which one of the following is the power supply to the Air Handling Fan AHF-1C RB Main Fan Assembly?

a. ES Bus 3B

b. Reactor MCC-3A

c. ES MCC-3AB

d. Vent MCC-3B

QUESTION: 15 (1.00)

Which one of the following, along with the radiation monitoring alarms, will prevent the release of liquid waste during a RML-7 release?

a. Discharge pump flow from the waste storage tank drops below the setpoint.

b. Less than 2 Service Water Raw Water pumps are operating.

c. Total circulating water flow does not exceed 1,300,000 gpm.

d. The low level setpoint is reached in the storage tank.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 16 (1.00)

Which one of the following is an accurate list of the Reactor Protection System trips bypassed when the Shutdown Bypass Key Switch is in the bypass position?

a. Flux/Delta Flux/Flow Trip,
Low Press Trip,
RCPPM Trip,
Press/Temp Trip.

b. RCPPM Trip,
Low Press Trip,
High Press Trip,
Press/Temp Trip.

c. Flux/Delta Flux/Flow Trip,
Press/Temp Trip,
RCPPM Trip,
High Flux Trip.

d. Flux/Delta Flux/Flow Trip,
Hi RB Press,
Low Press Trip,
RCPPM Trip.

QUESTION: 17 (1.00)

Which one of the following failures will cause the NNI power supply monitor to trip it's respective NNI source breakers (S1 & S2)?

a. Any + or - 24 VDC power supply fails.

b. Any two 24 VDC power supplies fail.

c. The 118 VAC field power supply fails.

d. Either + or - 24 VDC bus fails.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 18 (1.00)

Which one of the choices below accurately completes the following statement?

Human exposures to both Halon 1301 and Halon 1211 have shown that Halon:

a. 1211 concentrations up to 1% by volume, have little noticeable effect, and 1% to 3% results in dizziness and tingling of the extremities.

b. 1301 concentrations up to 3% by volume, have little noticeable effect, and 3% to 5% results in dizziness and tingling of the extremities.

c. 1211 concentrations up to 5% by volume, have little noticeable effect, and 5% to 7% results in dizziness and tingling of the extremities.

d. 1301 concentrations up to 7% by volume, have little noticeable effect, and 7% to 9% results in dizziness and tingling of the extremities.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 19 (1.00)

According to the STS Bases 3/4 9.11, which of the following is the basis for maintaining 23 ft of water above the spent fuel assemblies when stored in the Spent Fuel Pool?

The restrictions on minimum water level ensure that sufficient water depth is available to:

a. remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly.

b. reduce the exposure rate of personnel and equipment in the area by a factor of 10 of the assumed radioactivity generated by fuel being stored an average of 20 years with a 15% fuel cladding failure.

c. maintain the spent fuel covered for 6 hours in the event that a spent fuel pool cooling line rupture occurred with the flow rate based on gravity draining through the spent fuel pool cooling piping.

d. ensure a sufficient volume of water is available for cooling in the event that spent fuel pool cooling is lost for a period of 15 hours based on the heatup rate from 1 1/3 cores being stored with a high decay heat load.

QUESTION: 20 (1.00)

Which one of the following coolers does NOT have its cooling water supply isolated in the event a valid ES RBI & C signal is received?

a. CRDM Coolers

b. Spent Fuel Coolers

c. RC pump Coolers

d. Waste Gas Compressor Coolers

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 21 (1.00)

Which one of the following choices is the accurate listing of the four (4) Nuclear Services Closed Cycle Cooling System loads that are equipped with differential flow alarms for detecting leakage?

a. Letdown Coolers & RC Drain Tank Cooler,
RB Fan Assemblies & Vent Fan Motor Coolers,
Rx Coolant Pump Coolers,
Spent Fuel Coolers.

b. RB Fan Assemblies & Vent Fan Motor Coolers,
Rx Coolant Pump Coolers,
CRDM Coil Coolers,
Makeup Pump Coolers.

c. Rx Coolant Pump Coolers,
CRDM Coolers,
Letdown Coolers & RC Drain Tank Cooler,
Emergency Feed Pump Motor Coolers.

d. Letdown Coolers & RC Drain Tank Cooler,
RB Fan Assemblies & Vent Fan Motor Coolers,
Rx Coolant Pump Coolers,
CRDM Coil Coolers.

QUESTION: 22 (1.00)

Which one of the following statements is correct regarding the power supply system to the Control Rod Drive System?

Power is supplied by:

a. ...the Rx Aux Bus 3A through the 'A' CRD Bkr to the Primary Voltage Regulator

b. ...the Rx Aux Bus 3B, through the 'B' CRD Bkr to the Secondary Voltage Regulator

c. ...the Turbine Aux Bus 3A, through the 'A' CRD Bkr to the Primary Voltage Regulator

d. ...the Turbine Aux Bus 3B, through the 'B' CRD Bkr to the Secondary Voltage Regulator

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 23 (2.00)

Match the automatic actions/permits in Column `B´ with their respective setpoint in Column `A´.

[The items in Column `B´ may be used once, more than once, or not at all.]

COLUMN `A´ SETPOINTS RCS PRESSURE		COLUMN `B´ AUTO ACTIONS/PERMITS	
a.	500	1.	RS Spray Act.
b.	900	2.	Low Press Inj. Act.
c.	1800	3.	High Press Inj. Act.
d.	2105	4.	Low Press Rx Trip
e.	2155	5.	`D´ Pzr Htr Bank ON
f.	2205	6.	HPI Reset Permit
g.	2355	7.	PORV Opens
h.	2380	8.	Spray Valve Opens
i.	2450	9.	Safety Valve Open
j.	2500	10.	High Press Rx Trip
		11.	All Pzr Htr are ON
		12.	PORV Closes
		13.	Permit to Bypass HPI
		14.	Spray Valve Closes
		15.	Permit to Bypass LPI

[10 answers @ 0.2 ea]

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 24 (2.00)

For each of the two questions given below select the one correct answer from the four possible choices following the questions.

1. The Spent Fuel Bridge Hoist will be prevented from moving up if there is no grapple "engaged" or "disengaged" light or the weight on the hoist is greater than _____ #.

2. The Spent Fuel Bridge Hoist will be prevented from moving down if the grapple is engaged, the grapple tube is not down, and the weight on the hoist is less than _____ #.

a. 3000

b. 2750

c. 2450

d. 2100

QUESTION: 25 (1.00)

Match the loads given in Column `B' with their respective loading sequence block listed is Column `A' as applied to the Engineered Safeguards Diesel Generator Loading Sequence.

[The items in Column `B' may be used once, more than once, or not at all.]

COLUMN `A' BLOCK		COLUMN `B' LOADS	
1.	Block 2	a.	Emergency lighting
		b.	Decay Heat Sea Water Pump
		c.	Emer Nuc Ser Sea Water Pump
2.	Block 3	d.	Battery Chargers
		e.	Rx Bldg Fan Assemblies
		f.	Emer Nuc Ser Closed Cycle Cooling Water Pump
		g.	Decay Heat Closed Cycle Cooling Water pump
		h	Miscellaneous valves

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 26 (2.00)

Match the interlocks listed in Column `B' with the radiation instrument that initiates the action listed in Column `A'.

[The items in Column `B' may be used once, more than once, or not at all.]

COLUMN `A' RAD INST		COLUMN `B' INTERLOCKS
a.	RMA-2	1. AHF-7A & 7B (RB Purge Exh) Stop
		2. AHF-9A & 9B (Penetration Cooling) Stop
b.	RMA-3	3. AHF-10 (Fuel Handling Area Sup) Stop
		4. AHF-11A & 11B (Aux Bldg Sup) Stop
c.	RMA-11	5. AHF-14A & 14B (Aux Bldg Exh) Stop
		6. AHF-19A & 19B (CC Return) Stop
d.	RML-7	7. AHF-30 (Chem - Lab Sup) Stop
		8. AHF-34 (Hot Mach Shop Weld Hood Exh) Stop
		9. AHV-1A, 1B, 1C, 1D (RB Purge Vlvs) Closed
		10. SDV-90 (Sec Liq Rel Iso) Closed
		11. WDV-436, 437, 438, (WGDT Disch Vlv) Closed
		12. WDV-439, (Waste Gas Rel Vlv) Closed
		13. WDV-393, 394, 395 (WGDT's Recy Vlv) Closed
		14. WDV-891, 892 (Pri Liq Rel Iso) Closed

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 27 (1.00)

Regarding the Absolute Position Indication (API) and the Relative Position Indication (RPI) MATCH the terms and functions listed in Column `B' with the respective CRD position indications listed in Column `A'.

COLUMN `A'	COLUMN `B'
a. ARI	1. Auto Inhibit
	2. Asymmetric Rod detection
b. RPI	3. Feed and Bleed permits
	4. Group in and out limits
	5. Indication raise/lower switch
	6. Pulse Stepping Motor
	7. Sequence enable
	8. Sequence monitor
	9. Zone Reference indication
	10. 45 reed switches

QUESTION: 28 (2.00)

Which of the following conditions, when the alarm setpoint is exceeded, will energize the SDR (Shutdown Relay) resulting in a trip of the Emergency Diesel Generator? [4 @ 0.25 ea.]

CONDITIONS

a. Lube Oil Level Low
b. Generator Stator Temp High
c. Lube Oil Press Low
d. Jacket Coolant Temp High
e. No Field
f. Fuel Oil Press Low
g. Engine Overspeed
h. Crankcase Press High
i. Start Failure

(***** CATEGORY 6 CONTIN[illegible]GE *****)

QUESTION: 29 (1.00)

Which one of the following choices is an accurate list of areas which require authorization from the Nuclear Fire Protection Specialist on a Fire Work Permit.

a. Cable Spreading Room, ES Switchgear Rooms, Station Battery Rooms, ICS Equipment Room.

b. CRD Equipment Room, ES Switchgear Rooms, Station Battery Rooms, Cable Spreading Room.

c. ES Switchgear Rooms, Station Battery Rooms, ES Equipment Rooms, Control Center.

d. Station Battery Rooms, ES Equipment Rooms, Control Center, ICS Equipment Room.

QUESTION: 30 (1.00)

Which one of the following choices accurately lists areas which, if affected by a procedure, require that the procedure be done in a step-by-step manner, as required by AI-500, "Conduct of Operations"?

Operating procedures shall be step-by-step if they directly affect:

a. Nuclear Fuel, Primary Coolant Pressure Boundary, Containment Integrity, Engineered Safeguards (ES) Systems.

b. Primary Coolant Pressure Boundary, Containment Integrity, Secondary Coolant pressure boundary, Engineered Safeguards (ES) Systems.

c. Containment Integrity, Secondary Coolant pressure boundary, Engineered Safeguards (ES) Systems, Nuclear Fuel.

d. Secondary Coolant pressure, boundary, Engineered Safeguards (ES) Systems, Nuclear Fuel, Primary Coolant Pressure Boundary.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 31 (1.00)

Which one of the following combinations of tags hung on a single component is permissible?

a. 2 blue tags

b. 2 red and 1 blue

c. 1 white and 3 red tags

d. 1 white, 1 red, and 1 blue

QUESTION: 32 (1.00)

An approved system valve lineup has been altered in accordance with facility procedures to perform special testing.

Which one of the following must be used to properly track this special valve line-up?

a. Entries in the operator's log.

b. An immeditate temporary change.

c. Entries in the shift supervisor's log.

d. An interim procedure change.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 33 (1.00)

Which one of the following must be completed by a licensed operator to maintain his/her license in an "active" status per the regulations of 10 CFR 55 "Operators' Licenses"?

The operator shall actively perform the functions of the appropriately licensed operator on a minimum of:

a. seven 8 hour shifts or five 12 hour shifts per calendar month.

b. seven 8 hour shifts or five 12 hour shifts per calendar quarter.

c. five 8 hour shifts or four 12 hour shifts per calendar month.

d. five 8 hour shifts or four 12 hour shifts per calendar quarter.

QUESTION: 34 (2.00)

From the choices (a. - d.), choose the Emergency Classifications for each of the following summary statements:

1. An event that has or is causing major failure of systems required to protect the public. It is likely that some exposure to the public may occur.

2. Actual or potential substantial degradation of the level of safety of the plant.

    a. Unusual Event

    b. Alert

    c. Site Area Emergency

    d. General Emergency

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 35 (2.00)

Answer the following TWO (2) questions regarding the "CP-115 Nuclear Plan Clearances".

1. Who is responsible for determining if Independent Verification is required for a clearance? (Choose One)

   a. Nuclear Plant Operations Manager

   b. Nuclear Operations Superintendent

   c. Nuclear Shift Supervisor

   d. Nuclear Operator

2. Which one of the following statements gives two actions that must be undertaken by the Clearance Holder for those clearances that have been outstanding for 30 days or more?

   a. Perform a physical verification of tags, review and verify applicability.

   b. Review and verify applicability, reissue the clearance tags.

   c. Perform a physical verification of tags, Reissue the clearance tags.

   d. Review and verify applicability, Re-date the clearance tags.

(* *** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 36 (2.00)

Fill in the exposure limits, as required to complete the following table. Column 'ADMIN LMT' is the limit set down by the facility and is the maximum exposure allowed without management approval. 10 CFR 20 column is the maximum limit set down by 20.101. [NRC Form 4 is on file.]

AREA EXPOSED	ADMIN LMT	10CFR20
Quarterly Whole Body	___a___	___b___
Yearly Whole Body	___c___	___d___
Quarterly Extremities (Hands and feet)	___e___	___f___
Quarterly Skin of whole body	___g___	___h___

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

QUESTION: 37 (1.00)

Match the functiona/responsiblities in column `B´ with the Emergency Team in column `A´ that is responsible.

[Column `B´ item may be used once, more than once, or not at all.]

COLUMN `A´	COLUMN `B´
a. Fire brigade	1. Decon injured personnel.
b. Radiation Emergency Team	2. Extinguish a fire.
c. Emergency Repair Team	3. Make needed repairs.
d. Emergency Medical Team	4. Perform a radiological sample.
e. Environmental Survey Team	5. Perform surveys...on site.
	6. Provide radiological monitoring devices.
	7. Provide the EC with information relating to radiation exposure and travel of airborne releases.
	8. Search for missing personnel.
	9. Track radioactive releases.
	10. Transport an injured person to a medical facility.

QUESTION: 38 (2.00)

For each of the two types of fires described, indicating which of the following choices accurately classifies it.

1. The Emergency Diesel Generator output breaker fails to open on an overload therby failing to deenergize the and smoke is emitting from the breaker cubical.

2. The Hydrogen cooling system on the Main Generator develops a leak and results in an explosion.

a. Class `A´

b. Class `B´

c. Class `C´

d. Class `D´

(***** END OF CATEGORY 6 *****)
(********** END OF EXAMINATION **********)

ANSWER SHEET

SENIOR REACTOR OPERATOR

EMERGENCY AND ABNORMAL PLANT EVOLUTIONS (43%)

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

Ø1	B
Ø2	C
Ø3	B
Ø4	C
Ø5	D
Ø6	A
Ø7	B
Ø8	D
Ø9	A
1Ø	B
11	C
12	B
13	B
14	B
15	A
16	B
17	C
18	C
19	B
2Ø	D
21	A
22	D

ANSWER SHEET

SENIOR REACTOR OPERATOR

EMERGENCY AND ABNORMAL PLANT EVOLUTIONS (43%)

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank

23 B

24 B

25 A

26 C

27 C

28 B

29 D

ANSWER 3Ø

a. </= 17Ø F [Ø.5]

b. 27Ø to 171 F [Ø.5]

c. > 27Ø F [Ø.5]

ANSWER 31

A., B., D., F., G., I., J., K.

ANSWER 32

B., C., E., F., H., I.

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT SYSTEMS (40%)

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

01	C
02	C
03	C
04	A
05	C
06	C
07	B
08	B
09	A
10	D
11	C
12	D
13	A
14	C
15	D
16	A
17	D
18	D
19	A
20	B
21	D
22	A

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT SYSTEMS (40%)

ANSWER 23

a. 2.

b. 15.

c. 4.

d. 11.

e. 14

f. 8.

g. 10.

h. 12.

i. 7.

j. 9.

ANSWER 24

1. B

2. D

ANSWER 25

1. C., E.

2. B., F.

ANSWER 26

a. 2., 3., 4., 7., 8., 11.

b. 4.

c. 12., 13.

d. 10.

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT SYSTEMS (40%)

ANSWER 27

a. 1., 2., 3., 4., 7., 9., 10

b. 5., 6., 8.

ANSWER 28

C., E., G., I.

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT-WIDE GENERIC RESPONSIBILITIES (17%)

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

29 B

30 A

31 C

32 D

33 B

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT-WIDE GENERIC RESPONSIBILITIES (17%)

ANSWER 34

1. C

2. B

ANSWER 35

1. C

2. A

ANSWER 36

a. 1.25 rem/qtr [Ø.25]

b. 3.Ø rem/qtr [Ø.25]

c. 5 rem/yr [Ø.25]

d. 12.Ø rem/yr or no limit given [Ø.25]

e. 18.75 rem/qtr [Ø.25]

f. 18.75 rem/qtr [Ø.25]

g. 7.5 rem/qtr [Ø.25]

h. 7.5 rem/qtr [Ø.25]

ANSWER SHEET

SENIOR REACTOR OPERATOR

PLANT-WIDE GENERIC RESPONSIBILITIES (17%)

ANSWER 37

a. 2.

b. 5., 6., 8.

c. 3.

d. 1., 10.

e. 9.

ANSWER 38

1. C

2. B

ANSWER: Ø1 (1.ØØ)

b.

REFERENCE:

CR STS 3/4.1.3 SECTION 3.1.3.1 pg 3/4 1-18
LESSON OBJECTIVE ROT 5-1 TERMINAL OBJECTIVE SECTION 3/4

(3.9)

ØØØØØ1GØØ8 ..(KA's)

ANSWER: Ø2 (1.ØØ)

c.

REFERENCE:

CR STS BASES 3/4.1.3 pg B3/4 1-3
NO LESSON OBJECTIVE IDENTIFIED

(4.3)

ØØØØØ1K3Ø2 ..(KA's)

ANSWER: Ø3 (1.ØØ)

b.

REFERENCE:

CR EP-14Ø pg 1, AP-525 pg 1
LESSON OBJECTIVE ROT 5-16 #1

(4.1)

ØØØØØ1GØ11 ..(KA's)

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

ANSWER: Ø4 (1.ØØ)

c.

REFERENCE:

CR AP-545 pg 3
LESSON OBJECTIVE CR ROT 5-68 #2

(4.1)

ØØØØØ3A1Ø5 ..(KA's)

ANSWER: Ø5 (1.ØØ)

d.

REFERENCE:

CR AP-38Ø pg 7 & 8 step 3.3
LESSON OBJECTIVE ROT 5-63 #2

(4.Ø)

ØØØØ11A1Ø3 ..(KA's)

ANSWER: Ø6 (1.ØØ)

a.

REFERENCE:

CR AP-38Ø STEP 3.3 pg 8, IMMEDIATE ACTION CAUTION NOTE pg 3
LESSON OBJECTIVE ROT 5-63 #2

(4.7)

ØØØØ11A2Ø1 ..(KA's)

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

ANSWER: Ø7 (1.ØØ)

b.

REFERENCE:

CR OP-3Ø2 pg 19 & 2Ø, LIMITS & PRECAUTIONS pg 6
LESSON OBJECTIVE ROT 5-76 #4

(3.7)

ØØØØ15A21Ø ..(KA's)

ANSWER: Ø8 (1.ØØ)

d.

REFERENCE:

CR EP-14Ø IA 2.1 pg 3
LESSON OBJECTIVE ROT 5-16 #2

(3.9)

ØØØØ24A2Ø5 ..(KA's)

ANSWER: Ø9 (1.ØØ)

a.

REFERENCE:

CR Tech Spec 3.1.3.x, pp 3/4 1-18 through 3/4 1-37
LESSON OBJECTIVE ROT 5-1 TERMINAL OBJECTIVE FOR 3/4

(3.6)

ØØØØØ5GØØ3 ..(KA's)

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

ANSWER: 10 (1.00)

b.

REFERENCE:

CR Abnormal Procedure, AP-580, p. 3
LESSON OBJECTIVE ROT 5-28 #2

(4.4)

000024K301 ..(KA's)

ANSWER: 11 (1.00)

c.

REFERENCE:

CR AP-460 IA 2.1 pg 3
LESSON OBJECTIVE ROT 5-65 #2

(4.7)

000040K304 ..(KA's)

ANSWER: 12 (1.00)

b.

REFERENCE:

CR AP-460 Note pg 5
LESSON OBJECTIVE ROT 5-65 #3

(3.9)

000040K306 ..(KA's)

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

ANSWER: 13 (1.00)

b.

REFERENCE:

CR Emergency Implementing Procedure, EM-216, p. 2
NO LESSON OBJECTIVE IDENTIFIED

(3.9)

000067K102 ..(KA's)

ANSWER: 14 (1.00)

b.

REFERENCE:

CR EP-220 pg 1 Entry Conditions
LESSON OBJECTIVE ROT 5-73 #1

(3.9)

000040A119 ..(KA's)

ANSWER: 15 (1.00)

a.

REFERENCE:

CR OP-607 Caution Note pg 11
NO LESSON OBJECTIVE IDENTIFIED

(4.1)

000051A202 ..(KA's)

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

ANSWER: 16 (1.ØØ)

b.

REFERENCE:

CR Tech Spec 3/4 .3.3.8 Table 3.3-12 Action 21 pg 3/4 3-44
LESSON OBJECTIVE ROT 5-1 #12

(3.8)

ØØØØ59GØØ5 ..(KA's)

ANSWER: 17 (1.ØØ)

c.

REFERENCE:

CR EP-29Ø Step 3.24 pg 25 ROT 5-19 step 3.15 pg 22
LESSON OBJECTIVE ROT 5-19 #3

(4.2)

ØØØØ74K3Ø8 ..(KA's)

ANSWER: 18 (1.ØØ)

c.

REFERENCE:

CR ROT 5-28, p. 4
LESSON OBJECTIVE 3

(4.Ø)

ØØØØØ7K1Ø3 ..(KA's)

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

ANSWER: 19 (1.ØØ)

b.

REFERENCE:

CR AP-58Ø Section 2.Ø pg 4 & 5
LESSON OBJECTIVE ROT 5-28 #2

(4.1)

ØØØØØ7GØ1Ø ..(KA's)

ANSWER: 2Ø (1.ØØ)

d.

REFERENCE:

CR EP-39Ø Caution pg 17
LESSON OBJECTIVE ROT 5-2Ø #3

(4.4)

ØØØØ37K3Ø7 ..(KA's)

ANSWER: 21 (1.ØØ)

a.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR ROT 5-28, pp 3-6 AP-580, pp 3-5
LESSON OBJECTIVE ROT 5-28 #2

(4.6)

000007K301 ..(KA's)

ANSWER: 22 (1.00)

d.

REFERENCE:

CR ROT 5-62, p. 2 & 3, AP-360, p. 1
LESSON OBJECTIVE ROT 5-62 #1

(3.9)

000025G011 ..(KA's)

ANSWER: 23 (1.00)

b.

REFERENCE:

Crystal River, ROT 4-01, Instrumentation and Controls, page 10.
LESSON OBJECTIVE ROT 4-1 #3

(3.4)

000028A210 ..(KA's)

ANSWER: 24 (1.00)

b.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR OP-210 step 4.2.10 pg 13
LESSON OBJECTIVE ROT 5-2 #5

(3.6)

000033A204 ..(KA's)

ANSWER: 25 (1.00)

a.

REFERENCE:

CR ROT 5-20 step 3.23 pg 22
LESSON OBJECTIVE ROT 5-20 #3

(4.5)

000038K302 ..(KA's)

ANSWER: 26 (1.00)

c.

REFERENCE:

CR AP-450 Note pg 9
LESSON OBJECTIVE ROT 5-64 #3

(4.6)

000054K304 ..(KA's)

ANSWER: 27 (1.00)

c.

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR AP-450 step 3.9 pg 9
LESSON OBJECTIVE ROT 5-64 TERMINAL OBJECTIVE

(4.2)

000054K102 ..(KA's)

ANSWER: 28 (1.00)

b.

REFERENCE:

CR ROT-4-7 pg 26
LESSON OBJECTIVE ROT 4-7 #11

(3.9)

000067G009 ..(KA's)

ANSWER: 29 (1.00)

d.

REFERENCE:

CR ROT-4-26,
LEARNING OBJECTIVE #6.

(3.8)

000036G010 ..(KA's)

ANSWER: 30 (1.50)

a. </= 170 F
b. 270 to 171 F
c. > 270 F (3 @ 0.5 ea)

(***** CATEGORY 5 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR EP-220 Entry Conditions pg 1
LESSON OBJECTIVE ROT 5-73 #1

(4.1)

000009K308 ..(KA's)

ANSWER: 31 (2.00)

a., b., d., f., g., i., j., k. (8 @ 0.25 ea)

REFERENCE:

CR ROT 4-16 Section 3.1 pg 6 - 15 & Section 3.3 pg 38 - 76
NO LESSON OBJECTIVE IDENTIFIED

(4.0)

000068K201 ..(KA's)

ANSWER: 32 (1.50)

b., c., e., f., h., i. (6 @ 0.25 ea)

REFERENCE:

CR EM-201 Section 4.1.1 pg 3
LESSON OBJECTIVE ROT 5-35 #6

(3.8)

000060G010 ..(KA's)

(***** END OF CATEGORY 5 *****)

ANSWER: Ø1 (1.ØØ)

c.

REFERENCE:

CR ROT 4-12 REACTOR PROTECTION SYSTEM section 1.2.2.8 pg 12
LESSON OBJECTIVE 3.

(3.7) (3.1) (4.Ø)

Ø12ØØØA3Ø7 Ø12ØØØK1Ø3 Ø12ØØØK6Ø3 ..(KA's)

ANSWER: Ø2 (1.ØØ)

c.

REFERENCE:

CR ROT 5-76 OP-4Ø2 SECTION 3.2.13 P & L pg 8
LESSON OBJECTIVE 6.

(3.6)

ØØ3ØØØG Ø1Ø ..(KA's)

ANSWER: Ø3 (1.ØØ)

c.

REFERENCE:

T.S. 3.2.4.B
LESSON OBJECTIVE #9

(3.6) (3.7)

ØØ1ØØØG Ø Ø5 ØØ1Ø5ØA2Ø2 ..(KA's)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

ANSWER: Ø4 (1.ØØ)

a.

REFERENCE:

CR ROT 4-2 CH 2
CR SRO-88 EXAM #1 QUES 17.Ø
LESSON OBJECTIVE ROT 4-2 #7

(3.8)

Ø76ØØØK116 ..(KA's)

ANSWER: Ø5 (1.ØØ)

c.

REFERENCE:

CR ROT 4-1, Chapter 3, section 4.2.2 p. 77
LESSON OBJECTIVE 12

(3.2)

ØØ5ØØØK4Ø1 ..(KA's)

ANSWER: Ø6 (1.ØØ)

c.

REFERENCE:

CR ROT 4-14 section 1.5.2 page 13
LESSON OBJECTIVE 3

(3.9)

Ø41Ø2ØK417 ..(KA's)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

ANSWER: Ø7 (1.ØØ)

b.

REFERENCE:

CR ROT 4-14 section 1.5.4 pg 21
LESSON OBJECTIVE 4

(3.2)

Ø59ØØØA41Ø ..(KA's)

ANSWER: Ø8 (1.ØØ)

b.

REFERENCE:

CR NAO-96 Section 1.4.5.3 & 1.4.5.4 pg 9 - 12
LESSON OBJECTIVE NAO-96 #3

(3.2)

Ø59ØØØK416 ..(KA's)

ANSWER: Ø9 (1.ØØ)

a.

REFERENCE:

CR ROT 3-1Ø SECTION 3.1 PG 1Ø & 11
LESSON OBJECTIVE #5

(3.8)

Ø15ØØØA2Ø2 ..(KA's)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

ANSWER: 10 (1.00)

d.

REFERENCE:

CR STS LIMITING SAFETY SYSTEM SETTINGS BASES pg 2-6
NO LESSON OBJECTIVE IDENTIFIED

(4.4)

000000K410 ..(KA's)

ANSWER: 11 (1.00)

c.

REFERENCE:

CR ROT 4-15 SECTION 2.1 pg 13 & 14, CR EXAM BANK SRO-88 EXAM #1 QUES 18
LESSON OBJECTIVE ROT 4-15 #9

(4.6)

061000K402 ..(KA's)

ANSWER: 12 (1.00)

d.

REFERENCE:

CR ANO-90 SECTION 2.3 pg 24
LESSON OBJECTIVE #6

(4.5)

026000A301 ..(KA's)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

ANSWER: 13 (1.00)

a.

REFERENCE:

CR ROT 4-13 AND CR 1988 SRO EXAM #3 QUESTION 6.1
LESSON OBJECTIVE 1., 4., 6.

(4.4)

013000K106 ..(KA's)

ANSWER: 14 (1.00)

c.

REFERENCE:

CR ROT 4-8, Chapter 1, p. 19 Drawing EC-206-017
LESSON OBJECTIVE ROT 4-8 #4

(3.1)

022000K201 ..(KA's)

ANSWER: 15 (1.00)

d.

REFERENCE:

CR ROT 5-48, p. 11
LESSON OBJECTIVE 4

(3.6)

068000A302 ..(KA's)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

ANSWER: 16 (1.00)

a.

REFERENCE:

CR ROT 4-12 FIGURE #2 CR EXAM CATEGORY THREE QUESTION 3.9
LESSON OBJECTIVE 13

(3.2)

012000K406 ..(KA's)

ANSWER: 17 (1.00)

d.

REFERENCE:

CR ROT 4-9 SECTION 3.2.E pg 20, CR EXAM BANK QUESTION 29 pg 9
LESSON OBJECTIVE 6

(3.2)

063000K402 ..(KA's)

ANSWER: 18 (1.00)

d.

REFERENCE:

CR ANAO-39 SECTION 2.5 pg 36
LESSON OBJECTIVE 10.C.

(3.5)

086000K504 ..(KA's)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

ANSWER: 19 (1.00)

a.

REFERENCE:

CR ROT 4-29 SECTION 4.4 pg 42, STS BASES SECTION 3/4.9.11 pg B 3/4 9-3
LESSON OBJECTIVE NOT IDENTIFIED

(3.1)

033000G006 ..(KA's)

ANSWER: 20 (1.00)

b.

REFERENCE:

CR ROT 4-2, CR EXAM BANK QUESTION 2.15
LESSON OBJECTIVE CHAPTER 2 #7

(3.8)

013000K108 ..(KA's)

ANSWER: 21 (1.00)

d.

REFERENCE:

CR ANO-84 SECTION 1.4.4, 1.4.5, 1.4.6, & 1.4.9 pg 10 -19
LESSON OBJECTIVE #7

(3.5)

008000K301 ..(KA's)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

ANSWER: 22 (1.00)

a.

REFERENCE:

CR ROT 4-28 Sec 1.2 pg 2
LESSON OBJECTIVE #5

(3.7)

001000K202 ..(KA's)

ANSWER: 23 (2.00)

a. 2. (10 @ 0.2 EA)
b. 15.
c. 4.
d. 11.
e. 14.
f. 8.
g. 10.
h. 12.
i. 7.
j. 9.

REFERENCE:

CR ROT 4-1 SECTION 2.2.3, 2.2.3, 2.2.5, pg 16 - 19
CR exam bank SRO-88 Exam #1 Question 6
LESSON OBJECTIVE #6

(4.1)

002000A101 ..(KA's)

ANSWER: 24 (2.00)

1. b. (1.0)
2. d. (1.0)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR ROT 4-26 SECTION 2.3.2 pg 27, CR SRO-88 EXAM #2 QUESTION 6
LESSON OBJECTIVE 4

(3.3)

034000K403 ..(KA's)

ANSWER: 25 (1.00)

1. c., e. (4 @ 0.25 ea)
2. b., f.

REFERENCE:

CR ROT 4-6 SECTION 11.4 pg 31
LESSON OBJECTIVE #5

(3.7)

064000A307 ..(KA's)

ANSWER: 26 (2.00)

a. 2., 3., 4., 7., 8., 11.
b. 4.
c. 12., 13.,
d. 10. (10 @ 0.2 EA)

REFERENCE:

CR ROT 4-25 TABLE 5 pg 31, 32, 33 and CR EXAM BANK QUESTION 3.13
LESSON OBJECTIVE 4

(4.3) (3.9)

073000K101 073000K401 ..(KA's)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

ANSWER: 27 (1.00)

a. 1., 2., 3., 4., 7., 9., 10.
b. 5., 6., 8. (10 @ 0.1 ea)

REFERENCE:

CR ROT 4-28 Section 1.4.8, 1.4.9, 1.4.10, & 2.4 pg 15 - 24 & pg 31
CR EXAM BANK SRO-88 EXAM #2 QUESTION 27
LEXXON OBJECTIVE ROT 4-28 # 4., 5., 6., 7.

(3.8)

001000K401 ..(KA's)

ANSWER: 28 (2.00)

c., e., g., i. (4 @ 0.5 ea)

REFERENCE:

CR AR-901
CR ROT 4-6 section 3.0
LESSON OBJECTIVE ROT 4-6 #4

(4.2)

064000K402 ..(KA's)

ANSWER: 29 (1.00)

b.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR ROT 5-40, CP-118, pp 2
LESSON OBJECTIVE ROT 5-40 #1

(4.2)

194001K116 ..(KA's)

ANSWER: 30 (1.00)

a.

REFERENCE:

CR AI-500, SECTION 4.2 pg 8;
LESSON OBJECTIVE ROT 5-38, #13

(3.9)

194001A102 ..(KA's)

ANSWER: 31 (1.00)

c.

REFERENCE:

CR CP-115 SECTION 4.5.1, 4.5.2, 4.5.3 pg 15 & 16
LESSON OBJECTIVE ROT-5-40 #7 & #8

(4.1)

194001K102 ..(KA's)

ANSWER: 32 (1.00)

d.

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR AI-400C, SECTION 4.2.1, pg 8
LESSON OBJECTIVE ROT 5-77 #2

(3.7)

194001K101 ..(KA's)

ANSWER: 33 (1.00)

b.

REFERENCE:

10 CFR 55.53(e) Issued 1-1-88
NO LESSON OBJECTIVE IDENTIFIED

(3.4)

194001A103 ..(KA's)

ANSWER: 34 (2.00)

1. c. (1.0)
2. b. (1.0)

REFERENCE:

CR EM-202 SECTION 1.4 pg 5 & 6
LESSON OBJECTIVE ROT 5-47 #2

(4.4)

194001A116 ..(KA's)

ANSWER: 35 (2.00)

1. c. (1.0)
2. a. (1.0)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR CP-115 SECTION 3.1.8 PG 2 & SECTION 3.1.5 PG 2, AI-500 PG 2 - 5
LESSON OBJECTIVES ROT 5-40 CP-115 # 3

(4.1)

194001K102 ..(KA's)

ANSWER: 36 (2.00)

a. 1.25 rem/qtr
b. 3.0 rem/qtr
c. 5 rem/yr
d. 12.0 rem/yr or no limit given
e. 18.75 rem/qtr
f. 18.75 rem/qtr
g. 7.5 rem/qtr
h. 7.5 rem/qtr

(8 @ 0.25 each)

REFERENCE:

10 CFR 20 sec. 20.101 "Radiation dose standards for individuals in restricted areas." page 268 of 10 parts 0 to 50 Revised as of January 1, 1988.
CR RSP-101 SECTION 3.2.13 PG 10
LESSON OBJECTIVE ROT 5-43 #3 & #5

(3.3) (2.8)

194001K104 194001K103 ..(KA's)

ANSWER: 37 (1.00)

a. 2. (0.2)
b. 5., 6., 8. (0.2)
c. 3. (0.2)
d. 1., 10. (0.2)
e. 9. (0.2)

(***** CATEGORY 6 CONTINUED ON NEXT PAGE *****)

REFERENCE:

CR ROT 5-34
CR EXAM BANK CAT 8 QUESTION 8.5
LESSON OBJECTIVE ROT 5-34 # 4

(4.2)

194001K116 ..(KA's)

ANSWER: 38 (2.00)

1. c.
2. b.

REFERENCE:

CR EM-216 Section 3.1 pg 1 & 2
NO LESSON OBJECTIVE IDENTIFIED

(4.2)

194001K116 ..(KA's)

(***** END OF CATEGORY 6 *****)
(********** END OF EXAMINATION **********)

QUESTION	VALUE	REFERENCE
Ø1	1.ØØ	9ØØØ177
Ø2	1.ØØ	9ØØØ178
Ø3	1.ØØ	9ØØØ179
Ø4	1.ØØ	9ØØØ18Ø
Ø5	1.ØØ	9ØØØ181
Ø6	1.ØØ	9ØØØ182
Ø7	1.ØØ	9ØØØ183
Ø8	1.ØØ	9ØØØ184
Ø9	1.ØØ	9ØØØ185
1Ø	1.ØØ	9ØØØ186
11	1.ØØ	9ØØØ187
12	1.ØØ	9ØØØ188
13	1.ØØ	9ØØØ189
14	1.ØØ	9ØØØ191
15	1.ØØ	9ØØØ192
16	1.ØØ	9ØØØ194
17	1.ØØ	9ØØØ197
18	1.ØØ	9ØØØ198
19	1.ØØ	9ØØØ199
2Ø	1.ØØ	9ØØØ2ØØ
21	1.ØØ	9ØØØ2Ø1
22	1.ØØ	9ØØØ2Ø2
23	1.ØØ	9ØØØ2Ø3
24	1.ØØ	9ØØØ2Ø4
25	1.ØØ	9ØØØ2Ø5
26	1.ØØ	9ØØØ2Ø6
27	1.ØØ	9ØØØ2Ø7
28	1.ØØ	9ØØØ2Ø8
29	1.ØØ	9ØØØ2Ø9
3Ø	1.5Ø	9ØØØ193
31	2.ØØ	9ØØØ195
32	1.5Ø	9ØØØ196
	34.ØØ	

Ø1	1.ØØ	5725
Ø2	1.ØØ	12361
Ø3	1.ØØ	12364
Ø4	1.ØØ	9ØØØ14Ø
Ø5	1.ØØ	9ØØØ141
Ø6	1.ØØ	9ØØØ142
Ø7	1.ØØ	9ØØØ144
Ø8	1.ØØ	9ØØØ145
Ø9	1.ØØ	9ØØØ15Ø
1Ø	1.ØØ	9ØØØ151
11	1.ØØ	9ØØØ153
12	1.ØØ	9ØØØ154
13	1.ØØ	9ØØØ155
14	1.ØØ	9ØØØ158
15	1.ØØ	9ØØØ159
16	1.ØØ	9ØØØ16Ø
17	1.ØØ	9ØØØ161
18	1.ØØ	9ØØØ164
19	1.ØØ	9ØØØ165

QUESTION	VALUE	REFERENCE
20	1.00	9000166
21	1.00	9000174
22	1.00	9000175
23	2.00	9000152
24	2.00	9000156
25	1.00	9000162
26	2.00	9000163
27	1.00	9000167
28	2.00	9000176
29	1.00	6190
30	1.00	6191
31	1.00	6305
32	1.00	6312
33	1.00	12377
34	2.00	6316
35	2.00	12367
36	2.00	9000149
37	1.00	9000168
38	2.00	9000190
	46.00	
	80.00	