U.S. NUCLEAR REGULATORY COMMISSION REGION I
OPERATOR LICENSING EXAMINATION REPORT

EXAMINATION REPORT NO. 50-029/89-22 (OL)

FACILITY DOCKET NO. 50-029

FACILITY LICENSE NO. DPR-3

LICENSEE: Yankee Atomic Electric Company
580 Main Street
Bolton, Massachusetts 01740-1398

FACILITY: Yankee Nuclear Power Station

EXAMINATION DATES: November 28 - December 1, 1989

CHIEF EXAMINER: P. H. Bissett 12/21/89
Paul H. Bissett, Senior Operations Engineer Date

APPROVED BY: James A Prell for 12/22/89
Peter W. Eselgroth, Chief, PWR Section Date
Operations Branch, Division of Reactor Safety

SUMMARY: Written examinations and operating tests were administered to two (2) upgrade senior reactor operator (SRO) candidates. The SRO candidates passed both their written and operating examinations. Also, requalification examination retakes were administered to three (3) SROs who had failed various segments of the requalification examination previously administered during the month of June, 1989. All three individuals successfully passed those portions of the requalification examination that were administered.

DETAILS

TYPE OF EXAMINATIONS: Initial

EXAMINATION RESULTS:

	SRO Pass/Fail
Written	2/0
Operating	2/0
Overall	2/0

TYPE OF EXAMINATION: Requalification Reexamination
1 SRO - Walk-through
1 SRO - Written and walk-through
1 SRO - Simulator

NRC Grading	SRO Pass/Fail	TOTAL Pass/Fail
Written	1/0	1/0
Simulator	1/0	1/0
Walk-through	2/0	2/0

Facility Grading	SRO Pass/Fail	TOTAL Pass/Fail
Written	1/0	1/0
Simulator	1/0	1/0
Walk-through	2/0	2/0

1. CHIEF EXAMINER AT SITE: P. H. Bissett, Senior Operations Engineer

2. PERSONNEL PRESENT AT THE EXIT INTERVIEW

Facility Personnel:

C.R. Clark, Training Manager
M. Desilets, Training Instructor
K. E. Jucentkuff, Plant Operations Manager
J. Kay, Technical Services Manager
R. Miller, Technical Director
D. H. White, Operations Training Supervisor

NRC Personnel:

M. Markley, Resident Inspector

3. SUMMARY OF NRC AND LICENSEE COMMENTS MADE AT THE EXIT INTERVIEW

a. The NRC expressed appreciation to the Training, Operations and Security departments for providing assistance in expediting the examination process. The Operations department was especially cooperative in light of the fact that an emergency planning drill was being conducted at the same time job performance measures were being performed in the control room.

b. Several administrative deficiencies were identified during the performance of the requalification reexamination. It was subsequently determined that many of these deficiencies were contrary to the manner in which the May 1989 requalification examination had been conducted. The NRC stated that whether the requalification examination is being conducted for the first time or is a retake of a previous failure, it should always be conducted administratively in the same manner. Specific examples include the following:

   1. Initiating conditions, as well as the followup questions, could be prewritten and subsequently handed to examinees.

   2. Only clean, unmarked procedures used during the performance of any JPM should be handed to the examinee.

   3. Clearly state to the examinee the beginning and the end of each JPM.

   4. Ensure that cues, as written in the JPM, are stated when required.

   5. For JPMs that are simulated, emphasize to the examinee that all actions are to be simulated.

6. If time limits for completing various steps are critical to successfully completing the task, ensure that the examinee is aware of them.

c. Both the written examination question bank and the job performance measures question bank needs further reviews to ensure that all questions, as written, illicit the desired answers.

d. The licensee should continue training emphasis in the area of EOP usage for newly licensed individuals, especially in light of the fact that only recently were the newly written EOPs implemented.

e. No generic deficiencies were noted during the administration of the initial examinations.

4.0 EXIT MEETING

An exit meeting was conducted at the conclusion of the examinations on December 1, 1989. Personnel in attendance are noted in paragraph 2 of this report. Items of discussion are noted in paragraph 3.

Also, the NRC provided to the licensee the results of the requalification examination retakes. NRC results paralleled those of the facility.

Attachments:
1. Written Examination (Initial - SRO) and Answer Key
2. Requalification Examination Test Items
3. NRC Response to Facility Comments

Attachment 1

U. S. NUCLEAR REGULATORY COMMISSION
SENIOR REACTOR OPERATOR LICENSE EXAMINATION
REGION 1

FACILITY: Yankee-Rowe

REACTOR TYPE: PWR-WEC4

DATE ADMINSTERED: 89/11/~~28~~ 29

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	CANDIDATE'S SCORE	% OF CATEGORY VALUE	CATEGORY
35.00	43.21	______	______	5. EMERGENCY AND ABNORMAL PLANT EVOLUTIONS (33%)
46.00	56.79	______	______	6. PLANT SYSTEMS (30%) AND PLANT-WIDE GENERIC RESPONSIBILITIES (13%)
81.00		______ FINAL GRADE	______ %	TOTALS

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

______
Candidate's Signature

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 # 04, EPE # 10) 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 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.

20. 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 80% 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 5.01 (1.00)

If a Low Temperature Overpressure Protection (LTOP) System High Pressure alarm (N-C24) is received while low temperature overpressure protection is in effect, then:

a. PR-SOV-90 and PR-MOV-512 will open AUTOMATICALLY at 400 psig increasing and the operator should IMMEDIATELY acknowledge the alarm and assess the situation

b. PR-SOV-90 and PR-MOV-512 will open AUTOMATICALLY at 450 psig increasing and the operator should IMMEDIATELY stop any pump or heater operation which may be causing the pressure increase

c. PR-SOV-90 and PR-MOV-512 will open AUTOMATICALLY at 500 psig increasing and the operator should IMMEDIATELY assess the situation and stop any pump or heater operation which may be causing the pressure increase

d. PR-SOV-90 will open AUTOMATICALLY at 400 psig increasing and PR-MOV-512 will open AUTOMATICALLY at 500 psig increasing and the operator should IMMEDIATELY stop any pump or heater operation which may be causing the pressure increase

QUESTION 5.02 (1.00)

In addition to at least one LPSI and one HPSI pump running, what are the E-O Series Continuous Action Page MCP TRIP CRITERIA conditions?

a. MCS subcooling margin less than or equal to 25 degrees F and MCS pressure less than 1650 psig

b. MCS subcooling margin less than or equal to 35 degrees F and MCS pressure less than 1650 psig

c. MCS subcooling margin less than or equal to 25 degrees F and VC pressure greater than or equal to 5 psig

d. MCS subcooling margin less than or equal to 35 degrees F and VC pressure greater than or equal to 5 psig

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

QUESTION 5.03 (1.00)

A reactor scram has occurred following a turbine trip. You have correctly directed the operators to exit from E-0, Reactor Scram Or Safety Injection, to ES-0.1, Reactor Scram Response. At step 16., 'Verify Emergency Bus 3 - Energized By Offsite Power' you note the following:

MCS average temperature 470 degrees F
MCS pressure 1550 psig
Core exit T/Cs 1100 degrees F
Intermediate range 1E -7 amps
VC pressure 15 psig
All SGs wide range levels 24 feet

What action will you, as the SRO, direct the operators to take?

a. Proceed to ES-0.1 step 17 after verifying emergency bus 3 powered by offsite power

b. Actuate SI and go to E-0, Reactor Scram Or Safety Injection, Step 1

c. Exit to FR-H.1, Response To Loss Of Secondary Heat Sink, Step 1

d. Exit to FR-V.1, Response To High Vapor Container Pressure, Step 1

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

QUESTION 5.04 (1.00)

What action(s), if any, are required to be taken if the following indicated position indications exist for the Group C control rods:

1 - 75 inches
2 - 69 inches
3 - 72 inches
4 - 72 inches

a. No corrective action is required

b. Reduce THERMAL POWER level to less than or equal to 75% of RATED THERMAL POWER within one hour

c. Reduce THERMAL POWER level to less than or equal to 75% of RATED THERMAL POWER within one hour and reduce the Power Range Neutron Flux high trip to less than or equal to 75% of allowable THERMAL POWER

d. Be in at least HOT STANDBY within 6 hours

QUESTION 5.05 (1.00)

During startup, while withdrawing Group C, one shutdown rod is determined to be withdrawn to 84 inches. What action, if any, is required to be taken in accordance with Technical Specifications?

a. No action is required

b. Withdraw the rod to at least 87 inches

c. Declare the rod to be inoperable and determine Shutdown Margin to be greater than or equal to 6% delta k/k within 1 hour

d. Declare the rod to be inoperable and determine Shutdown Margin to be greater than or equal to 5.5% delta k/k within 1 hour and be in at least HOT STANDBY within 6 hours

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

QUESTION 5.06 (1.00)

During startup a control rod Group C rod is found to be immovable. What action(s) will you take?

a. Align the remaining Group C rods with the immovable rod

b. Determine the Shutdown Margin to be greater than or equal to 6% delta k/k within 1 hour and be in HOT STANDBY within 6 hours

c. Determine the Shutdown Margin to be greater than or equal to 5.5% delta k/k within 1 hour and be in HOT STANDBY within 6 hours

d. POWER OPERATION may continue provided that an analysis of the potential ejected rod worth is performed within 3 days and a power distribution map is obtained within 72 hours

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

QUESTION 5.07 (1.00)

Compliance with rod insertion limits is ensured by:

a. OPERABILITY of the control rod position indicators

b. POWER DISTRIBUTION limits

c. Minimum SHUTDOWN MARGIN

d. HOT CHANNEL FACTORS used in the accident analysis

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

QUESTION 5.08 (1.00)

What action(s) are required in response to the following?

Reactor power 93%

Bleedline letdown radiation monitor's high alarm sounds in the control room

Chemistry reports that the main coolant activity is 70 uCi/gm I-131 dose equivalent

a. Operation may continue for up to 48 hours but an unusual event must be reported

b. An emergency controlled plant load reduction should be initiated and an unusual event reported

c. Be in at least HOT STANDBY within 6 hours and notify the NRC in accordance with AP-0008

d. Trip the reactor and notify the NRC in accordance with AP-0008

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

QUESTION 5.09 (1.00)

What action(s) are required in response to the following?

Reactor power 95%

The blowdown effluent monitor is alarming

All steam generator blowdown monitors indicate an increasing count rate

The specific activity of the primary coolant is 0.7 uCi/gm DOSE EQUIVALENT I-131

a. Operation may continue for up to 48 hours but an unusual event must be reported

b. An emergency controlled plant load reduction should be initiated and an unusual event reported

c. Be in at least HOT STANDBY within 6 hours and notify the NRC in accordance with AP-0008

d. Determine the primary coolant leak rate into the steam generator(s) in accordance with OP-9105

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

QUESTION 5.10 (1.00)

Since starting up from a 6 day outage for maintenance, the plant has been operating at 97% power for 21 days. The Chemistry Department reports that the specific activity of the primary coolant is 0.9 uCi/gm DOSE EQUIVALENT I-131 and 110/E bar uCi/gm. What action(s) are required to be taken?

a. Since primary coolant specific activity is within limits, no action is required

b. Be in HOT STANDBY with Tavg < 414 degrees F within 48 hours

c. Be in HOT STANDBY with Tavg < 514 degrees F within 6 hours and isotopic analysis for Iodine performed once per 4 hours until specific activity is restored within limits

d. Repeat the analysis, and if the original analysis is confirmed, include in the next annual report to the NRC

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

QUESTION 5.11 (1.00)

Emergency Operating Procedure E-1, Loss Of Reactor Or Secondary Coolant, Step 3.b. Action/Expected Response reads:

Control feed flow to establish narrow range level between -14 inches [-7 inches for adverse VC] and +10 inches.

Why is narrow range level reestablished in all intact steam generators?

a. To satisfy the feed flow requirement of the Heat Sink Status Tree

b. To maintain symmetric cooling of the MCS

c. Ensures adequate inventory with level readings on visible span

d. Ensures increasing level would be observed following a SGTR

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

QUESTION 5.12 (1.00)

Emergency Operating Procedure E-2, Faulted Steam Generator Isolation, Step 1. Action/Expected Response reads:

Check Main Steam NRV Of Faulted SG - CLOSED

What is the basis for this step?

a. To maintain at least one loop available for cooldown and to isolate the break

b. To maintain at least one loop available for cooldown and to isolate the SGs from each other

c. To isolate the break and to isolate the SGs from each other

d. To isolate the break and prevent an uncontrolled cooldown

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

QUESTION 5.13 (1.00)

Emergency Operating Procedure E-O, Reactor Scram Or Safety Injection, Step 1. Action/Expected Response reads:

Verify Reactor Scram

What is the basis for this step?

a. To ensure that neutron flux is decreasing and only decay heat is being added to the MCS

b. To ensure that scram breakers are open and neutron flux is decreasing

c. To ensure that the only heat being added to the MCS is from decay heat and pump heat

d. To ensure that the reactor has tripped and neutron flux is decreasing

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

QUESTION 5.14 (1.00)

A reactor scram and safety injection have occurred following a steam line rupture. You have correctly transitioned into E-1, Loss Of Reactor Or Secondary Coolant. The operators have satisfactorily completed E-1 through Step 4, Check PZR PORV And Block Valve. The following conditions exist at the completion of Step 4:

Total feed flow - 75 GPM
Intermediate range SUR - negative
MCS subcooling based on core exit T/Cs - 83 degrees F
Wide range level in all S/Gs - 24 feet
MCS pressure - 1950 psig
VC pressure - 2 psig
Pressurizer level - 37 inches
SIT level - 9 feet

What action will you direct the operators to take?

a. Perform Step 5. Verify SIAS Reset

b. Go to ES-1.1, SI Termination

c. Go to ES-1.3, Transfer To VC Recirculation

d. Go to FR-H.1, Response To Loss Of Secondary Heat Sink

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

QUESTION 5.15 (1.00)

You have correctly entered FR-S.1, Response To Nuclear Power Generation/ATWS. Steps 1 through 7 have been completed satisfactorily. While you are directing the operators to perform Step 8, Check NRVs And Bypass Valves - CLOSED, an SI actuates. What action(s) is(are) required to be taken?

a. Verify SI actuation has occurred and continue with FR-S.1 Steps 8 through 12

b. Reset SIAS, restart charging pumps and continue with FR-S.1 Steps 8 through 12

c. Continue with FR-S.1 Steps 8 through 12 and then go E-O, Reactor Scram Or Safety Injection

d. Immediately go to E-O, Reactor Scram Or Safety Injection, Step 1

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

QUESTION 5.16 (1.00)

A reactor scram has occurred due to a generator trip. While performing E-0, Reactor Scram Or Safety Injection, it is determined that power CAN NOT be restored to at least one 480V emergency bus. The following conditions exist when you direct going to ECA-0.0, Loss Of All AC Power:

Wide range level in all SGs - about 12 feet and decreasing
SIT level - 25 feet steady
VC pressure - 0
MCS pressure - 1650 psig and decreasing
MCS subcooling margin - 40 degrees F and decreasing
PZR level 55 inches and decreasing
BK-1 and BK-2 - OPEN
Both turbine throttle valves - CLOSED
PR-SOV-90 - OPEN

What action(s) should be taken?

a. Go to FR-H.1 and restore wide range level in at least one SG > 14 feet

b. Shut PR-SOV-90 and continue in ECA-0.0

c. Manually initiate SI and go to E-0

d. When SG level decreases < 10 feet, then trip the MCP in the same loop

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

QUESTION 5.17 (1.00)

ECA-0.0, Loss Of All Power, contains the following CAUTION before Step 7:

WHEN power is restored to any 480v emergency bus, THEN recovery actions should continue starting with Step 18.

What is the basis for this CAUTION?

a. Minimize deterioration of plant conditions

b. Energize instrumentation and control equipment

c. Steps 7 through 17 are contingency steps rather than action steps

d. Prevent performance of unnecessary actions.

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

QUESTION 5.18 (1.00)

Functional Restoration Procedure, FR-C.1, Response To Inadequate Core Cooling, contains the following note before Step 9:

Partial uncovering of SG tubes is acceptable in the following steps.

What is the BASIS for this note?

a. Maintenance of SG level during the rapid depressurization will be difficult and partial uncovering of SG tubes is anticipated

b. Maximum feedwater mass addition rate exceeds the steam mass removal rate

c. Maintaining the SG tubes covered may require excessive feedwater addition rates leading to potential pressurized thermal shock (PTS)

d. Maximize primary-to-secondary heat transfer

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

QUESTION 5.19 (1.00)

When inadequate core cooling exists, what is the proper sequence of and major actions/processes to be performed for removing decay heat from the core?

a. Reinitiation of high pressure safety injection; RCP restart; opening pressurizer PORV

b. Rapid secondary depressurization; reinitiation of high pressure safety injection; RCP restart

c. RCP restart; reinitiation of high pressure safety injection; rapid secondary depressurization

d. Reinitiation of high pressure safety injection; rapid secondary depressurization; RCP restart and/or opening pressurizer PORV

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

QUESTION 5.20 (1.00)

Following a reactor scram and safety injection, in accordance with E-0, Reactor Scram Or Safety Injection, Step 26 Response Not Obtained (RNO), you direct going to E-1, Loss Of Reactor Or Secondary Coolant, Step 1. The following conditions exist when you enter E-1, Step 1:

LPSI pumps - RUNNING
HPSI pumps - RUNNING
MCS subcooling - 45 degrees F
VC pressure - 35 PSIG
MCPs - all RUNNING
SG pressure - All INCREASING
Condenser air ejector radiation - NORMAL
SG level - All 13.5 Feet
Pressurizer level - 40 inches INCREASING
Feedwater flow - 97.5 GPM

What action will you direct to be taken?

a. STOP all MCPs

b. Go to ES-1.1, SI Termination

c. Go to FR-H.1, Response To Loss Of Secondary Heat Sink

d. Go to FR-V.1, Response To High Vapor Container Pressure

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

QUESTION 5.21 (1.00)

A universal Handling Tool with pneumatically actuated fingers is mounted on the bottom of the tool boom used for fuel handling. What prevents the accidental drop of a core component due to a partial or complete loss of operating air?

a. The fingers will grip and hold the load when operating air is vented

b. The finger air supply volume provides adequate time to safely lower a suspended component before air pressure is completely lost

c. An emergency stop push button for the tool boom motor is pushed in to stop tool boom operation

d. The tool boom loaded controller provides an interlock which will prevent the inadvertent release of a suspended core component

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

QUESTION 5.22 (1.00)

The plant is at 43% power following a maintenance outage. If pressurizer level channel PR-L-6 fails high, then:

a. A reactor scram will occur

b. Charging pumps will trip

c. Technical Specification Table 3.3-1 Action 6-1. applies

d. The provisions of Technical Specification 3.0.4 are applicable

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

QUESTION 5.23 (1.00)

Following loss of control air and reactor scram due to low steam generator water level, you, as the SRO, correctly direct entry into ES-O.1, Reactor Scram Response. Control air is restored while ES-O.1, Step 8, Establish Power To 480V Bus 4-1, is being performed. Which of the following will allow performing ES-O.1 Step 9, Establish FW Flow, without entering the 'Response Not Obtained' Column?

a. Direct the SAO to valve in the emergency nitrogen supply to AS-PCV-451, emergency feedwater pump main steam inlet pressure control

b. Restore control air to the hotwell level control valves

c. Verify that adequate time has elapsed since reactor scram and that a condensate pump is running, then start a BFP

d. Restore normal control of the condensate recirc valve

QUESTION 5.24 (1.00)

The following indications/alarms are received while operating at 73% power:

CAC AUTO START
LOW CA panalarm
MCB low control air pressure indication
Control air bypass valve AUTO OPENING

What action would you direct the operators to take?

a. Verify OPEN or OPEN CH-LCV-222 to ensure bleed flow

b. Verify OPEN or OPEN CC-TV-205 and/or CC-TV-208 to prevent heating up of MCP bearings

c. Establish emergency nitrogen supply to HC-PCV-305, auxiliary steam control valve

d. Initiate E-0, Reactor Scram or Safety Injection

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

QUESTION 5.25 (1.00)

If the Red Lights for the DC Trip Circuits to Switchgear go out while operating at 75% power, then:

a. In accordance with OP-3116, if at least one supervisory indication for each breaker cannot be maintained operable, initiate OP-2104, Plant shutdown to Hot Standby.

b. Comply with Technical Specification Table 3.3-1 NOTE 7

c. Comply with Technical Specification Table 3.3-1 ACTION 7

d. Be in at least HOT STANDBY within 6 hours with the reactor trip breakers open

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

QUESTION 5.26 (1.00)

Why is Emergency Operating Procedure ES-3.2, Post-SGTR Cooldown Using Backfill, the preferred method for Post-SGTR cooldown?

a. Radiological releases are minimized

b. Boron dilution is minimized

c. Adverse secondary side water chemistry concerns are eliminated

d. More rapid means of depressurizing the MCS is provided

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

QUESTION 5.27 (1.00)

If a loss of all AC power occurs following an operator initiated reactor scram due to a SGTR, voiding in the main coolant system will be indicated by unexplained pressurizer:

a. Pressure decrease

b. Pressure increase

c. Level decrease

d. Level increase

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

QUESTION 5.28 (1.00)

A loss of shutdown cooling system capability is most serious:

a. When the MCS water level is below the reactor vessel flange because evaporation and boiling will lead to uncovering the core

b. During the early stages of plant cooldown because of increased core decay heat

c. When the loss causes a loss of alternate shutdown cooling capability

d. When the loss is caused by a shutdown cooling heat exchanger rupture

DELETED

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

QUESTION 5.29 (1.00)

The plant is in Mode 5 with the loop 1 hot leg isolation valve removed for repair. The shutdown cooling system is in operation. The following conditions exist:

MCS liquid level - MID LOOP
Core exit temperature - 175 degrees F INCREASING
Time after shutdown - 68 Hours

If the shutdown cooling pump trips on OVERCURRENT and will not restart, which IMMEDIATE ACTION is required ?

a. Inject water from the SI tank at 40 gpm using two charging pumps

b. Close the four shutdown cooling main line MOV isolation valves

c. Direct Reactor Engineering to perform MCS heat-up calculation in accordance with AP-332[illegible]

d. Initiate OP-3254, Loss of AC Supply With Shutdown Cooling In Service

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

QUESTION 5.30 (1.00)

The plant is operating at 95% power. You note the following conditions:

PR-MOV-191, Pressurizer Spray Valve - CLOSED
PR-SOV-90, Solenoid Relief Valve - CLOSED
PR-MOV-512, Solenoid Relief Valve Isolation Valve - OPEN
PR-SOV-90 Control Switch - in AUTO position
Pressurizer Backup Heaters - On
PR-P-710 Pressurizer Pressure Instrument - 2000 psig INCREASING
PR-P-711 Pressurizer Pressure Instrument - 2000 psig INCREASING
Low Pressure Alarm - ACTUATED

What action(s), if any, will you take?

a. No action since the plant is responding normally

b. Take manual control of PR-MOV-191, PR-SOV-90, and pressurizer heaters

c. Check PR-P-700 for failure low

d. Initiate E-0, Reactor Scram Or Safety Injection, before MCS pressure increases to 2300 psig

QUESTION 5.31 (1.00)

Emergency Operating Procedure E-2, Faulted Steam Generator Isolation, Step 3., 'Identify Faulted SG:' Action/Expected Response is:

Check pressures in all SGs - ANY SG PRESSURE DECREASING UNCONTROLLABLY

What is the EMERGENCY OPERATING PROCEDURE meaning/definition of UNCONTROLLABLY?

a. Plant AUTOMATIC ACTIONS do not control the pressure decrease

b. Not under the control of the operator and incapable of being controlled by the operator using available equipment

c. Decreasing at a rate of 50 pounds/minute

d. Decreasing at a rate of 100 pounds/minute

QUESTION 5.32 (1.00)

While operating at 98% power, a reactor scram and safety injection occur due to MCS pressure decreasing. You direct the operators in the performance of E-O, Reactor Scram Or Safety Injection, and at Step 26 you correctly go to E-1, Loss Of Reactor Or Secondary Coolant. E-1 Step 2 Action is 'Check If All SGs Are Intact'. E-O Step 25 is 'Check If All SGs Are Intact'. What is the basis for the E-1 action 'Check If All SGs Are Intact' after just having performed the identical action step in E-O?

a. To identify any faulted SGs

b. To ensure proper S/G isolation

c. Alert the operator to a possible misdiagnosis or subsequent failure

d. E-1, Loss Of Reactor Or Secondary Coolant, is entered from other procedures as well as E-O, Reactor Scram Or Safety Injection

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

QUESTION 5.33 (1.00)

While using Emergency Procedure E-0, "Reactor Scram or Safety Injection", at step 23 you notice that the Pressurizer PORV, RR-SOV-90 is open. Pressure is less than 2325 psig and the control switch is taken to the OFF position. Based on these actions, which ONE of the following statements is correct?

a. In the OFF position the red indicating light is deenergized which is positive indication that the valve is closed

b. In the OFF position the closing solenoid is energized and the green indicating light is energized which is positive indication that the valve is closed

c. In the OFF position the opening solenoid is deenergized and the green indicating light is energized which is positive indication that the valve is closed

d. With the red indicating light deenergized and the green indicating light energized the valve should close but the indicating lights do not provide a positive method of verifying valve closure

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

QUESTION 5.34 (1.00)

The plant is operating at 100% power when Number 2 Boiler Feed Pump (BFP) trips off. The operator determines that the 86-1 lockout relay for Number 2 BFP is energized. Following operating procedure guidance, which ONE of the following actions should the operator take?

a. Immediately take the No. 2 BFP control switch from its present position to the close position

b. Reduce power to 90%

c. Take control of the Feedwater Control System and manually control Steam Generator level

d. With only two BFPs operable, reduce turbine load and maintain Steam Generator levels

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

QUESTION 5.35 (1.00)

The plant has experienced a Loss of All AC Power. While stepping through the appropriate procedure you note that EFW flow greater than 87.5 GPM is NOT verified. An operator is dispatched to verify proper emergency alignment of EFW valves. Select the ONE statement, reported by the operator, which correctly identifies the cause of the improper EFW flow.

a. The suction supply valves to the Emergency Boiler Feed Pumps from the Primary Water Storage Tank (TK-39) are all shut

b. All valves are shut in the recirculation line from the Steam Driven Emergency Boiler Feed Pump to the Demineralized Water Tank (TK-1)

c. All Boiler Feedwater Flow Control valves (BF-FCV 1000, 1100, 1200, 1300) are closed

d. All steam supply valves from Auxiliary Boilers No. 1 and No. 2 to the Steam Driven Emergency Boiler Feed Pump are closed

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

QUESTION 6.01 (1.00)

Why are foot valves installed in the Spent Fuel Pit (SFP) Cooling system?

a. Because the SFP pumps are installed above the SFP water level; the foot valves prevent draining the SFP to below 14 feet above the top of the fuel assemblies

b. Because the SFP pumps are installed above the SFP water level; the foot valves allow discharge to the SFP south end when the SFP north end is dewatered

c. Prevent the SFP suction lines from draining when the SFP pump is stopped; allow the SFP pump to be primed when it is started with air in the suction line

d. Prevent water hammer when the shutdown cooler is used because the SFP cooler is inoperable

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

QUESTION 6.02 (1.00)

The Spent Fuel Pool (SFP) temperature is controlled by:

a. Throttling component cooling water flowing through the shell side of the SFP cooler

b. Throttling component cooling water flowing through the tube side of the SFP cooler

c. Throttling SFP water flowing through the shell side of the SFP cooler

d. Throttling SFP water flowing through the tube side of the SFP cooler

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

QUESTION 6.03 (1.00)

During a complete loss of forced Spent Fuel Pool (SFP) cooling capabilities the only method available for cooling is evaporation or boiling of the water in the spent fuel pool. In addition to the demineralized water header, what are the sources of water to make up for the loss of level caused by evaporation or boiling?

a. Condensate system, and shutdown cooling system

b. Condensate system, and fire water header

c. Component cooling water system, and fire water header

d. Component cooling water system, and service water system

QUESTION 6.04 (1.00)

The purposes of the permissive circuits are to generate signals which will enable or block reactor scram signals and to initiate single step rods out motion on increasing power level. If the AT POWER TRIP LIGHT, located on the nuclear section of the main control board, is illuminated, then:

a. Generator power is > 15 MWe and the low flow scrams are disabled

b. Generator power is < 16 MWe and the low flow scrams are disabled

c. Generator power is < 15 MWe and the low flow scrams are enabled

d. Generator power is > 16 MWe and the low flow scrams are enabled

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

QUESTION 6.05 (1.00)

What are the purposes of the REACTOR SCRAM AUXILIARY RELAY and REDUNDANT SCRAM AUXILIARY RELAY?

a. Reactor Scram Auxiliary Relay - trips the reactor on a turbine trip signal

   Redundant Scram Auxiliary Relay - trips the reactor on a loss of Battery Bus No. 1

b. Reactor Scram Auxiliary Relay - trips the turbine and opens main generator output oil circuit breakers on a reactor scram signal

   Redundant Scram Auxiliary Relay - trips the reactor on a loss of Battery Bus No. 1

c. Reactor Scram Auxiliary Relay - trips the turbine and opens main generator output oil circuit breakers on a reactor scram signal

   Redundant Scram Auxiliary Relay - trips the turbine and opens main generator output oil circuit breakers with a coincident loss of Battery Bus No. 1

d. Reactor Scram Auxiliary Relay - trips the turbine and opens main generator output oil circuit breakers on a reactor scram signal with a coincident loss of Battery Bus No. 1

   Redundant Scram Auxiliary Relay - trips the turbine and opens main generator output oil circuit breakers

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

QUESTION 6.06 (1.00)

The Kirk interlock key from the high side of the main transformer is placed in a Kirk interlock located in the main control board. When the interlock is turned,:

a. The Redundant Turbine Trip Relay is enabled and the Redundant Scram Auxiliary relay is energized

b. The Redundant Turbine Trip Relay is energized and the Redundant Scram Auxiliary relay is enabled

c. The generator oil output circuit breakers will NOT trip when the Reactor Scram Auxiliary Relay and Redundant Turbine Trip Relay are energized

d. The generator oil output circuit breakers will trip when the Reactor Scram Auxiliary Relay and Redundant Turbine Trip Relay are deenergized

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

QUESTION 6.07 (1.00)

Primary and secondary pressure protection are provided as follows:

a. MCS pressure protection in an isolated loop is provided by a loop bypass safety valve set at 2735 psig; secondary pressure protection for a turbine trip without a reactor scram is provided by safety valves set at 760 psig, 900 psig and 985 psig

b. MCS pressure protection in an isolated loop is provided by a safety valve set at 2735 psig; secondary pressure protection in event of NRV trip without a reactor scram is provided by safety valves set at 935 psig, 985 psig and 1035 psig

c. MCS pressure protection for an isolated loop is provided by a safety valve set at 2835 psig and installed on the loop bypass line; secondary pressure protection in event of a turbine trip without a reactor scram or NRV trip without a reactor scram is provided by safety valves set at 760 psig, 900 psig and 985 psig

d. MCS pressure protection for an isolated loop is provided by a safety valve set at 2835 psig and installed on the loop bypass line; secondary pressure protection in event of a turbine trip without a reactor scram or NRV trip without a reactor scram is provided by safety valves set at 935psig, 985 psig and 1035 psig

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

QUESTION 6.08 (1.00)

The pressurizer is connected to the Main Coolant System (MCS) by a spray line and a surge line.

a. The spray line is connected to loop 2 cold leg between the reactor and the cold leg stop valve; and the surge line is connected to loop 1 cold leg on the reactor side of the cold leg stop valve

b. The spray line is connected to loop 2 cold leg between the reactor and the cold leg stop valve; and the surge line is connected to loop 1 hot leg on the reactor side of the hot leg stop valve

c. The spray line is connected to loop 1 cold leg between the reactor and the cold leg stop valve; and the surge line is connected to loop 2 cold leg on the reactor side of the cold leg stop valve

d. The spray line is connected to loop 1 cold leg between between the reactor and the cold leg stop valve; and the surge line is connected to loop 2 hot leg on the reactor side of the hot leg stop valve

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

QUESTION 6.09 (2.00)

MATCHING

Place the following components in the proper flow path order for valve stem leak off water to Sherman pond. (Write the letter in the blanks provided) (each component should be used only once) (Lose 0.25 for each misorder.)

1_____	a. Monitored waste tanks transfer pump
2_____	b. Distillate accumulator
3_____	c. Test tank
4_____	d. Tube side of feed & distillate heat exchanger
5_____	e. Primary drain collecting tank
6_____	f. Waste evaporator
7_____	g. Liquid radwaste effluent radiation monitor
8_____	h. Shell side of feed & distillate heat exchanger
9_____	i. Waste holdup tank

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

QUESTION 6.10 (1.00)

If the liquid radwaste effluent radiation monitor (RM-K-109) fails and cannot be repaired, which one of the following is the proper course of action if a test tank must be discharged? Assume that all required tank samples and valve lineups are performed satisfactorily.

a. Manually control discharge flow rate with the effluent flow control valve (WD-FCV-301)

b. Throttle the bypass around the effluent flow control valve (WD-FCV-301) to control discharge flow rate

c. Discharge the test tank to the primary water storage tank

d. Discharge the test tank to 55-gallon drums

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

QUESTION 6.11 (1.00)

Which one of the following is the design purpose of the circulating water system seal pit?

a. Keep the circ water pump suction pipe submerged in water

b. Keep the circ water system discharge pipe submerged in water

c. Keep the circ water pump shaft glands submerged in water

d. Maintain adequate NPSH for the circ water pumps

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

QUESTION 6.12 (1.00)

Which one of the following is the design purpose of the 36-inch pipe between the seal pit and the screenwell in the circulating water system?

a. Maintain adequate NPSH on the circ water pumps

b. Maintain adequate water level in the seal pit

c. Keep the circ water pump shaft glands submerged in water

d. Prevent service water intake water from freezing

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

QUESTION 6.13 (1.00)

If the circulating water pumps are inoperable, which one of the following states the methods that must be used to ensure adequate service water (SW) dilution flow exists for a required discharge of a liquid radwaste test tank?

a. SW pump head curve analysis and circ water flow indicator in water treatment

b. CCW/SW heat exchanger heat balance and SW pump head curve analysis

c. CCW/SW heat exchanger heat balance and circ water flow indicator in water treatment

d. Circ water flow indicator in water treatment and SW flow indicator

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

QUESTION 6.14 (1.00)

A loss of electrical power to which one of the following will cause a complete loss of functioning in the primary vent stack process radiation monitor channels?

a. Vital AC bus #1

b. #2 station battery distribution switchboard

c. Stack house lighting Panel P-5

d. Non-essential uninterruptable power supply

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

QUESTION 6.15 (1.50)

FILL IN THE BLANKS

Some process radiation monitor channels control valves will close automatically to prevent a release of radioactivity. List the THREE (3) valves that will close automatically to prevent a potential release of radioactivity if the associated process radiation monitor channel detector fails. (Correct valve numbers will be satisfactory, but are NOT required.) (0.5 each)

1) ______________________________

2) ______________________________

3) ______________________________

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

QUESTION 6.16 (1.50)

FILL IN THE BLANKS

During a normal liquid radwaste release, a Control Room observer states that he thinks the release is causing an excessively high radioactivity concentration in the overboard discharge. List the THREE (3) indicators (gauges or meters) that you would check or have checked to ensure that you were NOT exceeding the overboard discharge concentration limits of the release permit. (Provide the title or function of the indicators, NOT the indicator numbers.) (0.5 each)

1) ____

2) ____

3) ____

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

QUESTION 6.17 (1.50)

FILL IN THE BLANKS

Reactor power is at 30% during a normal plant shutdown; #1 charging pump is running in AUTO, #2 charging pump is running in CLOSE, and #3 charging pump is stopped in TRIP. The operator inadvertently operates the WL-1-1 lockout relay to TRIP. List the THREE ACTIONS necessary to establish charging flow. (0.5 each)

1) ______________________________

2) ______________________________

3) ______________________________

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

QUESTION 6.18 (1.50)

FILL IN THE BLANKS

The CVCS bleed line isolation valve (CH-LCV-222) will shut automatically if any one of three different plant parameters exceeds its limit. List the THREE (3) different plant parameters, WITH SETPOINTS, that will cause CH-LCV-222 to shut automatically. Do NOT include manual switches or loss of air/nitrogen supply pressure. (0.5 each)

1) ______________________________(0.3) Setpoint ______________________(0.2)

2) ______________________________(0.3) Setpoint ______________________(0.2)

3) ______________________________(0.3) Setpoint ______________________(0.2)

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

QUESTION 6.19 (1.50)

FILL IN THE BLANKS.

Assume an accident has caused the core to be uncovered and cladding melt to be occurring in the upper regions of the core. List THREE (3) separate locations/indicators where a valid visual readout of core temperature can be observed. (0.5 each)

1) ______________________________

2) ______________________________

3) ______________________________

QUESTION 6.20 (1.00)

The reactor is at 100% power when a manual reactor trip and turbine trip are actuated. Which one of the following describes the MINIMUM conditions that must exist at the time of the trip to cause coincident tripping of the normal boiler feed pumps?

a. Permissive relay K-4P must have been energized and one scram breaker must trip open

b. Permissive relay K-4P must deenergize and both scram breakers must trip open

c. Permissive relay K-4P must deenergize and both scram breaker trip coils must deenergize

d. Permissive relay K-4P must energize and one scram breaker must trip open

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

QUESTION 6.21 (1.50)

FILL IN THE BLANKS

For added protection to prevent rupturing the vapor container, there are three switch contacts in series that must be closed to cause automatic energization of the trip coil in each condensate pump breaker control circuit. What are the THREE (3) series switch contacts that must close or be closed to cause automatic tripping of a running condensate pump? (List the switch or signal condition, NOT contact number; setpoints and coincidences are NOT required.) (0.5 each)

1) ______________________________

2) ______________________________

3) ______________________________

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

QUESTION 6.22 (1.00)

FILL IN THE BLANKS.

When a reactor trip occurs, the condensate recirculation valve (BF-CV-405) automatically opens. (0.5 each)

a. The primary design purpose of this automatic opening feature on BF-CV-405 is to ______________________________.

b. The automatic opening feature on BF-CV-405 can be reset by the operator no sooner than _______ seconds after a reactor trip.

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

QUESTION 6.23 (2.00)

FILL IN THE BLANKS.

Several different paths exist for supplying water to the steam generators in an emergency and the number of pumps that can supply each of these paths varies. For each of the following emergency feed paths, state the TOTAL number of pump(s) that can directly provide water to the steam generators with steam pressure at 760 psig and the normal boiler feed pumps and chemical addition pumps inoperable. (0.5 each)

a. Through the normal emergency feedwater connections (between the normal feedwater isolation valve and normal control valve): _____ pump(s)

b. Through the alternate emergency feedwater connections to the normal feedwater header loop seals in the vapor containment: _____ pump(s)

c. Through the additional alternate emergency feedwater connection to the normal feedwater header upstream of the normal feedwater isolation valves IF all emergency feedwater pumps are inoperable: _____ pump(s)

d. Through the normal emergency feedwater connections (between the normal feedwater isolation valve and normal control valve) IF all heat traced emergency feedwater lines are frozen solid: _____ pump(s)

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

QUESTION 6.24 (1.00)

While operating at 100% power, a spurious signal results in a main turbine trip. As Supervisory Control Room Operator (SCRO) it is your responsibility to ensure that the Control Room Nuclear Operator completes the appropriate section of DPF-2004.1, "Data Recording During an Emergency Shutdown" at the:

a. CRO's earliest convenience

b. Direction of the SCRO

c. Time when exiting Procedure E-0, "Reactor Scram or Safety Injection" to enter another procedure

d. Time of reaching step 12 in Procedure E-0, "Reactor Scram or Safety Injection"

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

QUESTION 6.25 (1.00)

Which ONE of the following is the basis for tripping the main turbine in conjunction with a reactor trip?

a. To prevent an uncontrolled cooldown of the MCS

b. To enhance condenser vacuum for steam dump operations

c. Ensures turbine coasts down properly since Main Steam Isolation Valves trip closed on a reactor trip

d. Auxiliary equipment necessary for Main Turbine operation is not available once the reactor trips

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

QUESTION 6.26 (1.00)

The Supervisory Control Room Operator (SCRO) is permitted to take reasonable actions that depart from license conditions or technical specifications when such actions are required to protect public health and safety and no action consistent with license conditions and technical specifications are adequate, if prior to initiating the actions:

a. The Shift Supervisor's approval is obtained

b. The Plant Superintendent's approval is obtained

c. The NRC Operations Center approval is obtained

d. The NRC is notified

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

QUESTION 6.27 (1.00)

AP-0001, Plant Procedures, provides instructions for use of portions of procedures. Portions of a procedure may be utilized for troubleshooting equipment provided:

a. that if the intent of the procedure IS changed, then two licensed SROs must approve

b. the intent of the procedure is NOT changed and the portion is reviewed by PORC and approved by the Plant Superintendent

c. the intent of the procedure is NOT changed and the applicable department supervisor and the Shift Supervisor approve

d. that if the intent of the procedure IS changed, then the applicable department supervisor and the Shift Supervisor must approve

QUESTION 6.28 (1.00)

Which ONE of the following most accurately describes the minimum shift crew composition required for Mode 2 operations when restarting the reactor six hours after a normal shutdown?

a. One licensed SRO, Two licensed RO's, Two non-licensed auxiliary operators, One STA

b. One licensed SRO, Three licensed RO's, Two non-licensed auxiliary operators, One STA

c. Two licensed SRO's, Two licensed RO's, Two non-licensed auxiliary operators, One STA

d. Two licensed SRO's, Two licensed RO's, Three non-licensed auxiliary operators, One STA

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

QUESTION 6.29 (1.00)

Orders to switch and tag and return equipment to service which originate from the New England Electric System (NEES):

a. Require approval of the Shift Supervisor and are accomplished in accordance with Local Control Rules

b. Require approval of the Shift Supervisor and are accomplished in accordance with NEES rules

c. Do not require the Shift Supervisors' approval and are accomplished with Local Control Rules

d. Do not require the Shift Supervisors' approval and are accomplished with NEES rules

QUESTION 6.30 (1.00)

Select the preferred method to perform independent verification of the proper position of a throttle valve.

a. Count the number of turns required to close the valve and then restore the valve to the original position

b. Count the number of turns required to fully open the valve and then restore the valve to the original position

c. Observe the position indicator and verify proper flow from the calibration curves for that specific valve

d. Have the verifier observe the initial valve operator's actions

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

QUESTION 6.31 (1.00)

The telephone system consists of a System 75, telephone extensions and lines. The system is powered from the security system power cabinet supplied by the nonessential UPS distribution cabinet. In the event of a power failure, emergency service is established by pressing the white button on the Power Fail equipped phones which then provides the following service:

a. No more than ONE phone each in the Control Room, the TSC, and the CAS, ~~and the ECC.~~

b. No more than ONE phone each in the Control Room, the TSC, the OSC, and the EOF.

c. No more than THREE phones in the Control Room, and ONE each in the TSC, and the CAS, ~~and the ECC.~~

d. No more than THREE phones in the Control Room and ONE each in the the TSC, the OSC, and the EOF.

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

QUESTION 6.32 (1.00)

Using the appropriate references, choose the ONE correct statement that describes the location and function of valve CS-MOV-538.

a. Located upstream of valve CS-MOV-533 and isolates Safety Injection Accumulator AC-2.

b. Located upstream of SI-MOV-518 and isolates Safety Injection Tank 2B.

c. Located downstream of SI-MOV-23 and isolates flow to loop 3.

d. Located downstream of SI-MOV-46 and isolates flow from High Head Safety Injection pump 1.

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

QUESTION 6.33 (1.00)

Using the appropriate reference, determine which ONE of the following Feedwater Temperature values corresponds to a reading of 84.4 ohms from RTD #1000.

a. 344 F

b. 351 F

c. 355 F

d. 359 F

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

QUESTION 6.34 (1.00)

The plant is operating at 100% power with all systems in their normal full power configuration. You are the Supervisory Control Room Operator (SCRO) when a spurious safety injection actuation is actuated without a reactor scram. By procedure, which ONE of the actions listed below are you required to follow?

a. Immediately scram the reactor and go to E-0, "Reactor Scram or Safety Injection"

b. Do not scram the reactor but go to E-0 and carry out the steps applicable to safety injection actuation

c. Consult Operating Procedures and, if a scram is not required, reset the SI system to the required lineup after obtaining approval from the Duty and Call Officer

d. Consult Operating Procedures and, if a scram is not required, reset the SI system to the required lineup after obtaining approval from the Shift Supervisor

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

QUESTION 6.35 (1.00)

During an accident and/or an operational transient the Shift Supervisor has the authority to restrict access to the Control Room. However, in accordance with current procedures, the Shift Supervisor is NOT authorized to deny Control Room access to the Plant Superintendent and TWO of the following:

1. Assistant Plant Superintendent
2. Technical Director
3. Plant Operations Manager
4. Shift Technical Advisor (STA)
5. Any of the NRC on-site staff members
6. The Senior NRC on-site staff member

a. 1 and 5 are the correct answer.

b. 3 and 5 are the correct answer.

c. 4 and 6 are the correct answer.

d. 2 and 4 are the correct answer.

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

QUESTION 6.36 (1.00)

Radiation Workers requesting unescorted access to high radiation areas should comply with the requirements listed below. Which ONE of the four requirements can be waived if requested by the worker's supervisor?

a. Have a valid physical and security clearance.

b. Participate in a body count as required by RP directives.

c. Participate in a respirator fitting as required by RP directives.

d. Obtain a Radiation Work Permit (RWP).

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

QUESTION 6.37 (1.00)

Select the ONE correct statement concerning the duties or responsibilities or authorities of the Plant ALARA Committee (PAC).

a. Provide recommendations to PAC directives which must be complied with

b. Review exposures which exceed quarterly or yearly administrative limits

c. Review plant modifications and maintenance activities requiring expenditure of less than 25 man-rem

d. Review plant modifications and maintenance activities requiring expenditure of more than 50 man-rem

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

QUESTION 6.38 (1.00)

Select the ONE statement which correctly defines a contaminated area and establishes proper requirements for Protective Clothing (PC's).

a. A contaminated area is an area in which removable contamination is greater than 1000dpm/100cm square Beta/Gamma and full PC's must be worn in the area.

b. A contaminated area is an area in which removable contamination is greater than 1000dpm/100cm square Beta/Gamma and full PC's may NOT be required.

c. A contaminated area is an area in which removable contamination is greater than 10,000dpm/100cm square Beta/Gamma and full PC's must be worn in the area.

d. A contaminated area is an area in which removable contamination is greater than 10,000dpm/100cm square Beta/Gamma and full PC's may NOT be required.

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

QUESTION 6.39 (1.00)

If a fire emergency exists in the plant, which ONE of the following statements is correct?

a. If the plant must be shutdown, the plant Emergency Director will direct this action

b. If the fire alarm is annunciated, the Auxiliary Operator will confirm the existence of an actual fire before Control Room personnel will make any announcements on the paging system

c. Any fire in the plant will result in an Emergency Classification of Unusual Event or higher

d. Security officers may report to the scene to assist the Fire Brigade Leader; however security force personnel are not fire brigade members

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

QUESTION 6.40 (1.00)

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

The plant operator reports a loud rumbling noise coming from the main turbine

Turbine bearing vibration readings are 15 mils and the main turbine trips

When the turbine generator trips all four reactor coolant pumps trip

The reactor does not automatically scram, but a manual scram is successful

Chemistry samples are greater than 130 micro curies per gram (I-131 dose equivalent).

As Plant Emergency Director you should make an Emergency Classification of:

a. UNUSUAL EVENT based on event 16 ~~#22~~, "General Events."

b. ALERT based on event #5, "Plant Conditions That Result in the Failure or Possible Failure of Safety Systems."

c. SITE AREA EMERGENCY based on event #5, "Plant Conditions That Result in the Failure or Possible Failure of Safety Systems."

d. ALERT based on event #4, "Events Which Result in Main Coolant System Parameter Abnormalities."

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

QUESTION 6.41 (1.00)

While assigned as the Supervisory Control Room Operator (SCRO) you are in the process of reviewing Rowe Station Log Sheet No.2 when you notice that an administrative limit has been exceeded, but is not outside of the maximum or minimum range. In accordance with current procedures, it is only necessary that you notify the Shift Supervisor and:

a. Ascertain if an LCO has been violated and circle the reading

b. Ascertain if an LCO has been violated, circle the reading and make a note in the remarks block

c. Circle the reading, make a note in the remarks block and notify the STA

d. Circle the reading and make a note in the remarks block

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

ANSWER 5.01 (1.00)

c.

REFERENCE

000011A101 3.7/3.8 Control of RCS pressure and temperature to avoid v
OP-3631, Rev. No. 7, LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM
HIGH PRESSURE
000011A101 000011A101 ..(KA's)

ANSWER 5.02 (1.00)

d.

REFERENCE

000011A103 4.0/4.0 Securing of RCPs
E-O Series Continuous Action Page MCP Trip Criteria
000011A103 000011A103 ..(KA's)

ANSWER 5.03 (1.00)

b.

REFERENCE

000011A104 4.4/4.4 ESF actuation system in manual
E-O Series Continuous Action Page
000011A104 000011A104 ..(KA's)

ANSWER 5.04 (1.00)

a.

REFERENCE

000005K305 3.4/4.2 Power limits on rod misalignment
Technical Specification 3.1.3.1, Control Rod Operability
000005K305 000005K305 ..(KA's)

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

ANSWER 5.05 (1.00)

b.

REFERENCE

000005K304 3.4/4.1 Tech-Spec limits for inoperable rods
Technical Specification 3.1.3.4, Shutdown Rod Insertion Limit
000005K304 000005K304 ..(KA's)

ANSWER 5.06 (1.00)

c.

REFERENCE

000005K303 3.6/4.1 Tech-Spec limits for rod mismatch
Technical Specification 3.1.3.1, Control Rod Operability, and OP-3118, Mispositioned Or Dropped Control Rod(s), Rev. No. 10, paragraph 7.a.
000005K303 000005K303 ..(KA's)

ANSWER 5.07 (1.00)

a.

REFERENCE

000005K302 3.6/4.2 Rod insertion limits
Technical Specification Bases 3/4.1.3, Movable Control Rods
000005K302 000005K302 ..(KA's)

ANSWER 5.08 (1.00)

b.

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

REFERENCE

000076A1 / 3.2/3.4 Failed fuel-monitoring equipment
Technical Specification 3.4.7, Main Coolant System Specific Activity; OP-3300, Classification Of Emergencies, Event #2, Fuel Clad Failure Accidents; OP-3003, Emergency Controlled Plant Load Reduction, Symptom 2.
000076A104 000076A104 ..(KA's)

ANSWER 5.09 (1.00)

d.

REFERENCE

000076A201 2.7/3.2 Location or process point that is causing an alarm
OP-3109, Process Radiation Monitoring High Radioactivity Level Indication; Technical Specification 3.4.7, Main Coolant System, Specific Activity; Technical Specification 3.7.1.4, Plant Systems, Activity
000076A201 000076A201 ..(KA's)

ANSWER 5.10 (1.00)

c.

REFERENCE

000076A202 2.8/3.4 Corrective actions required for high fission produ
Technical Specification 3.4.7, Main Coolant System, Specific Activity
000076A202 000076A202 ..(KA's)

ANSWER 5.11 (1.00)

b.

REFERENCE

000040K304 4.5/4.7 Actions contained in EOPs for steam line rupture
E-1, Loss Of Reactor Or Secondary Coolant Basis
000040K304 000040K304 ..(KA's)

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

ANSWER 5.12 (1.00)

c.

REFERENCE

E-2, Faulted Steam Generator Isolation Basis
000040K303 000040K303 ..(KA's)

ANSWER 5.13 (1.00)

c.

REFERENCE

000040K302 4.4/4.4 ESFAS initiation
E-0 Reactor Scram Or Safety Injection Basis
000040K302 000040K302 ..(KA's)

ANSWER 5.14 (1.00)

b.

REFERENCE

000040A205 4.1/4.5 When ESFAS systems may be secured
Emergency Operating Procedure E-1, Loss Of Reactor Or Secondary Coolant, Continuous Action Page
000040A205 000040A205 ..(KA's)

ANSWER 5.15 (1.00)

b.

REFERENCE

000029A101 3.4/3.1 Charging pumps
FR-S.1, Response To Nuclear Power Generation/ATWS, Caution between Steps 3. and 4.
000029A101 000029A101 ..(KA's)

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

ANSWER 5.16 (1.00)

b.

REFERENCE

000055A203 3.9/4.7 Actions necessary to restore power
ECA-0.0, Loss Of All AC Power, Step 3.a.
000055A203 000055A203 ..(KA's)

ANSWER 5.17 (1.00)

a.

REFERENCE

000055K302 4.3/4.6 Actions contained in EOP for loss of offsite and o
ECA-0.0, Loss Of All AC Power, Basis
000055K302 000055K302 ..(KA's)

ANSWER 5.18 (1.00)

a.

REFERENCE

000074K302 3.7/4.2 Maintaining S/G level and pressure within specifie
Functional Restoration Procedure, FR-C.1, Response To Inadequate Core Cooling Basis
000074K302 000074K302 ..(KA's)

ANSWER 5.19 (1.00)

d.

REFERENCE

000074K103 4.5/4.9 Processes for removing decay heat from the core
Emergency Operating Procedure, FR-C.1, Response To Inadequate Core Cooling
000074K103 000074K103 ..(KA's)

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

ANSWER 5.20 (1.00)

d.

REFERENCE

Emergency Operating Procedure E-1, Loss Of Reactor Or Secondary Coolant, Continuous Action Page, Action 3.e.
000069G011 000069G011 ..(KA's)

ANSWER 5.21 (1.00)

a.

REFERENCE

000036K201 2.9/3.5 Fuel handling equipment
System Training Manual, Chapter 29, Fuel Handling Systems, page 29-28
000036K201 000036K201 ..(KA's)

ANSWER 5.22 (1.00)

b.

REFERENCE

000028A102 3.4/3.4 CVCS
OP-3515, Pressurizer (Narrow Range) High Level Alarm, Confirmation of Alarm Condition 6.
000028A102 000028A102 ..(KA's)

ANSWER 5.23 (1.00)

d.

REFERENCE

000065A103 2.9/3.1 Restoration of systems served by instrument air wh
OP-3002, Loss Of Control Air Supply
000065A103 000065A103 ..(KA's)

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

ANSWER 5.24 (1.00)

d.

REFERENCE

000065A206 3.6/4.2 When to trip reactor if instrument air pressure is
OP-3002, Loss Of Control Air Supply, Immediate Operator Action 1., page 2
000065A206 000065A206 ..(KA's)

ANSWER 5.25 (1.00)

b.

REFERENCE

000058A203 3.5/3.9 DC loads lost; impact on ability to operate and mo
OP-3013, Loss Of Supervisory Light Indication, page 2
000058A203 000058A203 ..(KA's)

ANSWER 5.26 (1.00)

a.

REFERENCE

000038K306 4.2/4.5 Actions contained in EOP for RCS water inventory b
Emergency Operating Procedure E-3, Steam Generator Tube Rupture, Bases
000C38K306 000038K306 ..(KA's)

ANSWER 5.27 (1.00)

d.

REFERENCE

000038K103 3.9/4.2 Natural circulation
OP-3054, Natural Circulation, Attachment A
000038K103 000038K103 ..(KA's)

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

ANSWER ~~5.28~~ (1.00) deleted

b.

REFERENCE

000025K101 3.9/4.3 Loss of RHRS during all modes of operation
OP-3113, Loss Of Shutdown Cooling, page 1
000025K101 000025K101 ..(KA's)

ANSWER 5.29 (1.00)

a.

REFERENCE

000025G010 3.9/3.9 Ability to perform without reference to procedures
OP-3121, Loss Of Shutdown Cooling During Drained Down Operation, Immediate Action 5., page 3
000025G010 000025G010 ..(KA's)

ANSWER 5.30 (1.00)

b.

REFERENCE

000007A103 4.2/4.1 RCS pressure and temperature
OP-3111, Malfunction Of Primary Pressure Or Level Channels
000007A103 000007A103 ..(KA's)

ANSWER 5.31 (1.00)

b.

REFERENCE

000037K102 3.5/3.9 Leak rate vs pressure drop
000009K321 4.2/4.5 Actions contained in EOP for small break LOCA/leak
Emergency Operating Procedure E-2, Faulted Steam Generator Isolation Basis
000037K102 000009K321 000037K102 000009K321 ..(KA's)

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

ANSWER 5.32 (1.00)

c.

REFERENCE

000009K321 4.2/4.5 Actions contained in EOP for small break LOCA/leak
Emergency Operating Procedure E-1, Loss Of Reactor Or Secondary Coolant Basis
000009K321 000009K321 ..(KA's)

ANSWER 5.33 (1.00)

d.

REFERENCE

000008A101 4.2/4.0 PZR spray block valve and PORV block valve
Emergency Procedure E-0, page 10; System Training Manual Chapter 14, page 14-8
000008A101 000008A101 ..(KA's)

ANSWER 5.34 (1.00)

d.

REFERENCE

000054K304 4.4/4.6 Actions contained in EOPs for loss of MFW
Procedure No. OP-3200 page 2, 3; System Training Manual Chapter 3 page 3-19
000054K304 000054K304 ..(KA's)

ANSWER 5.35 (1.00)

c.

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

REFERENCE

000054A204 4.2/4.3 Proper operation of AFW pumps and regulating valve
System Training Manual Chapter 3, Figures 3-70, 3-77 and 3-78
Emergency Procedure ECA-0.0 page 3 and Attachment 1

000054A204 000054A204 ..(KA's)

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

ANSWER 6.01 (1.00)

c.

REFERENCE

033000K403 2.6/2.9 Anti-siphon devices
Systems Training Manual, Chapter 22, S.F.P. Cooling, Paragraph 2.0, page22-2
033000K403 033000K403 ..(KA's)

ANSWER 6.02 (1.00)

a.

REFERENCE

033000K303 3.0/3.3 Spent fuel temperature
Systems Training Manual, Chapter 22, S.F.P. Cooling, Paragraph 3.2, page 22-3
033000K303 033000K303 ..(KA's)

ANSWER 6.03 (1.00)

b.

REFERENCE

033000A101 2.7/3.3 Spent fuel pool water level
Systems Training Manual, Chapter 22, S.F.P. Cooling, Paragraph 3.4, page 22-5
033000A101 033000A101 ..(KA's)

ANSWER 6.04 (1.00)

d.

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

REFERENCE

012000K610 3.3/3.5 Permissive circuits
Systems Training Manual, Chapter 33, Reactor Protection, Paragraph 4.1, pages 33-8 and 9
012000K610 012000K610 ..(KA's)

ANSWER 6.05 (1.00)

c.

REFERENCE

012000K602 2.9/3.1 Redundant channels
Systems Training Manual, Chapter 33, Reactor Protection, Paragraphs 3.2 and 3.3, pages 33-4 and 33-5
012000K602 012000K602 ..(KA's)

ANSWER 6.06 (1.00)

c.

REFERENCE

012000K406 3.2/3.5 Automatic or manual enable/disable of RPS trips
Systems Training Manual, Chapter 33, Reactor Protection, Paragraphs 3.2, 3.3, 3.4 and 4.10, pages 33-4, 33-5 and 33-25
012000K406 012000K406 ..(KA's)

ANSWER 6.07 (1.00)

b.

REFERENCE

002000A101 3.8/4.1 Primary and secondary pressure
Systems Training Manual, Chapter 2, Main and Auxiliary Steam, Paragraphs 2.1.2 and 2.2.2, pages 2-2 and 2-4, Chapter 13, Main Coolant System, page 13-7
002000A101 002000A101 ..(KA's)

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

ANSWER 6.08 (1.00)

b.

REFERENCE

002000K109 4.1/4.1 PZR
Systems Training Manual, Chapter 13, Main Coolant, page 13-7
002000K109 002000K109 ..(KA's)

ANSWER 6.09 (2.00)

1 e (Primary drain collecting tank) (Lose 0.25 for each misorder.)
2 i (Waste holdup tank)
3 d (Tube side of feed & distillate heat exchanger)
4 f (Waste evaporator)
5 b (Distillate accumulator)
6 h (Shell side of feed & distillate heat exchanger)
7 c (Test tank)
8 a (Monitored waste tanks transfer pump)
9 g (Liquid radwaste effluent radiation monitor)

REFERENCE

068000A302 3.6/3.6 Automatic isolation
068000A402 3.2/3.1 Remote radwaste release
STM fig 24-1, 24-2, 24-3
068000A402 068000A302 068000A302 068000A402 ..(KA's)

ANSWER 6.10 (1.00)

a.

REFERENCE

068000A204 3.3/3.3 Failure of automatic isolation
STM pg 24-11, 24-12; OP-2379
068000A204 068000A204 ..(KA's)

ANSWER 6.11 (1.00)

b.

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

REFERENCE

075000K401 2.5/2.8 Heat sink
STM pg 4-1
075000K401 075000K401 ..(KA's)

ANSWER 6.12 (1.00)

d.

REFERENCE

075000K101 2.5/2.5 SWS
STM pg 4-2
075000K101 075000K101 ..(KA's)

ANSWER 6.13 (1.00)

b.

REFERENCE

075000A202 2.5/2.7 Loss of circulating water pumps
OP-2379
075000A202 075000A202 ..(KA's)

ANSWER 6.14 (1.00)

d.

REFERENCE

073000K201 2.3/2.7 Radiation monitoring systems
STM pg 35-3
073000K201 073000K201 ..(KA's)

ANSWER 6.15 (1.50)

1) Blowdown tank level control valve (VD-LCV-408) (0.5 each)
2) Liquid radwaste test tank effluent flow control valve (WD-FCV-310)
3) Component cooling water tank vent valve (CC-RCV-210)

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

REFERENCE

073000A202 2.7/3.2 Detector failure
STM pg 35-12, 35-14, 35-16
073000A202 073000A202 ..(KA's)

ANSWER 6.16 (1.50)

1) Liquid radwaste (test tank) effluent process radiation monitor
2) Liquid radwaste (test tank) effluent discharge flow rate indicator
3) Circulating water (Dilution) flow rate indicator (0.5 each)
4 Test tank level vs time

REFERENCE

073000A401 3.9/3.9 Effluent release
STM pg 35-14; OP-2379
073000A401 073000A401 ..(KA's)

ANSWER 6.17 (1.50)

1) WL-1-1 (SIAS B) lockout relay reset (0.5 each)
2) All charging pump switches to trip position
3) Start a charging pump

REFERENCE

004010A204 3.6/4.2 Loss of IAS
STM pg 15-13
004010A204 004010A204 ..(KA's)

ANSWER 6.18 (1.50)

1) VC pressure ; 5 psig (0.3, 0.2 each)
2) MCS pressure; 1650 psig
3) Pressurizer level; 50 inches

REFERENCE

004000A201 3.8/4.2 RCS pressure allowed to exceed limits
004000A202 3.9/4.2 Loss of PZR level (failure mode)
STM pg 15-3, 15-4
004000A201 004000A202 004000A201 004000A202 ..(KA's)

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

ANSWER 6.19 (1.50)

1) MCB digital indicators (0.5 each)
2) SPDS (Safety Parameter Display System)
3) Safe shutdown system indication
4) Saturation monitor individual channel indication

REFERENCE

017020K501 3.1/3.9 Temperature at which cladding and fuel melt
STM pg 32-22, 32-23

017020K501 017020K501 ..(KA's)

ANSWER 6.20 (1.00)

a.

REFERENCE

059000K416 3.1/3.2 Automatic trips for MFW pumps
STM fig 3-16
059000K416 059000K416 ..(KA's)

ANSWER 6.21 (1.50)

1) CIAS A (or VC isolation-A) (0.5 each)
2) Low steam generator pressure
3) Bypass switch in normal (not in bypass)

REFERENCE

059000K419 3.2/3.4 Automatic isolation of the MFW
STM fig 3-6
059000K419 059000K419 ..(KA's)

ANSWER 6.22 (1.00)

a. Maintain condenser vacuum (or maintain flow through the air ejector and gland seal condensers) (0.5)

b. 150 (0.5)

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

REFERENCE

059000K418 2.8/3.0 Automatic feedwater reduction on plant trip
STM pg 3-12
059000K418 059000K418 ..(KA's)

ANSWER 6.23 (2.00)

a. 3 (0.5 each)
b. 9 10
c. 6 7
d. 1

REFERENCE

061000K102 3.4/3.7 MFW system
STM pg 3-58 to 3-60

061000K102 061000K102 ..(KA's)

ANSWER 6.24 (1.00)

d. C

REFERENCE

045000A304 3.4/3.6 T/G trip
Procedure No. DP-2400 page 1
045000A304 045000A304 ..(KA's)

ANSWER 6.25 (1.00)

a.

REFERENCE

045000G006 2.4/3.0 Knowledge of bases in technical specifications for
Technical Specifications page B 2-5

045000G006 045000G006 ..(KA's)

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

ANSWER 6.26 (1.00)

a.

REFERENCE

005000G001 3.5/3.6 Knowledge of operator responsibilities during all
Procedure No. AP-2001 page 5 and 6
005000G001 005000G001 ..(KA's)

ANSWER 6.27 (1.00)

c.

REFERENCE

194001A101 3.3/3.4 Ability to obtain and verify control procedure cop
AP-0001, Rev. No. 18, Plant Procedures, page 19
194001A101 194001A101 ..(KA's)

ANSWER 6.28 (1.00)

d.

REFERENCE

194001A103 2.5/3.4 Ability to locate and use procedures and station d
Procedure No. AP-2001 page 3

194001A103 194001A103 ..(KA's)

ANSWER 6.29 (1.00)

b.

REFERENCE

194001K102 3.7/4.1 Knowledge of tagging and clearance procedures
Procedure NO. AP-0017 page 2 and 3
194001K102 194001K102 ..(KA's)

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

ANSWER 6.30 (1.00)

d.

REFERENCE

194001K101 3.6/3.7 Knowledge of how to conduct and verify valve lineu
Procedure No. AP-0207, Attachment A page 2
194001K101 194001K101 ..(KA's)

ANSWER 6.31 (1.00)

c.

REFERENCE

194001A104 3.0/3.2 Ability to operate the plant phone, paging system,
Procedure No. ~~OP-3345~~, Attachment A, page ~~2~~ 3
AP-0711

194001A104 194001A104 ..(KA's)

ANSWER 6.32 (1.00)

c.

REFERENCE

194001A107 2.5/3.2 Ability to obtain and interpret station electrical
YAEC Drawing Number 9699-FM-83A
194001A107 194001A107 ..(KA's)

ANSWER 6.33 (1.00)

b.

REFERENCE

194001A108 2.6/3.1 Ability to obtain and interpret station reference
DATA REFERENCE MANUAL page F-2
194001A108 194001A108 ..(KA's)

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

ANSWER 6.34 (1.00)

d.

REFERENCE

194001A102 4.1/3.9 Ability to execute procedural steps
Procedure No. OP-3051 page 1,2; OP-2655 page 3

194001A102 194001A102 ..(KA's)

ANSWER 6.35 (1.00)

c.

REFERENCE

194001A111 2.8/4.1 Ability to direct personnel activities inside the
Procedure No. AP-2010 page 1
194001A111 194001A111 ..(KA's)

ANSWER 6.36 (1.00)

c.

REFERENCE

194001K105 3.1/3.4 Knowledge of facility requirements for controlling
Procedure No. AP-0801 page 2;AP-0809 page 3

194001K105 194001K105 ..(KA's)

ANSWER 6.37 (1.00)

b.

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

REFERENCE

194001K104 3.3/3.5 Knowledge of facility ALARA program
Procedure No. AP-0820 page 1 and 2

194001K104 194001K104 ..(KA's)

ANSWER 6.38 (1.00)

b.

REFERENCE

194001K103 2.8/3.4 Knowledge of 10 CFR 20 and related facility radiat
Procedure No. AP-0805 page 1, and Table 1

194001K103 194001K103 ..(KA's)

ANSWER 6.39 (1.00)

a.

REFERENCE

194001K116 3.5/4.2 Knowledge of facility protection requirements, inc
Procedure No. OP-3017 page 1 through 4
194001K116 194001K116 ..(KA's)

ANSWER 6.40 (1.00)

b.

REFERENCE

194001A116 3.1/4.4 Ability to take actions called for in the Facility
Procedure No. OP-3300 pages 4,5,26
194001A116 194001A116 ..(KA's)

ANSWER 6.41 (1.00)

d.

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

REFERENCE

194001A106 3.4/3.4 Ability to maintain accurate, clear and concise lo
Procedure No. AP-2007 page 4 and 5

194001A106 194001A106 ..(KA's)

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

ATTACHMENT 2

1.0 SIMULATOR EXAMINATION - EAL CLASSIFICATION

QUESTION NO.	QUESTION VALUE	TEST ITEM NUMBER
1.0	0.5	3001-26
2.0	0.5	3001-30
3.0	0.5	3001-32
4.0	0.5	3001-33
5.0	0.5	3001-34
6.0	0.5	3001-35
7.0	0.5	3001-36
8.0	0.5	3001-37
9.0	0.5	3001-40

2.1 WRITTEN EXAMINATION - PART A

STATIC SIMULATOR - SCENARIO #01

QUESTION NUMBER	QUESTION VALUE
1002.05-30A	1.00
1002.05-31A	0.75
1059.05-01A	0.50
1073.04-02A	0.75
1002.04-13A	0.50
1002.05-33A	1.00

STATIC SIMULATOR - SCENARIO #05

QUESTION NUMBER	QUESTION VALUE
1015.03-04A	1.00
1015.06-03A	1.50
1015.05-03A	1.00
1015.03-05A	0.75

STATIC SIMULATOR - SCENARIO #15

QUESTION NUMBER	QUESTION VALUE
1056.04-01A	0.90
1056.04-02A	0.60
1056.05-01A	1.00
1056.06-01A	0.50
1061.06-01A	1.00

2.2 WRITTEN EXAMINATION - PART B

QUESTION NUMBER	QUESTION VALUE
1001.05-02B	1.00
1002.05-04B	0.90
1004.04-01B	0.50
1004.04-02B	0.50
1004.04-03B	0.50
1005.05-02B	1.00
1006.04-06B	0.50
1006.04-06B	0.50
1009.04-04B	0.50
1010.04-08B	1.00
1010.05-01B	0.70
1033.04-01B	0.80
1034.04-01B	0.50
1061.05-01B	1.20
1062.05-01B	0.90
1062.05-02B	1.00
1063.05-01B	0.75
1114.04-04B	0.30
1114.04-05B	0.50
2004.02-01B	0.50
3002.02-02B	0.60

3.0 JOB PERFORMANCE MEASURES (JPM)

JPM NUMBER	JPM TASK	LOCATION
RO-008	Termination of SI after spurious initiation	Control Room
RO-023	Normalize center busses following scram	Control Room
RO-037	Perform emergency boron injection	Control Room
RO-041	Reopen containment isolation valves CC-TV-205 and CC-TV-208 following Containment Isolation Actuation	Control Room
RO-054	Isolate a ruptured Steam Generator per E-3	Control Room
AO-012	Release radioactive waste gases from the waste gas surge drum to the atmosphere	In-Plant
AO-017	Lower vapor containment drain tank level	In-Plant
AO-066	Line up emergency nitrogen supply to the emergency boiler feed pump steam pressure controller	In-Plant
AO-070	Local operation of the feedwater regulating valve	In-Plant
AO-082	Return the #1 battery to service after a loss of A.C.	In-Plant

ATTACHMENT 3

NRC Response to Facility Comments

Question Number: 5.08

License Comment: (c) is also an acceptable answer.

NRC Response: Disagree with comment. (b) is the only correct answer. (c) is not correct in that it does not state that temperature must be less than 514 degrees Fahrenheit. In accordance with OP-3109, (b) is the correct answer.

Question Number: 5.11

License Comment: All four answers are mentioned in the basis document, therefore all four answers are acceptable.

NRC Response: Agree with comment that all 4 answers are mentioned in the basis document, however only answer (b) states that level is reestablished to maintain symmetric cooling of the MCS, as specifically stated in the basis document. Answer (b) therefore is the only correct answer.

Question Number: 5.24

License Comment: Answer (b) is the correct answer, since the bypass valve would open at 65 psig, thus would still be able to assume that sufficient air pressure would be available.

NRC Response: Disagree with comment. Operator would not be able to assume that sufficient air pressure would be available, based upon plant conditions given in the question. Immediate operator actions, as written in OP-3002 would be to initiate E-0, thus only answer (d) is correct.

Question Number: 5.28

License Comment: Both answers, (a) & (b), are correct, as written in OP-3113.

NRC Response: Agree with licensee comment. Question 5.28 will be deleted from the examination since both answers are correct.

Question Number: 6.14

License Comment: Primary vent stack process (PVS) radiation monitors are powered from lighting cabinet P-4 in the PVS house, therefore none of the answers given are correct.

NRC Response: As stated in Systems Training Manual and as discussed with NRC representatives during the preexam review, it was agreed upon that the non-essential uninterruptable power supply (d) was the correct answer.

Question Number: 6.16

License Comment: Tracking test tank level versus time would also be a correct answer.

NRC Response: Agree with licensee comment. Test tank level versus time will be added to the answer key.

Question Number: 6.19

License Comment: Saturation monitor individual channel indication is also a correct answer.

NRC Response: Agree with licensee comment. Saturation monitor individual channel indication will be added to the answer key.

Question Number: 6.23

License Comment: If the safe shutdown system (SSS) pump is considered, then answer (b) would be 10, and answer (c) would be 7.

NRC Response: Agree with licensee comment. Answer key will be changed to include SSS pump for (b) and (c).

Question Number: 6.24

License Comment: If no SI has been initiated, then (c) could be the correct answer.

NRC Response: Agree with licensee comment. A typographical error was made on the answer key. The correct answer is (c).

Question Number: 6.34

License Comment: Answer could be (b) if one would enter E-0 when symptoms are present. "Caution" at beginning of E-0 directs operator to go to OP-3051 in event of spurious SI actuation.

NRC Response: Disagree with licensee comment. E-0 "caution" directs the operator to go to OP-3051. E-0 "caution" does not direct the operator to "...carry out steps applicable to safety injection actuation," as stated in answer (b). Therefore the only correct answer is (d).