

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

*Licensee's
Comments
received per
Telecom
8/25 & 9/7/00
Jm C*

APPLICANT'S NAME: _____

FACILITY: _____ VERMONT YANKEE

REACTOR TYPE: _____ BWR-GE

DATE ADMINISTERED: _____

INSTRUCTIONS TO APPLICANT:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80.00%. Examination papers will be picked up four (5) hours after the examination starts.

| TEST VALUE | APPLICANT'S SCORE | FINAL GRADE % |
|------------|-------------------|---------------|
| 100.00 | | |

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

Applicant's Signature

REACTOR OPERATOR ANSWER SHEET

Page 2

Multiple Choice (Circle or X your choice). If you change your answer, write your selection in the blank.

MULTIPLE CHOICE

- | | |
|------------------|------------------|
| 001 a b c d ____ | 023 a b c d ____ |
| 002 a b c d ____ | 024 a b c d ____ |
| 003 a b c d ____ | 025 a b c d ____ |
| 004 a b c d ____ | 026 a b c d ____ |
| 005 a b c d ____ | 027 a b c d ____ |
| 006 a b c d ____ | 028 a b c d ____ |
| 007 a b c d ____ | 029 a b c d ____ |
| 008 a b c d ____ | 030 a b c d ____ |
| 009 a b c d ____ | 031 a b c d ____ |
| 010 a b c d ____ | 032 a b c d ____ |
| 011 a b c d ____ | 033 a b c d ____ |
| 012 a b c d ____ | 034 a b c d ____ |
| 013 a b c d ____ | 035 a b c d ____ |
| 014 a b c d ____ | 036 a b c d ____ |
| 015 a b c d ____ | 037 a b c d ____ |
| 016 a b c d ____ | 038 a b c d ____ |
| 017 a b c d ____ | 039 a b c d ____ |
| 018 a b c d ____ | 040 a b c d ____ |
| 019 a b c d ____ | 041 a b c d ____ |
| 020 a b c d ____ | 042 a b c d ____ |
| 021 a b c d ____ | 043 a b c d ____ |
| 022 a b c d ____ | 044 a b c d ____ |
| | 045 a b c d ____ |

REACTOR OPERATOR ANSWER SHEET

Page 3

Multiple Choice (Circle or X your choice). If you change your answer, write your selection in the blank.

046 a b c d ____

047 a b c d ____

048 a b c d ____

049 a b c d ____

050 a b c d ____

051 a b c d ____

052 a b c d ____

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071 a b c d ____

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075 a b c d ____

076 a b c d ____

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078 a b c d ____

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081 a b c d ____

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084 a b c d ____

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086 a b c d ____

087 a b c d ____

088 a b c d ____

089 a b c d ____

090 a b c d ____

091 a b c d ____

ANSWER SHEET

Multiple Choice (Circle or X your choice). If you change your answer, write your selection in the blank.

092 a b c d ____

093 a b c d ____

094 a b c d ____

095 a b c d ____

096 a b c d ____

097 a b c d ____

098 a b c d ____

099 a b c d ____

100 a b c d ____

(***** END OF EXAMINATION *****)

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

*Revised to agree with most recent changes
Did on my own
NOT licensee generated*

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 ^{permitted but} ~~to be limited~~ and only one applicant at a time ^{will be allowed to} ~~may leave~~. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. ^{See below} 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 and each answer sheet.

6. Mark your answers on the answer sheet provided. ^{and do not leave any question blank.} USE ONLY THE PAPER PROVIDED. ~~AND DO NOT WRITE ON THE BACK SIDE OF THE PAGES.~~

7. ^{and describe to change your answer, drop a single line through the error, enter the desired answer, and initial the change.} The point value for each question is indicated in parentheses after the question.

8. ^{you have my} If the intent of a question is unclear, ask questions of the examiner only. ^{See attached}

9. ^{See attached} When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

10. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

11. To pass the examination, you must achieve a grade of 80.00% or greater; ^{grades will not be rounded up to achieve a passing score. Every question is worth one point.}

12. There is a time limit of five (5) hours for completion of the examination; extensions will be granted if anyone needs more time to complete the exam.

13. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

14. ^{you may bring pens, pencils, and calculators into the examination room. Use black ink to ensure legible copies; dark pencil shall be used only if necessary to facilitate machine grading}

2

3

3.8

4

5

6

7

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9

10

3.2

4.3

13

14

VERMONT YANKEE - RO EXAM - ANSWER KEY - 09/00

| QUES | ANS | | | | | QUES | ANS | | | | |
|------|----------------|--|--|--|--|------|-----|--|--|--|--|
| 1. | C | | | | | 26. | D | | | | |
| 2. | C | | | | | 27. | A | | | | |
| 3. | D | | | | | 28. | C | | | | |
| 4. | A | | | | | 29. | D | | | | |
| 5. | D | | | | | 30. | C | | | | |
| 6. | D | | | | | 31. | C | | | | |
| 7. | B | | | | | 32. | D | | | | |
| 8. | C | | | | | 33. | B | | | | |
| 9. | B C | | | | | 34. | D | | | | |
| 10. | C | | | | | 35. | B | | | | |
| 11. | D | | | | | 36. | B | | | | |
| 12. | A | | | | | 37. | C | | | | |
| 13. | B | | | | | 38. | A | | | | |
| 14. | B | | | | | 39. | D | | | | |
| 15. | D | | | | | 40. | C | | | | |
| 16. | C | | | | | 41. | B | | | | |
| 17. | D | | | | | 42. | B | | | | |
| 18. | C | | | | | 43. | D | | | | |
| 19. | D | | | | | 44. | B | | | | |
| 20. | A | | | | | 45. | A | | | | |
| 21. | C | | | | | 46. | B | | | | |
| 22. | A | | | | | 47. | A | | | | |
| 23. | D | | | | | 48. | B | | | | |
| 24. | B | | | | | 49. | C | | | | |
| 25. | A | | | | | 50. | B | | | | |

type
→

VERMONT YANKEE - RO EXAM - ANSWER KEY - 09/00

| QUES | ANS | | | | | QUES | ANS | | | | |
|------|-----|--|--|--|--|------|----------------|--|--|--|--|
| 51. | B | | | | | 76. | A | | | | |
| 52. | B | | | | | 77. | B | | | | |
| 53. | C | | | | | 78. | C | | | | |
| 54. | A | | | | | 79. | A | | | | |
| 55. | A | | | | | 80. | D | | | | |
| 56. | C | | | | | 81. | B | | | | |
| 57. | D | | | | | 82. | B D | | | | |
| 58. | B | | | | | 83. | B | | | | |
| 59. | A | | | | | 84. | B | | | | |
| 60. | A | | | | | 85. | B | | | | |
| 61. | D | | | | | 86. | B | | | | |
| 62. | D | | | | | 87. | B | | | | |
| 63. | A | | | | | 88. | D | | | | |
| 64. | C | | | | | 89. | D | | | | |
| 65. | C | | | | | 90. | C | | | | |
| 66. | A | | | | | 91. | C | | | | |
| 67. | C | | | | | 92. | D | | | | |
| 68. | A | | | | | 93. | A | | | | |
| 69. | A | | | | | 94. | C | | | | |
| 70. | D | | | | | 95. | B | | | | |
| 71. | A | | | | | 96. | C | | | | |
| 72. | B | | | | | 97. | A | | | | |
| 73. | C | | | | | 98. | B | | | | |
| 74. | A | | | | | 99. | B | | | | |
| 75. | B | | | | | 100. | A | | | | |

Type

Question: 1 (1.00)

The Operations Center is not manned. As per AP 0151, Responsibilities and Authorities of Operations Department Personnel, which of the following individuals has the Control Authority in all matters relating to switching, tagging and de-energizing of equipment

- a. Operations ~~Manager~~ *Superintendent EWT* ✓
- b. Control Room Operator
- c. Supervisory Control Room Supervisor
- d. Shift Engineer

Answer: c

KA: 2.1.1 Knowledge of the conduct of operations requirements

2.2.13 Knowledge of clearance and tagging procedures

KA Value: [3.7/3.8] [3.6/3.8]

Exam Level: R

Cognitive Level: Memory

Generic KAs

Reference: AP 0151, rev. 9, Responsibilities and Authorities of Operations Department Personnel, page 9 of 21

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

*"Editorial" - indicate
site specific title*

Question: 2 (1.00)

A switchman applying a Tagging Order to allow maintenance to be performed on the supply steam drain trap in the High Pressure Coolant Injection System, notes that the downstream air-operated condensate drain flow control valves, FCV-42 and FCV-43, are being used as boundary valves.

As per AP 0140, VY Local Control Switching Rules, use of air-operated valves as a boundary valve is permitted only if:

- a. the air-operated valve is gagged closed and air supply valve tagged open.
- b. there is two-valve protection.
- c. the valve is tagged in the fail position.
- d. the switchman remains within line of sight of the valves after placing the valves in the desired position.

Answer: c

KA: 2.2.13 Knowledge of clearance and tagging procedures

KA Value: [3.6/3.8]

Exam Level: R

Cognitive Level: Memory

Generic KAs

Reference: AP 0140, rev. 22, VY Local Control Switching Rules

Question Source: Licensee Question Bank No. 3295 - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 3 (1.00)

An operator is in direct control of venting operations for the "A" Residual Heat Removal system. The vent valve is left in the "closed" position at the completion of the task. As per AP-0155, Current System Valve and Breaker Lineup and Identification, the operator:

- a. needs to do nothing more, he has completed the activity and is able to proceed to another task.
- b. needs to enter the vent valve's change of position during the task into the Current Systems Lineup Book, maintained in the control room.
- c. needs to document the component's condition in a Lineup Deviation Form.
- d. needs to have a second individual perform an Independent Verification of the valve's position.

Answer: d

KA: 2.1.29 Knowledge of how to conduct and verify valve lineups.

KA Value: [3.4/3.3]

Exam Level: R

Cognitive Level: Memory

Generic KAs

Reference: AP-0155, rev.25, Current System Valve and Breaker Lineup and Identification, Section C.1.a. Page 11 of 16

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 4 (1.00)

While performing a valve lineup, the independent verifier is observing the first checker's component manipulation. The reason for the independent verifier's action is the first checker is checking:

- a. a throttle valve.
- b. a drain valve in an area with background radiation levels at .010 rem/hr.
- c. a locked damper.
- d. a door to a high radiation area.

Answer: a

KA: 2.1.29 Knowledge of how to conduct and verify valve lineups.

KA Value: [3.4/3.3]

Exam Level: R

Cognitive Level: Memory

Generic KAs

Reference: AP 0155, rev. 25, Current System Valve and Breaker Lineup and Identification,

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 5 (1.00)

Given the following conditions:

- An operator returns from a 7-day vacation on January 6.
- The operator stands 3 normal 12-hour shifts prior to becoming ill
- The operator returns to work after his extended illness on April 1

Per 10 CFR 55, which of the following describes what the operator must do, in part, to comply with the conditions of his license?

- a. Stand a minimum of 2 shifts prior to April 6.
- b. Stand a minimum of 5 shifts prior to April 6.
- c. Completes at least 40 hours on shift time in the calendar quarter.
- d. Complete a minimum of 40 hours of shift function under instruction.

Answer: d

KA: 2.1.2 Knowledge of operator responsibilities during all modes of plant operation.

KA Value: [3.0/4.0]

Exam Level: B

Cognitive Level: Higher Order

Generic KAs

Reference: AP 0151, rev. 9, Responsibilities and Authorities of Operations Department
Personnel, page 17

Question Source: Previous Exam Question - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 6 (1.00)

Which of the following are activated on an ALERT?

- OSC - Operations Support Center
- TSC - Technical Support Center
- EOF - Emergency Support Center

- a. TSC only
- b. TSC and OSC only
- c. TSC and EOF only
- d. TSC and OSC and EOF

Answer: d

KA: 2.4.29 Knowledge of the Emergency Plan

KA Value: [2.6/4.0]

Exam Level: R

Cognitive Level: Memory

Reference: OP-3501, Alert

Generic KAs

Question Source: New question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 7 (1.00)

A plant transient has required the crew to scram the unit from 75% power. The following current conditions exist:

- All control rods are inserted.
- Reactor pressure initially dropped to 940 psig, but has stabilized at approximately 1000 psig.
- HPCI auto started and is injecting to the reactor vessel.
- Reactor level is +135" increasing.
- Suppression pool temperature is 89°F increasing.

Which of the following procedures must be entered?

- a. ~~EOP-1 and EOP-2~~ *STET*
- b. OT-3100 and EOP-1 ✓
- c. ~~OT-3100 and EOP-2~~ *STET*
- d. ~~OT-3100 and EOP-1 and EOP-2~~ *only*

Answer: b

KA: 2.4.4 Ability to recognize abnormal indications for system operating parameters which are entry level conditions for emergency and abnormal operating procedures.

KA Value: [4.0/4.3]

Exam Level: R

Cognitive Level: Higher Order

Generic KAs

Reference: EOPs

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

*Licensee - Suggested getting rid
of EOP-2 in one disector
at "Editorial"*

Question: 8 (1.00)

Given the following conditions:

Reactor power is 100%.
Plant has been operating continually for 125 days.
All systems are operable.

Warden dressing - doesn't add anything

WHICH ONE of the following describes the effects on the MSIVs and SBGT of a continuing decrease in instrument air header pressure? Assume reactor water level during the transient is maintained at 125 inches?

- a. Outboard MSIVs close
SBGT valves line up for initiation
- b. Inboard MSIVs close
SBGT valves line up for initiation
- c. Outboard MSIVs close
SBGT valves line up for initiation and SBGT initiates
- d. Inboard MSIVs close
SBGT valves line up for initiation and SBGT initiates

remain in normal lineup

remain in normal

Editorial comment

Answer:

- c. Outboard MSIVs close
SBGT valves line up for initiation and SBGT initiates

KA: 2.4.11 [3.4/3.6] Knowledge of abnormal procedures.

Exam Level: B

Cognitive Level: Higher Order

Reference: ON-3146, Rev. 14, Appendix A, Page 1 and 2, LOT-00-603, Rev. 11, SCRO
Obj. 2; LOT-00-261, Pg. 8

Question Source: 1997 VY NRC Exam (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 9 (1.00)

Given the following:

- The plant is in a refueling outage. All SRMs are operable.
- Fuel movement is in progress from the spent fuel pool to the RPV.
- The refuel platform operator is lowering a fuel bundle into the core when the control room operator notes that SRM counts double in the core quadrant opposite the one in which in which the fuel is being loaded .

As per OP 1101, Management of Refueling Activities and Fuel Assembly Movement, what action is required, if any, by the control room operator if the assembly has been lowered half way into the core?

- a. No action is required continue lowering the bundle into its scheduled location in the core.
- b. Verify count rates in the other three SRM channels are normal and contact the Reactor Engineer for guidance.
- c. Notify the Shift supervisor and refuel floor SRO immediately and contact the Reactor Engineer for guidance.
- d. Notify an SRO immediately and contact the Reactor Engineer for guidance.

Answer:

c

KA: 2.2.30 [3.5] Knowledge of RO duties during fuel handling.

Exam Level: R

Cognitive Level: Memory

Reference: OP 1101, Management of Refueling Activities and Fuel Assembly Movement, precautions pg 10 of 39;

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 10 (1.00)

A fully qualified VY radiation worker with all previous exposure history on file has received 2550 mRem through the month of July 2000.

Which of the following is the maximum remaining Total Effective Dose Equivalent (TEDE) exposure this individual is allowed to receive without exceeding the VY administrative limit for the remainder of the year?

- a. 0.45 Rem
- b. 1.55 Rem
- c. 1.95 Rem
- d. 2.45 Rem

Answer: c

KA: 2.3.1 Knowledge of 10 CFR 20 and related facility radiation control requirements

KA Value: [2.6/3.0]

Exam Level: B

Cognitive Level: Higher Order

Generic KAs

Reference: 10CFR20; AP-0506, Personnel Monitoring

Question Source: Exam Bank Question 1455 - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 11 (1.00)

A mechanical technician, assigned to repair a safety-related check valve in a high radiation area, will exceed the annual VY radiation exposure administrative limits in order to complete the task.

As per AP 0506, Personnel Monitoring, how is this additional exposure authorized?

- which two individuals are required to approve this request? who has in VY organization has ultimate authority to allow the exposure*
- Maintenance Supervisor and Radiation Protection Supervisor*
- a. ~~All Maintenance personnel are automatically extended to the NRC TEDE limit to repair safety-related equipment.~~
- Plant Supervisor & RP MGR*
- b. ~~The Radiation Protection Manager may impose exposure limits that are higher than the VY administrative limits.~~
- Plant MGR & RP Supervisor*
- c. ~~The Technician's supervisor will increase the allowed radiation limits assigned to the Radiation Work Permit.~~
- Plant MGR & RP MGR*
- d. ~~The Plant Manager shall approve an Administrative Radiation Exposure Control Change Request.~~

Answer: d

KA: 2.3.4 Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.

KA Value: [2.5/3.1]

Exam Level: B

Cognitive Level: Memory

Generic KAs

Reference: AP 0506, Personnel Monitoring

Question Source: Licensee Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Technician - for the 4.5 Rem limit it takes approval of both Plant MGR & RP MGR

Question: 12 (1.00)

Given the following conditions:

- A scheduled surveillance is required to be performed on a system in a radiation area.
- All radiological precautions have been taken and a pre-evolution brief has been completed.

Using the As Low As Reasonably Achievable (ALARA) guidelines, which of the following is the PREFERRED method for completing this surveillance? (Consider only the personnel aspects of this surveillance.)

- a. One individual installing shielding in a 90 mR/hr area for 30 minutes then performing the surveillance in a 9 mR/hr area for 60 minutes.
- b. One individual performing the surveillance in a 90 mR/hr area for 60 minutes.
- c. Two individuals installing shielding in a 90 mR/hr area for 15 minutes then both perform the surveillance in a 9 mR/hr for 35 minutes.
- d. Two individuals performing the surveillance in a 90 mR/hr area for 35 minutes.

Answer: a

KA: 2.3.2 Knowledge of facility ALARA program

KA Value: [2.5/2.9]

Exam Level: B

Cognitive Level: Higher Order

Generic KAs

Reference: AP 0506, Personnel Monitoring

Question Source: NEW

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 13 (1.00)

Given the following conditions:

- A plant transient occurred at VY at 1415 resulting in an Unusual Event being declared at 1425.
- While completing the Unusual Event Notification form, an Alert was declared at 1435 for an unrelated event.

The State and Local Agencies shall be notified of the Alert no later than:

- a. 1440
- b. 1450
- c. 1515
- d. 1535

Answer: b

KA: 2.4.38 Ability to take actions called for in the facility emergency plan, including (if required) supporting or acting as the Emergency Director.

KA Value: [2.2/4.0]

Exam Level: R

Cognitive Level: Higher Order

Generic KAs

Reference: LOT-00-900, "VY Emergency Plan" RO L.O. 5, pg. 14

Question Source: NEW

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 14 (1.00)

A reactor scram due to a high drywell condition has occurred. All systems and components responded appropriately to the scram. Which of the following describes the state of the selected components?

- a. RPS Scram Solenoids deenergized, Backup Scram Solenoids deenergized, ARI/RPT Solenoids deenergized, SDV Vent and Drain Valve Solenoids deenergized
- b. RPS Scram Solenoids deenergized, Backup Scram Solenoids energized, ARI/RPT Solenoids deenergized, SDV Vent and Drain Valve Solenoids deenergized
- c. RPS Scram Solenoids energized, Backup Scram Solenoids energized, ARI/RPT Solenoids energized, SDV Vent and Drain Valve Solenoids energized
- d. RPS Scram Solenoids energized, Backup Scram Solenoids deenergized, ARI/RPT Solenoids energized, SDV Vent and Drain Valve Solenoids energized

Answer: b

KA: 201001K202 Scram valve solenoids

KA Value: [3.6/3.7]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-01-201 CRD Hydraulics obj 3

Question Source: VY Exam Bank - modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 15 (1.00)

A brief rod insert signal is initially applied to the Control Rod Drive Mechanism during a withdrawal sequence in order to:

- a. pressurize the underside of the collet piston forcing and holding the collet fingers away from the index tube.
- b. to provide cooling water flow through the insert port and through the cooling water orifice between the thermal sleeve and outer cylinder.
- c. to reposition the ball check valve to direct drive pressure to the top of the drive piston to force it downward.
- d. lift the index tube 2-3 inches in order to remove the weight of the rod from the collet fingers.

Answer: d

KA: 201002K404 Single notch rod withdrawal and insertion

KA Value: [3.3 /3.3]

Exam Level: B

Cognitive Level: Memory

Systems-Tier 2/Group 1

Reference: LOT-01-201 CRD Hydraulics

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 16 (1.00)

Given the following conditions:

- Reactor power is 50%
- Core flow is 27.5 Mlbm/hr
- Feedwater flow is 2 Mlbm/hr
- Reactor level is +160 inches
- Turbine stop valve testing is in-progress

A malfunction in the turbine stop valve test circuitry results in the closing of the turbine stop valves.

Which of the following describes the plant response to this malfunction? (Assume no operator action).

- a. The reactor scrams on high neutron level.
- b. The reactor scrams on high pressure.
- c. The reactor scrams on turbine stop valve position.
- d. The reactor scrams on generator load reject.

Answer: c

KA: 202002K1.04 Reactor/turbine pressure regulation

KA Value: [3.1/3.1]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-00-202 Obj 5, 6, 7

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 17 (1.00)

Given the following conditions:

- Reactor level is +70 inches and falling.
- Reactor pressure 400 psig is decreasing slowly.
- Cooldown rate is 100°F.
- Drywell Pressure is 2.8 psig.
- the RHR system is running, but the injection valves (RHR-27A/B) are closed.
- the HPCI/RCIC systems are unavailable.
- the reactor feedwater pumps have tripped.

As the CRO you are directed to maintain water level

~~As the CRO you are directed to maintain reactor level between 127 inches and 177 inches. Your attempts to open the RHR-27A are unsuccessful. Which of the following statements describes what your next actions should be?~~

- Open the RHR-27B injection valve.
- Perform an emergency depressurization.
- Open main steam bypass valves to reduce reactor pressure.
- Monitor reactor pressure until it is less than 350 psig then verify RHR-27A/B opens.

Answer: d

KA: 203000A213 Valve Opening
295031EK205 LPCI [4.3]

KA Value: [3.2/3.3]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-00-205, pg 23

Question Source: Exam Bank - Modified

*Editorial - to
eliminate level
range element
possible ambiguity.*

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 18 (1.00)

Given the following:

- Reactor was scrammed from 100% due to a total loss of feedwater transient.
- Reactor level dropped to 77 inches and rapidly increased when the low pressure ECCS systems injected into the RPV.

~~Three minutes~~ ^{After} into the event the SCRO directs the CRO to secure the A Loop of RHR. The CRO takes the control switch for RHR injection valve (RHR 27A) to close; however, the valve did not remain closed (valve closed then reopened). In order for the 27A valve to close the CRO must first:

- Place the RHRSW A&C LPCI AUTOSTOP OVERRIDE SWITCH to the AUTO position.
- Place the UPS FDR BLOCK KEYLOCK SWITCH to the ~~BLOCK~~ ^{NORMAL} position.
- Reset the RHR A/C LOGIC LPCI/RECIRC VALVE RESET.
- Reset the A/C LOGIC CONTAINMENT SPRAY VALVE AUTO SIGNAL RESET.

Answer: *a b c*

KA: 203000K410 Dedicated injection system during auto system initiation (inj vlv interlocks)
295009AK203 Recirc System [3.2]

KA Value: [3.9 / 4.1]

Exam Level: B

Cognitive Level: Memory

Systems-Tier 2/Group 1

Reference: OP 2124 rev 49 RHR system page 20; LOT-00-205 obj 2

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

*Technical
Comment*

Question: 19 (1.00)

The reactor automatically scrammed due to low reactor water level. While the HPCI system was injecting to raise reactor level, the system isolates on a valid isolation signal. As the CRO, you note the HPCI-25, Min Flow Valve, remains open. As per OP 2120, HPCI System, you close the valve. What is the basis for this action?

- a. To prevent pump run-out during subsequent automatic restart.
- b. To align the HPCI valves in the proper standby valve line up. *Return to normal Standby Level* *7 Stop the way it is?*
- c. ~~To maintain the HPCI pump discharge piping full to prevent water hammer.~~ *To prevent siphoning of torus water into the HPCI piping.*
- d. To prevent the inadvertent draining of the CST to the torus.

Answer: d

To ensure containment / isolation with a valid Isolation Signal.

KA: 206000A4.07

KA Value: [3.8 / 3.7]

Exam Level: B

Cognitive Level: Memory

Systems-Tier 2/Group 1

Reference: LOT-00-206 HPCI; OP 2120 HPCI

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Suggestions

- b. To prevent cross-connecting HPCI keep-fill with RWC keep-fill.
- To prevent siphoning torus contents into CST.

→ Identified "c" as also correct

→ licensee identified "b" as also correct.

Technical Comment

Question: 20 (1.00)

When manually starting the HPCI system, the turbine steam supply valve, HPCI-14, is opened prior to starting the auxiliary oil pump.

Which of the following statements describes the reason for this sequence?

- a. To preclude potential HPCI isolation on high steam flow.
- b. To prevent warping the HPCI turbine blades.
- c. To ensure HPCI-14 valve operability prior to placing HPCI system in service.
- d. To ensure the ramp generator initiates the ramp function prior to opening the turbine stop valve.

Answer: a

KA: 206000K408 Manual System Initiation

KA Value: [4.2 /4.3]

Exam Level: B

Cognitive Level: Memory

Systems-Tier 2/Group 1

Reference: LOT-00-206 HPCI; OP 2120 HPCI

Question Source: VY Exam Bank Question 3347 - modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 21 (1.00)

Given the following conditions:

- LOCA with a loss of normal power has occurred
- Diesel Generator B fails to start
- Reactor Pressure is 250 psig
- Drywell Pressure is 4 psig

The CRO is able to energize the 4 KV Bus 3 from the Vernon Tie line.

Assume the CRO did not take any of the Bus 3 pumps to the full-to-lock position prior to re-energizing the bus.
Which of the following describes the expected sequence response upon re-energizing Bus 3?

- The A and B RHR pumps start 5 seconds after power is restored.
- The A and B RHR pumps start immediately after power is restored.
- The B Core Spray pump starts 10 seconds after power is restored.
- The B Core Spray pump starts immediately after power is restored.

Answer: c

KA: 209001A107 EDG Loading

KA Value: [3.0/3.1]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: OP 2123 LOT-00-209 Core Spray obj 8

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

*Editorial/Technical -
VX has procedure guidance
to place pumps/loads in
PTL during a LO P.*

*Take all pumps to
GR before
re-energizing and
proceed by procedure
OP 2122
Don't let the operator
the question
fails to do this
check for*

Question: 22 (1.00)

During normal full power operation, the CRO is performing a core spray flow surveillance. The operator inadvertently takes the control switch for the CS-12 (pump discharge valve) to the open position. The CS-11 (pump discharge valve) is already open. What is the expected system response?

- a. CS-12 will not open with reactor pressure greater than 350 psig.
- b. CS-12 will not open due to a greater than 50 psig pressure differential across the valve.
- c. CS-12 will open and then automatically close to protect low pressure piping.
- d. CS-12 will open but will not inject with core spray pump discharge head less than reactor pressure.

Answer: a

KA: 209001A202 Valve Closures

KA Value: [3.2 /3,2]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-00209 Core Spray

Question Source: VY Exam Bank -Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 23 (1.00)

Given the following conditions:

- the power supply for the SLC system at MCC-9B is open
- the unit experiences an ATWS
- SLC has been manually initiated by placing the pump control switch in SYS 1 and then in SYS 2 position (the switch remains in the SYS 2 position).

Which of the following describes the condition of the SLC system given the above conditions?

- a. Squib valve SLC 14A is open and the SLC Pump B is running.
- b. Squib valve SLC 14B is open and the SLC Pump A is running.
- c. Squib valve SLC 14A is open and the SLC Pump A is running.
- d. Squib valve SLC 14B is open and the SLC Pump B is running.

Answer: d

KA: 211000K603 Power Supplies

KA Value: [3.2 /3.3]

Exam Level: B

Cognitive Level Higher Order

Systems-Tier 2/Group 1

Reference: LOT-00-211 SLC Obj 6; OP 2114, Rev 22, page 9

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 24 (1.00)

OP 2134 directs the Operators to reset a reactor scram by first placing the reset switch to the "Group 2 and 3" position then to the "Group 1 and 4" position. What consequence will occur if this step is not performed correctly? *See new picture*

- partially correct*
- a. *It will create a high radiation area in the vicinity of the Scram Discharge Volume.* *It would cause the drain valves & vent valve to gain on the Scram Discharge Volume*
 - b. It will direct draining of the reactor vessel to the Reactor Building Drain Sump.
 - c. It will cause an inadvertent hydraulic lock in the Scram Discharge Volume piping.
 - d. It will cause CRD charging water flow to be bypassed to the Reactor Building Drain Sump.

Answer: b

KA: 212000K106

KA Value: [3.5 /3.6]

Exam Level: B

Cognitive Level: Memory

Systems-Tier 2/Group 1

Reference: OP 2134 LOT-00-212 RPS obj 2

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

If the Operators reset ^{the} Scram by placing the

What would occur if the operators only action was to place ^{the} reset switch in "Group 1 & 4" position?

Technical - "a" partially correct. Also added words in stem clarify question.

Question: 25 (1.00)

Given the following conditions:

- The plant had been operating at 100% power.
- A main turbine trip occurred.
- Reactor pressure on the transient reached 1155 psig and has returned to 980 psig.
- Reactor water level reached 105 inches and has returned to 150 inches.
- All plant systems responded as designed.

Given that the Scram Pilot Air Valves are de-energized, what is the status of the following components:

Backup Scram Valve (BSV) solenoids
Alternate Rod Insertion (ARI) valve solenoids

- a. BSV -- energized
ARI -- energized
- b. BSV -- energized
ARI -- de-energized
- c. BSV -- de-energized
ARI -- energized
- d. BSV -- de-energized
ARI -- de-energized

Answer: a

KA: 212000, A4.07 REACTOR PROTECTION SYSTEM; ABILITY TO MANUALLY OPERATE AND/OR MONITOR SYSTEM STATUS LIGHTS AND ALARMS [4.0/3.9]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: Reactor Protection System, LOT-00-212, Section II.E & III.B, Pg. 13, 14 & 43, Rev. 17, L.O. CRO-1.c & 2

Question Source: VY Exam Bank (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 26 (1.00)

Given the following conditions with a plant startup in progress:

- the Mode Switch is in STARTUP
- IRMs are on Range 9
- APRM B is bypassed
- a half scram is inserted on the RPS "A" because of a recirculation flow comparator malfunction
- IRM B fails upscale causing annunciator IRM B, D, or F UPSCALE TRIP OR INOP to alarm.

Which of the following describes the response of the plant, if any, to these conditions?

- a. No plant response occurs.
- b. Only an insert rod block occurs.
- c. Only a withdraw rod block occurs.
- d. A full scram occurs.

Answer: d

KA: 215003K301 RPS

KA Value: [3.9 /4.0]

Exam Level: R

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-02-215 IRM; OP 2131 IRM Channels, rev.14

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 27 (1.00)

Given the following conditions with a reactor startup in progress:

- The Mode Switch is in STARTUP.
- All IRMs are on Range 2 with stable indication.

The CRO verified proper SRM/IRM overlap and selects the SRM A and SRM B detectors to be withdrawn from the core. As the detectors are withdrawn, the detectors indicate the following:

SRM A 1.5E3 cps

SRM B 8.5E2 cps

Which of the following describes the plant response, if any, to these conditions?

- a. No response.
- b. A half scram is generated.
- c. A rod block is generated.
- d. The Retract Permissive Interlock is deenergized.

Answer: a

KA: 215004K503 Changing Detector Position

KA Value: [2.8 /2.8]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: OP 0105 Reactor Operations, rev. 6 page 17; OP 2130 SRM, rev. 15; LOT-01-215
SRM obj 3

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 28 (1.00)

Given the following conditions:

- APRMs are indicating 74% power.
- Reactor Thermal Power is 1179 Mwt average.
- Core Flow is 36 Mlbs/hr.
- Two Recirculations loops are in operations with a Drive flow of 14600 gpm per loop.
- Thermal Limits are: MFLPD=.75; MAPRAT=.73; MFLCPR=.84.

Which of the following describes the highest APRM flow biased setpoint allowed by Technical Specifications?

- a. Less than or equal to 71.7%
- b. Less than or equal to 77.3%
- c. Less than or equal to 83.6%
- d. Less than or equal to 88.8%

Answer: c

$$.66(14600/32500)+.54$$

KA: 215005K505 Core Flow Effects on APRM Trip Setpoints

KA Value: [3.6 /3.6]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: T.S. Table 3.1.1; LOT-05-215 APRM Obj 4

Question Source: VY Exam Bank - Modified

Supply formula sheet, steam tables and calculator

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 29 (1.00)

Given the following conditions:

- A plant startup is in progress.
- The Recirculation flow input signal to Average Power Range Monitoring (APRM) is 25%.
- As recirculation flow is raised, the output signal from the "B" Flow Converter/Comparator Unit fails downscale.
- Actual recirculation loop flows respond as expected.

Which of the following describes the plant response to this condition?

- a. A full scram will occur due to flow biased neutron flux high.
- b. A control rod block will occur due to a flow converter/comparator out of limits trip.
- c. A half scram will occur due to the flow signal from B comparator being > 7% when compared to the A.
- d. A control rod block will occur due to flow converter/comparator unit "inop" signal.

Answer: d

KA: 215005, K1.16 [3.3/3.4] Average Power Range Monitor/Local Power Range Monitor System;
Flow converter/comparator network: Plant-Specific cause-effect relationships between
APRM/LPRM

Exam Level: R

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: Average Power Range Monitor, LOT-05-215, Section III.D.6.c, Pg. 14, Rev. 13, L.O.
CRO-2.d & 5

Question Source: VY Exam Bank (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 30 (1.00)

Given the following conditions:

- Reactor is shutdown.
- RCIC is in service supporting cool down operations.
- RPV pressure is 220 psig.

Which of the following describes the effect on the RCIC System if ECCS level trip instruments (LT-2-3-72 A-D) reference legs flash to steam?

As a direct result of the d/p signal from the level instrument:

- a. RCIC 16 (Outbd Isolation) and RCIC 15 (Inbd Isolation) valves will close.
- b. RCIC 1 (trip throttle valve) will close.
- c. RCIC 131 (Steam supply valve) will close.
- d. No RCIC valves will close.

Answer: c

KA: 216000K303 RCIC

KA Value: [3.5 /3.8]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-00-216 RPV Instrumentation obj 6, 10; CWD 1197R15

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 31 (1.00)

Given the following:

- The Unit has experienced a loss of all AC Power.
- RCIC automatically initiated and is injecting to the reactor vessel.
- A Steam Tunnel High Temperature Condition occurs.

Which of the following describes the expected RCIC response? (Assume no other Operator action.)

- a. No RCIC system isolation or turbine trip will occur, the system remains in service.
- b. A RCIC system isolation will occur; both the Inboard and Outboard Steam Isolation Valves (RCIC-15 and RCIC-16) close.
- c. A RCIC system isolation will occur except the Inboard Steam Isolation Valve (RCIC-15) will not close.
- d. A RCIC system isolation will occur except the Outboard Steam Isolation Valve (RCIC-16) will not close.

Answer: c

KA: 217000A215 Steam Line Break

KA Value: [3.8/3.8]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-00-217, Rev 20, RCIC, Obj 10 page 33 of 40; OP 2121 RCIC System

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 32 (1.00)

With a loss of DC-2C (125 vdc) and an ADS system initiation signal present, which of the following describes the response of the ADS System?

- a. Only ADS relief valves A and C will open since ADS logic A has a backup power supply.
- b. Only ADS relief valves B and D will open since ADS logic B has a backup power supply.
- c. All ADS relief valves will open since ADS logic A has a power supply.
- d. All ADS relief valves will open since ADS logic B has a power supply.

Answer: d

KA: 218000K201 ADS logic

KA Value: [3.1 /3.3]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-00-218 ADS obj 2

Question Source: VY Exam Bank

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 33 (1.00)

Which of the following describes the a minimum condition under which the Rx Bldg to Torus Vacuum Breakers will open?

- a. When Rx Bldg pressure exceeds the Torus pressure by 1.7 psid.
- b. When Rx Bldg pressure exceeds the Torus pressure by 0.5 psid.
- c. When the Torus pressure exceeds Rx Bldg pressure by 1.7 psid.
- d. When the Torus pressure exceeds Rx Bldg pressure by 0.5 psid.

Answer: b

KA: 223001 K406 Maintains proper Pri/Sec conmt d/p

KA Value: [3.1/3.3]

Exam Level: B

Cognitive Level: Memory

Systems-Tier 2/Group 1

Reference: LOT-00-223 Pri Containment obj 2, 3

Question Source: VY Exam Bank

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 34 (1.00)

The reactor is operating at 100% power. The following annunciators are received:

- MN STM LN RAD HI/DWNSCL (3-F-1)
- AUTO SCRAM CH A (5-K-1)
- MN STM LN RAD HI (5-K-6)

Valves went closed. ✓

You confirm the RPS "A" half scram, but observed no PCIS isolations. The "C" main steam line rad monitor (PRM-17-251C) is not displaying any data and is determined to be in a tripped condition.

I&C technicians request to test the "D" main steam line rad monitor. This activity involves placing the mode switch for the rad monitor in INOP and UPSCALE TRIP. Which of the following describes the plant response if testing is allowed?

- a. A RPS "B" half scram with no PCIS Group I isolation.
- b. A RPS "B" half scram with a half Group I PCIS isolation will occur.
- c. A full scram will occur with no PCIS Group I isolation.
- d. A full scram with a full PCIS Group I isolation will occur.

Answer: d

KA: 223002A301 System Indicating Lights

KA Value: [3.4 /3.4]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOT-00212 RPS obj 3

Question Source: VY Exam Bank

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Editorial - add clarity

A break has occurred inside containment on the Nitrogen ~~Pressure~~ Supply line to the SRVs.

Question: 35 (1.00)

~~The containment air receiver pressure as read locally on PI-105-18 is 20 psig and lowering.~~

Which of the following describes how manual operation of the SRVs is effected by this condition?

- a. SRV cycles are limited. More cycles are available at a high drywell pressure condition.
- ☒ b. SRV cycles are limited. Fewer cycles are available at a high drywell pressure condition.
- c. SRV cycles are unaffected because instrument air will realign automatically on lowering containment air receiver pressure.
- ☒ d. SRV cycles are unaffected because the nitrogen bottle will realign automatically on lowering containment air receiver pressure.

Answer: b

KA: 239002K602 [3.4/3.5]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: OT 3122; LOT-00-239, L.O. 7

Justification: OT 3122 App A provides direction to manually align nitrogen for SRV operation making c&d incorrect. There are more cycles available at lower DW pressure.

Question Source: VY Bank #3513

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

OKay words!

Technical change - needed
break in N₂ line inside
containment for this aspect
to occur as stated in
"b".

Question: 36 (1.00)

If the engineering are determined the bellows is failed. 5/21

The amber light above SRV-71C is lit and annunciator 9-3-B-8, RX RELIEF VLV BELLOWS LEAKAGE, is alarming. A transient occurs which causes reactor pressure to rise to 1125 psig. Which of the following statements is true?

SRV-71C:

- a. will open
- b. will not open
- c. will open when operated from the alternate shutdown panel
- d. will not open in response to an ADS signal

No problem

Answer: b

KA: 239002, A407 [3.6/3.6]

Exam Level: R

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOI EB 493; LOT-00-239, MAIN STEAM SYSTEM, L.O. 5, OP 2122

Question Source: VY Exam #3617 (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 37 (1.00)

The plant is operating normally at 100% power when the Speed Load Changer is taken to lower and held there.

What is the effect on reactor pressure?

- a. Reactor pressure will increase. The control valves close and the bypass valves remain as-is.
- b. Reactor pressure will decrease. The control valves remain as-is and the bypass valves open.
- c. Reactor pressure will remain constant. The control valves close and the bypass valves open.
- d. Reactor pressure will remain constant. The control valves and bypass valves remain as-is.

Answer: c

KA: 241000, K3.02 [4.2/4.3]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: LOI EB 1789, GEK 5585, VYNPC Turbine Tech Manual; LOT-00-249, MECHANICAL HYDRAULIC CONTROL SYSTEM, L.O. CR04

Justification: Observed plant response is for the bypass valves to open and the control valves to close and RPV pressure remains approximately constant.

Question Source: VY Bank #3567 (never used)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 38 (1.00)

Given the following:

During a reactor startup, the CRO is directed to start the "B" Reactor Feed Pump with the following plant conditions present.

- Reactor vessel level is 165".
- Feed pump oil pressure is 15 psig.
- Feed pump oil temperature is 190°F.
- Two condensate pumps are running with a discharge pressure of 145 psig.

When the CRO takes the handswitch to start, the pump does not start. Based on the present plant conditions, which of the following conditions prevented the "B" reactor feed pump from starting?

- a. Condensate pump discharge pressure is too low.
- b. Feed pump oil pressure is too low.
- c. Reactor vessel level is too high.
- d. Feed pump oil temperature is too high.

Answer: a

KA: 259001K602 Knowledge of effects that a loss or malfunction of the following will have on the feedwater system - Condensate system

KA Value: [3.3/3.4]

Exam Level: R

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: OP-2172, rev 21, page 1

Question Source: VY 1994 exam

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 39 (1.00)

Conditions:

- Rx power is 100%.
- Feedwater Level Control (FWLC) in three element control.
- Feedwater Flow Summer in the FWLC circuitry fails to a minimum (zero) output.

The resulting feed flow/steam flow mismatch causes actual feed flow to:

- a. Increase, and level stabilizes below the turbine trip setpoint.
- b. Decrease, recirc runs back and level stabilizes above SCRAM setpoint.
- c. Decrease, resulting in a low level reactor SCRAM.
- d. Increase, resulting in a turbine trip and reactor SCRAM.

Answer: d

KA: 259002, A101 FW Flow [3.3/3.3]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: FSAR 7.10.3; LOT-00-259, FEEDWATER SYSTEM, L.O. 58

Question Source: VY Bank #1798

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 40 (1.00)

Select the correct answer:

The SBGT system is in normal standby lineup. Which of the following describes the consequences of a total loss of air? ✓

- a. All valves fail "AS-IS". SBGT ~~is considered inoperable by Technical Specifications.~~ *will function activate under accident conditions*
- b. All valves fail "AS-IS". SBGT ~~is considered operable by Technical Specifications.~~ *will not activate under accident conditions.*
- c. All valves fail in a position to provide a vent path. SBGT ~~is considered inoperable by Technical Specifications.~~ *will activate.*
- d. All valves fail in a position to provide a vent path. SBGT ~~is considered operable by Technical Specifications.~~ *will not activate.*

Answer: c

KA: 261000A3.02 [3.2/3.1]

Exam Level: R+

Cognitive Level: Higher Order
Systems-Tier 2/Group 1

Reference: LOT-00-261, Rev. 20, Section V.B.2, Pg. 22, STANDBY GAS TREATMENT SYSTEM,
L.O. CR08

Question Source: VY Bank #3728

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Editorial -

*For ROs eliminate reference
to TSs & focus on
System response*

Question: 41 (1.00)

The CRO has just shutdown the B Diesel Generator (0 rpm) from the monthly surveillance test when a loss of normal power occurs. Which of the following statements describes the Diesel response to this condition? (AO has not taken any actions).

- a. The Diesel will start immediately.
- b. The Diesel will start after the stopping relay times out.
- c. The Diesel will start after the AO locally resets the fuel racks.
- d. The Diesel will start after the AO locally places the engine control to REMOTE.

Answer: b

KA: 264000K401 Normal Trips

KA Value: [3.5/3.7]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 1

Reference: OP 2126 rev 32 Diesel Generators LOT-00-264 rev 21, Diesel obj 9b

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 42 (1.00)

Given the following:

The unit is operating at 100% power. The CRO receives an accumulator trouble alarm for a low pressure condition, for a control rod that is at position 48. An auxiliary operator is tasked to clear the alarm condition.

While the accumulator is isolated and being recharged a reactor scram occurs.

The control rod will:

- a. remain at its present position and not move.
- b. scram within Tech Spec allowable insertion time.
- c. scram at a slower than Tech Spec insertion time.
- d. drift into the full inserted position.

Answer: b

KA: 201003K404 The use of either accumulator or reactor water to Scram the control rod

KA Value: [3.6/3.7]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 2

Reference: Tech Spec Bases 3.3.D

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 43 (1.00)

Given the following conditions:

- Control rod withdrawal activities for a reactor startup are in progress.
- While withdrawing control rod 26-27 one notch, the Reactor Manual Control System Master timer fails *by generating a continuous withdrawal signal.*

Which of the following describes the expected control rod response.

Control rod 26-27 will:

- a. Immediately receive a withdrawal block and stop moving.
- b. Immediately receive a Rod Select Block and will be deselected.
- c. Withdraw for a total of 2.0 seconds and then will receive a withdrawal block only.
- d. Withdraw for a total of 2.0 seconds and then will receive a Rod Select Block and will be deselected.

Answer: d

KA: 201004K301 Reactor Manual Control System

KA Value: [3.3 /3.4]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 2

Reference: LOT-02-201 Obj 1.c, 3

Question Source: 1999 VY Exam

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Check on New and

Edited - for Clarification purposes

Question: 44 (1.00)

Given the following:

- Reactor power is 100%.
- The recirculation pump No. 1 (inbd) seal pressure indicates 1000 psig.
- The recirculation pump No. 2 (outbd) seal pressure indicates 850 psig.
- The PUMP A INNER SEAL LKG HI/LO alarm (4-C-2) annunciated.

Which of the following describes the operator's action for these parameters?

- a. Secure the affected recirculation pump MG set and close the suction valve first, then the pump discharge and bypass valves.
- b. Failure of one recirculation pump seal does not require operator action other than monitoring seal temperatures closely.
- c. Trip the affected recirculation pump and immediately close the pump discharge valve and set the speed of the running pump as directed by the SCRO..
- d. Direct the Auxiliary Operator to adjust the reactor building closed cooling water system temperature to 100°F and pressure to 75 psig.

Answer: b

KA: 202001A210 Higher order

KA Value: [3.5/3.9]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 2

Reference: ON 3142 Recirc Pump Seal Failure

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Editorial Only

Question: 45 (1.00)

During normal Reactor Water Cleanup (RWCU) system operations, a loss of system flow through the RWCU filter demineralizer vessel occurred. What safety concern exists regarding this condition?

- a. Potential resin intrusion into the reactor vessel.
- b. Loss of pre-coat pump flow to the filter demineralizer.
- c. Non-Regenerative Heat-Exchanger heat load limits.
- d. Reactor water will be discharged to the radwaste system.

Answer: a

KA: 204000A406 Operating the RWCU system to prevent potential entry of resin into the Reactor Vessel

KA Value: [3.0/2.9]

Exam Level: R

Cognitive Level: Memory

Systems-Tier 2/Group 2

Reference: LOT-00-204 obj 4

Question Source: VY exam bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 46 (1.00)

Given the following:

- Reactor is shutdown.
- Shutdown cooling valves RHR-17 and RHR-18 are open.
- OP 2124 directs the CRO to maintain reactor level greater than 185 inches.

Which of the following describes the basis for maintaining this level?

- a. Make up for the 14" inventory loss when opening RHR-17 and RHR-18.
- b. Prevent thermal stratification in the RPV upon loss of shutdown cooling.
- c. Provide minimum NPSH for the in service RHR pump.
- d. Ensure natural circulation flow in the recirculation loops.

Answer: b

KA: 205000A105 Reactor water level

KA Value: [3.4/3.4]

Exam Level: B

CognitiFve Level: Memory

Systems-Tier 2/Group 2

Reference: OP 2124 RHR; LOT-00-205 Obj 5

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 47 (1.00)

Given the following conditions with a plant startup in progress:

- Reactor power is 33%.
- APRM "B" has failed downscale and is bypassed.
- Control rod 22-23, a center rod, is selected for withdrawal.
- RBM selected LPRM strings indicate that a single level "A" LPRM and a single level "C" LPRM are bypassed.

Which of the following describes the current status of the RBM system?

- a. RBM "A" is operable and RBM "B" is operable.
- b. RBM "A" is operable and RBM "B" is inoperable.
- c. RBM "A" is inoperable and RBM "B" is operable.
- d. RBM "A" is inoperable and RBM "B" is inoperable.

Answer: a

KA: 215002K605 LPRM detectors

KA Value: [2.8 /3.1]

Exam Level: R

Cognitive Level: Higher Order

Systems-Tier 2/Group 2

Reference: LOT-03-201 RBM Obj 2

Question Source: VY Exam Bank

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 48 (1.00)

The plant has been shutdown due to a leaking SRV. RHR Loop B is in torus cooling while RHR Loop A is in shutdown cooling. A small leak causes drywell pressure to go up to 2.5 psig. Which one of the following describes the response of the RHR system?

- a. Loop A pumps trip and Loop B pumps trip.
- b. Loop A pumps trip and Loop B pumps inject into the vessel (LPCI).
- c. Loop A injects into the vessel (LPCI) and Loop B pumps trip.
- d. Loop A injects into the vessel (LPCI) and Loop B injects in the vessel (LPCI).

Answer: b

KA: 219000A406, VALVE LOGIC RESET FOLLOWING AUTO INIT OF LPCI [3.9/3.7]
295024EK 204 RHR/LPCI [3.9]

Exam Level: B

Cognitive Level: Higher Order

System - Tier 2/Group 2

Topic: RESPOND TO CONTAINMENT HI PRESSURE

Reference: LOI EB 3140, OP 2124, Rev. 46, LOT-00-205, RESIDUAL HEAT REMOVAL
SYSTEM, CRO 2

Justification: Higher Level—The LOCA signal causes a PCIS isolation of RHR 17 & 18. The RHR 13 valves do not auto open so Loop A pumps trip on no available suction path. The B Loop RHR 13 valves remain open and the loop realigns for LPCI.

Question Source: VY Exam Bank #3507, Rev. 0 (last used 1/7/00)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 49 (1.00)

After a small break LOCA, the "A" and "B" Loops of RHR were placed in Drywell Spray.

Ten minutes after initiation of Drywell Spray, the following conditions exist:

- Drywell pressure 3 psig and decreasing.
- Heat exchanger bypass valves, RHR 65A and RHR 65B, are throttled open.
- B LPCI Loop is injecting to the RPV.
- Reactor water level is 80 inches and decreasing.

Which of the following statements describes the action that stops the decline in RPV Level?

- (a) Shut the drywell spray valves, RHR 31A and 26A.
- b. Shut the heat exchanger bypass valves, RHR 65A and 65B.
- c. Open the A RHR Loop injection valve, RHR 27A.
- d. Open the minimum flow valves, RHR 16A and RHR 16B.

Answer: c

KA: 226001A403, SPRAY VLV'S [3.5/3.4]

Exam Level: B

Cognitive Level: Higher Order

System - Tier 2/Group 2

Topic: SHUT DOWN THE RHR SYSTEM FROM THE DRYWELL SPRAY MODE

Reference: OP 2124, Pgs. 3, 25, LOT-00-205, RESIDUAL HEAT REMOVAL SYSTEM, CRO 5

Question Source: VY Exam Bank # 3494 (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

See replacement

Technical
"A" partially correct
since "A" should be
injecting already
decided to replace
question with a
similar Bank
question.

Question: 50 (1.00)

Given the following conditions:

- Reactor power is 60%.
- The A Main Steam Line is isolated (MS 80A and MS 86A are closed).
- The D Main Steam Inboard Isolation Valve, MS 80D drifts closed.

Which of the following describes the plant response to these conditions?

- a. A full reactor scram occurs.
- b. Reactor operations continue and all RPS logic channels remain energized.
- c. Reactor operations continue, but a half scram results on the "A" side of RPS.
- d. Reactor operations continue, but a half scram results on the "B" side of RPS.

Answer: b

KA: 239001K127 RPS

KA Value: [4.0 /4.1]

Exam Level: B

Cognitive Level: Higher Order

Systems-Tier 2/Group 2

Reference: LOT-00212 RPS obj 3; RPS DBD 2.5.1.12

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 51 (1.00)

Why is MS-6, Steam Seal Regulator Inlet valve opened at 70% rated thermal power?

- a. It prevents the seal regulator unloading valve from hunting.
- b. The high pressure turbine leakage will no longer seal the turbine shafts.
- c. The low pressure turbine leakage will no longer seal the turbine shafts.
- d. The steam packing exhaustor has excessive capacity for this power level.

Answer: b

KA: 245000K5.06, Turbine shaft sealing [2.5/2.6]

Exam Level: B

Cognitive Level: Memory

System - Tier 2/Group 2

Topic: ADJUST MAIN TURBINE STEAM SEAL SYSTEM

Reference: OP 0105, Rev. 6, LOT-00-307, REACTOR SHUTDOWN AND COOLDOWN

Justification: At <70% power, the HP turbine seal leakage is insufficient to seal the LP turbine. Turbine seals and the gland seal regulator supply must be unisolated so gland seal header pressure can be maintained 1-4 psig.

Question Source: VY Exam Bank #3836, Rev. 1 (last used 4/13/00)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 52 (1.00)

During a reactor shutdown, why is a condensate pump secured when reactor feedpump suction pressure reaches 450 psig?

- a. It prevents lifting the feedpump suction relief valves.
- b. It prevents damage to the condensate demineralizer gaskets.
- c. It prevents overloading the condensate pump thrust bearing.
- d. It prevents condensate pump current from exceeding 190 amps.

Answer: b

KA: 256000A1.03, System pressure [2.8/2.8]
256000A4.06, System pressure [3.1/3.0]

Exam Level: B

Cognitive Level: Memory

System - Tier 2/Group 2

Topics: OPERATE CONDENSATE PUMPS IN DIFFERENT COMBINATIONS
SHUT DOWN THE CONDENSATE SYSTEM

Reference: OP 0105, Rev. 6, Typical centrifugal pump head verses flow curve, LOT-00-307,
REACTOR SHUTDOWN AND COOLDOWN

Justification: This step was added to reduce the stress on the cond demin flanges and improve gasket life.

Question Source: VY Exam Bank #3837, Rev. 0 (last used 4/13/00)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 53 (1.00)

The plant was operating at full power, when a fault occurred on Bus 8.

Which of the following is the expected plant response?

- a. A full PCIS Group I isolation occurs.
- b. A full PCIS Group II isolation occurs.
- c. A full PCIS Group III isolation occurs.
- d. A full PCIS Group V isolation occurs.

Answer: c

KA: 262001K3.01, Major system loads [3.5/3.7]

262001A1.01, Effect on instrumentation and controls of switching power supplies [3.1/3.4]

Exam Level: B

Cognitive Level: Memory

System - Tier 2/Group 2

Reference: OP 2134, LOT-02-262, 480 VAC ELECTRICAL DISTRIBUTION SYSTEM, SRO 1, SE 2, CRO 2

Question Source: VY Exam Bank #3136, Rev. 0

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 54 (1.00)

Given the following conditions:

- 120V AC Vital Manual Transfer Switch on CRP 9-8 has been placed in Alternate.
- Vital AC MG set is secured.
- The red light above the transfer switch on CRP 9-8 is illuminated on "ALTERNATE".
- The remainder of the electrical system is in a normal configuration.

Which of the below describes the Vital and Instrument AC status when MCC 9A becomes de-energized?

- a. Instrument AC is energized from MCC 8A and Vital AC is de-energized.
- b. Instrument AC is de-energized and Vital is energized from MCC 8A.
- c. Both Instrument AC and Vital AC are energized from MCC 8A.
- d. Both Instrument AC and Vital AC are de-energized.

Answer: a

KA: 262002A3.01, Transfer from preferred to alternate source [2.8/3.1]

Exam Level: B

Cognitive Level: Higher Order

System - Tier 2/Group 2

Topic: DE-ENERGIZE 480V BUSES AND MCCS

Reference: LOT-04-262, Rev. 8, Section IV, pg. 8-13, LOT-04-262, 120/240 VAC ELECTRICAL DISTRIBUTION SYSTEM, CRO 7

Question Source: VY Exam Bank #3725, Rev. 0

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 55 (1.00)

While shutting down using Alternate Shutdown methods, Transfer Switch MTS-13-1 is placed to the EMERGENCY position. This aligns DC-2B to be powered from:

- a. 125 VDC Emergency Bus (DC-1AS).
- b. 125 VDC Control Power Bus (DC-5A).
- c. 48 VDC Emergency Bus (DC-6A).
- d. 24 VDC ECCS Bus (Panel "A").

Answer: a

KA: 263000, K2.01, Major D.C. loads [3.1/3.4]

Exam Level: B

Cognitive Level: Memory

System - Tier 2/Group 2

Reference: LOT-00-263, DC ELECTRICAL DISTRIBUTION SYSTEM

Question Source: VY Exam Bank #604, Rev. 1

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 56 (1.00)

The plant is operating at 100% power. AOG system component status is as follows:

- "A" Recombiner in OPERATE
- "B" Recombiner in MANUAL (OG-101B & 103B valves SHUT)
- "A" Dryer Skid in AUTO
- "A" Vacuum Pump in AUTO (OG-140A & 144A valves SHUT)
- "B" Vacuum Pump in AUTO

A system transient has caused these conditions to exist:

- System Inlet Pressure - 2.5 psig
- Recombiner Outlet [H₂] - 100% LEL
- Recombiner Inlet Temperature - 355°F
- "A" Dryer Skid Inlet Pressure - 2 psig

The expected system response as a result of the above conditions is:

- a. "A" Recombiner shifts to OFF, "B" Recombiner shifts to AUTO, "A" Vacuum Pump starts.
- b. "A" Recombiner shifts to STANDBY, "B" Recombiner remains in MANUAL, "B" Vacuum Pump trips.
- c. "A" Recombiner shifts to OFF, "B" Recombiner remains in MANUAL, "A" Vacuum Pump starts.
- d. "A" Recombiner shifts to STANDBY, "B" Recombiner shifts to STANDBY, "B" Vacuum Pump trips.

Answer: c

KA: 271000, A3.01, Automatic system isolations [3.3/3.3]
500000 EK303 Operation of H₂/O₂ recombinder [3.5]

Exam Level: B

Cognitive Level: Higher Order

System - Tier 2/Group 2

Topic: RESPOND TO RECOMBINER TRAIN AUTOMATIC SWITCHOVER

Reference: OP 2150, LOT-00-271, ADVANCED OFF-GAS SYSTEM

Question Source: VY Exam Bank #965, Rev. 0 (last used 12/10/99)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 57 (1.00)

What is the response of Rx Bldg ventilation rad monitor "A" when you swap RPS Bus "A" to its alternate power supply?

Rx Bldg Vent Rad Monitor "A" will:

- a. deenergize and remain deenergized; NO PCIS Group III isolation will occur.
- b. deenergize and reenergize; NO PCIS Group III isolation will occur.
- c. deenergize and remain deenergized; a full PCIS Group III isolation will occur.
- d. deenergize and reenergize; a full PCIS Group III isolation will occur.

Answer: d

KA: 272000K6.03 AC Power

KA Value: [2.8/3.0]

Exam Level: B

Cognitive Level: Memory

System Tier 2/Group 2

Reference: LOT-00-212 RPS obj 5; OP 2134

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 58 (1.00)

Given the following conditions:

- A loss of power to Buses 2, 4 and 9 has occurred.
- "A" Diesel Generator started and loaded.
- "B" Service Water Pump is out of service.
- "Diesel Fire Pump Trouble" alarm (K-9 on CRP 9-6) is alarming.
- "Electric Fire Pump Trouble" alarm (M-9 on CRP 9-6) is alarming.

For the given conditions:

- a. Both alarms are expected.
- b. The Diesel Fire Pump Trouble alarm is not expected.
- c. Neither alarm is expected.
- d. The Electric Fire Pump Trouble alarm is not expected.

Answer: b

KA: 286000A3.01, Fire water pump start [3.4/3.4]

Exam Level: B

Cognitive Level: Higher Order

System - Tier 2/Group 2

Topic: LOSS OF POWER EFFECTS ON FIRE PROTECTION

Reference: Fire Protection System, LOT-00-286, Section IV.C, Pg. 26, Rev. 16, CRO-2.b; Fire Suppression Systems, OP 2186, Section C.1, Pg. 11, Rev. 24

Question Source: Facility Exam Bank, FEQB #1110 (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 59 (1.00)

Which of the following is the only automatic action that occurs on lowering instrument air pressure?

- a. The service air header isolates.
- b. The instrument air dryer is bypassed.
- c. The service and instrument air systems are cross-connected.
- d. The off-service scram air header pressure control valve opens.

Answer: a

KA: 300000, K4.01, Manual/Automatic transfers of control [2.8/2.9]

Exam Level: B

Cognitive Level: Memory

System - Tier 2/Group 2

Topic: AUTOMATIC ACTIONS ON LOWERING INSTRUMENT AIR PRESSURE

Reference: ON 3146, LOW INSTRUMENT/SCRAM AIR HEADER PRESSURE, Section AA.1, Pg. 1, Rev. 13

Explanation of Answer: a. - correct answer; b. - requires operator action; c. - requires operator action; d. - requires operator action

Question Source: New

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 60 (1.00)

The plant is operating at 50% power when a complete loss of service water to the TBCCW HXs occurs.

Which of the following statements describes the effect on the reactor feedwater system?

- a. Feed pump bearing temperature rises.
- b. Feed pump motor winding temperature rises.
- c. Feed pump bearing and motor winding temperature rises.
- d. Feed pump bearing and motor winding temperature will not be affected.

Answer: a

KA: 400000K102 [3.2/3.4]

Exam Level: R

Cognitive Level: Higher Order

System - Tier 2/Group 2

Reference: OT 3165, LOT-00-259

Justification: OT 3165 indicates RFP bearings will be affected.

Question Source: VY Exam Bank #3512, Rev. 1 (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 61 (1.00)

A reactor scram due to a low level condition has occurred. The ball and shear valves are open. (Assume no operator actions).

This condition is:

- a. A normal condition since the shear valves are normally open.
- b. A normal condition since the ball valves are normally open.
- c. An abnormal condition since the shear valves should be closed.
- d. An abnormal condition since the ball valves should be closed.

Answer: d

KA: 215001A207 Failure to retract during accident conditions

KA Value: [3.4 /3.7]

Exam Level: B

Cognitive Level: Memory

Systems- Tier 2/Group 3

Reference: LOT-04-215 TIP obj 4

Question Source: VY Exam Bank - modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 62 (1.00)

The plant is operating at 100% power with Fuel Pool Cooling Pump (FPC) "A" in service. A leak develops upstream of the inlet isolation valves (FPC 220 and FPC 221). Which of the following describes the expected system response as fuel pool level starts to lower?

- a. FPC-220/221 remain open and "A" FPC Pump continues to run.
- b. FPC-220/221 remain open and "A" FPC Pump trips.
- c. FPC-220/221 close and "A" FPC Pump continues to run.
- d. FPC-220/221 close and "A" FPC Pump trips.

Answer: d

KA: 233000A404 Low Pool Level

KA Value: [2.9 /3.1]

Exam Level: R

Cognitive Level: Higher Order

Systems-Tier 2/Group 3

Reference: LOT-00-233 FPC&CU Obj 3

Question Source: VY Exam Bank

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 63 (1.00)

The refueling platform is over the fuel pool.

Which of the following, by itself, will prevent the refueling platform moving over the vessel.

- a. Mode switch in startup.
- b. Mode switch in refuel.
- c. One control rod not full in.
- d. Any refueling hoist loaded.

Answer: a

KA: 234000, A302 [3.1/3.7]

Exam Level: R

Cognitive Level: Memory

Reference: OP1100, Rev. 24, Page 2, Bridge reverse motion, LOT-00-234, CRO Obj. 1

Question Source: 1997 VY NRC Exam

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 64 (1.00)

Which of the following describes how the Reactor Building Ventilation Backdraft Dampers are configured? Air flow is from:

- a. The lowest temperature areas to the highest temperature areas.
- b. The inner-most (center) areas to the outer-most areas.
- c. The less contaminated areas to the more contaminated areas.
- d. The ECCS pump rooms to the refueling floor area.

Answer: c

KA: 288000K501 Airborne Contamination Control

KA Value: [3.1 /3.2]

Exam Level: R

Cognitive Level: Memory

Systems-Tier 2/Group 3

Reference: OP 2192 ; LOT-01-288 RBVS

Question Source: VY Exam Bank

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 65 (1.00)

Given the following conditions:

- Reactor power is 100%.
- Main Generator Load Reject occurs causing a reactor scram.

Which of the following describes the plant parameter response to the Load Rejection immediately prior to the scram?

- a. Reactor pressure decreases - reactor water level decreases - reactor power decreases.
- b. Reactor pressure decreases - reactor water level increases - reactor power increases.
- c. Reactor pressure increases - reactor water level decreases - reactor power increases.
- d. Reactor pressure increases - reactor water level increases - reactor power decreases.

Answer: c

KA: 295005AK101 Pressure effects on power

KA Value: [4.0/4.1]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: LOT-02-245, Main Generator Obj 5 pg 30; ON 3154 Generator Load Reject; OT 3100
Reactor Scram

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 66 (1.00)

A manual reactor scram is inserted at 100% power. Immediately following the scram, reactor water level will initially:

- a. lower due to collapse of voids in the reactor vessel.
- b. rise due to the effect of three element reactor level control.
- c. lower due to excessive void formation in the downcomer region.
- d. rise due to the in rush of water from the downcomer region to the core region.

Answer: a

KA: 295006EA301, Reactor Water Level Response [3.8/3.9]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: VY FSAR, LOT-00-600, CRO A3

Question Source: VY Exam Bank #3474, Rev. 1

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 67 (1.00)

Given the following conditions:

- Reactor power - 100%.
- RX PRESS HI (5-E-7) annunciated.
- Reactor pressure indicates 1032 psig and trending upward.
- The manual pressure regulator (MPR) was in control at the time of the event.
- The electric pressure regulator (EPR) ~~was not in service.~~ *IS AVAILABLE BUT NOT IN CONTROL*

*i.e.,
(NOT IN "CUTOUT
POSITION")*

Which of the following statements describes the immediate operator action?

- a. Control reactor pressure with bypass valve bypass jack.
- b. Take manual control of and lower recirculation flow, as necessary.
- c. Take manual control of and lower the EPR setpoint, as necessary.
- d. Insert a manual reactor scram.

Answer: c

KA: 295007AK201 Rx/turbine pressure regulating system

KA Value: [3.5/3.7]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 1

Reference: OT 3116 - Reactor High Pressure

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

*Editorial Change to provide
clarity & eliminate
ambiguity.*

Question: 68 (1.00)

The unit is operating at 87% power with reactor water level at +160 inches when the P-2-1A condensate pump shaft coupling shears. The condensate pump continues to run at low motor amps.

Given that the feedwater pumps remain in service and no operator action is taken, what is the expected plant response to this event?

- a. A reactor scram is generated and the recirculation system will runback to 20% speed.
- b. A reactor scram is generated and the recirculation system will runback to 43% speed.
- c. No reactor scram and the recirculation system will runback to 20% speed.
- d. No reactor scram and the recirculation system will runback to 43% speed.

Answer: a

KA: 295009AK301 recirc runback

KA Value: [3.2 / 3.3]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: LOT-00-256, OT 3113 Reactor Low Level

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

*Question indicated really no correct
answer - question replaced
see attached.*

Question: 69 (1.00)

The plant has experienced a LOCA with fuel failure. You are currently in the SAGs and have direction to vent the drywell. Which one of the following vent paths will both vent the drywell and minimize radioactive releases? (Assume each vent path passes identical CFM.)

- a. Open AC-7B Torus vent and vent through the SGT.
- b. Open AC-7A Drywell vent and vent through the SGT.
- c. Open AC-7B Torus vent and vent through Rx Bldg Exhaust.
- d. Open AC-7A Drywell vent and vent through Rx Bldg Exhaust.

Answer:

- a. Open AC-7B Torus vent and vent through the SGT.

KA: 295010AA203, Drywell Radiation Levels [3.3/3.6]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: LOT-00-223, PRIMARY CONTAINMENT DESIGN

Question Source: VY Exam Bank #3611, Rev. 0

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 70 (1.00)

Given the following conditions:

- A reactor startup was in progress following a seven day forced outage.
- Reactor was made critical and a heatup was in progress.
- Problems with the reactor manual control circuitry delayed rod withdrawals for about 1.5 hours.
- RPV pressure decreased from 360 psig to 325 psig during this delay.
- Control rod 14-19 was withdrawn one notch from 10 to 12 to re-establish a heatup rate.
- Reactor period continued to shorten and the operator re-inserted the rod to notch 10 to determine why the SRM count rate is higher now than when previously on notch 10.

The change in SRM count rate indication is normal because:

- a. Xenon burnout in the high flux region had begun.
- b. Void fraction had decreased due to the lower pressure.
- c. Rod worth increased due to the increased rod density.
- d. Moderator temperature had decreased.

Answer: d

KA: 295014AK206 Moderator Temperature

KA Value: [3.4/3.5]

Exam Level: R

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: OT 3110 - Positive Reactivity Addition

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 71 (1.00)

Given the following event:

- The main turbine is tripped.
- Reactor power is 60%.
- MSIVs are closed.

As per EOP-2, ATWS, which of the following describes a required action and the reason for it?

- a. Stabilize RPV pressure by manually opening safety relief valves to minimize power fluctuations.
- b. Reduce RPV pressure with turbine bypass valves to minimize torus heatup through HPCI operation.
- c. Stabilize RPV level with RCIC to prevent automatic initiation of LPCI pumps.
- d. Reduce RPV level with reactor water cleanup to letdown water to the main condenser.

Answer: a

KA: 295015AK104 reactor pressure

KA Value: [3.8/3.8]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: EOP-2 ATWS Study Guide page 7-17, 7-59

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 72 (1.00)

A plant transient has required the crew to scram the unit from 75% power. The following plant conditions exist:

- Reactor level is +120".
- All 89 scram lights on the full core display are ON.
- Several control rods indicate that they have not inserted to or beyond notch 02.

Based on these indications, it can be determined that:

- a. There has been an electrical malfunction with one of the scram relays.
- b. There is a blockage in the scram discharge volume.
- c. There has been a mechanical failure of the scram valves.
- d. The DC powered scram air header vent valves failed to operate.

Answer: b

KA: 295015AA202 Control Rod Position

2.4.4 Ability to recognize abnormal indications for system operating parameters which are entry level conditions for emergency and abnormal operating procedures.

KA Value: [4.1/4.2] [4.0/4.3]

Exam Level: R

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: LOT-00-610; Appendix B, BWROG-EPGs

Question Source: Modified Licensee Exam Bank Question 678

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 73 (1.00)

The plant is operating at power when a spurious Group I isolation occurs.

- All control rods remain at their original positions.
- APRMs indicate approximately 96% power.
- All 4 SRVs have opened automatically and RPV pressure is > 1200 psig.
- Core flow is 45 mlb/hr.

The CRO attempts a manual scram which fails to insert control rods and scram air header pressure remains at 75 psig.

Without direction, the CRO must immediately:

- a. Inject boron.
- b. Drive control rods.
- c. Initiate ARI/RPT.
- d. Lower RPV water level.

Answer: c

KA: 295015AA101, Ability to operate/monitor CRD Hydraulics [3.8/3.9]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: EOP-2, Rev. 0, LOT-00-610, CRO 1

Question Source: VY Exam Bank #3481, Rev. 1

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 74 (1.00)

A NOTE in OP 2115, Primary Containment, states that only one 18-inch supply valve, AC-8 or AC-10, and one 18-inch vent valve, AC-7A or AC-7B, may be opened at a time.

Which of the following statements describes the basis for this requirement?

- a. Prevent bypassing the torus during a DBA LOCA.
- b. Prevent bypassing the drywell during a DBA LOCA.
- c. Prevent actuating the torus/drywell vacuum breakers.
- d. Prevent reducing containment differential pressure to less than 1.5 psig.

Answer: a

KA: 295024EK307 Drywell Venting

KA Value: [3.5/4.0]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 1

Reference: OP 2115

Learning Objective: LOT-00-223 Primary Containment Design obj 18

Question Source: VY Exam Bank Question No 3406

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 75 (1.00)

Which of the following resulting combinations of reactor power and pressure indicate a violation of a Safety Limit?

- a. Reactor Power -- 22%
Reactor Pressure -- 765 psig
- b. Reactor Power -- 27%
Reactor Pressure -- 775 psig
- c. Reactor Power -- 30%
Reactor Pressure -- 800 psig
- d. Reactor Power -- 35%
Reactor Pressure -- 815 psig

Answer: b

KA: 295025EK105 Exceeding a Safety Limit

2.2.22 Knowledge of limiting conditions for operations and safety limits.

KA Value: [4.4/4.7] [3.4/4.1]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: VY Tech Specs, Section 1.1.B

Question Source: January 1999 exam - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 76 (1.00)

Which set of conditions assures adequate core cooling?

- a. CS "A": 0 gpm
CS "B": 1650 gpm
RPV level: +6" steady
- b. CS "A": 2000 gpm
CS "B": 1500 gpm
RPV level: -40" steady
- c. CS "A": 3100 gpm
CS "B": 0 gpm
RPV level: -10" steady
- d. CS "A": 3500 gpm
CS "B": 3500 gpm
RPV level: -65" steady

Answer: a

KA: 295031EK101, Adequate Core Cooling [4.6/4.7]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 1

Reference: EOP-1, PP 7018, Att. 9, LOT-00-610, CRO2, 3

Question Source: VY Exam Bank #3482, Rev. 1

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

ATWS HAS OCCURRED, The Reactor is NOT SHUT DOWN.

Question: 77 (1.00)

Given the following conditions:

- Reactor power was at 100%.
- A complete loss of circulating water has occurred requiring a scram.
- Recirculation flow has been reduced to minimum.
- The mode switch is in SHUTDOWN.
- Torus temperature is 112°F.

For these conditions, what parameter is the operator required to use to determine if injection of the Standby Liquid Control is immediately required by assessing which of the following?

- a. The Full Core Display.
- b. APRM power levels.
- c. Torus Temperature.
- d. The RPS group logic white lights.

Answer: ~~b~~ c.

KA: 295037AA107 Neutron Monitoring

KA Value: [4.1/4.1]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 1

Reference: OT 3100 Reactor Scram; EOP-2 ATWS

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Editorial but also I caught
the answer wrong - which
was technical.

Question: 78 (1.00)

A plant startup is in progress with the plant at 10% power when the "A" recirc pump trips. The A recirc discharge valve (RV-53A) is shut by the CRO. Total jet pump flow as indicated on DPR/FR-2-3-91 is to the left of the natural circulation line on the power to flow map.

Which of the following describes reason for this indication?

- a. A jet pump mixer has been displaced.
- b. The jet pump flow instruments are inaccurate at low flows.
- c. The reverse flow summer is subtracting positive flow through the idle loop jet pumps.
- d. The recirculation flow comparator is compensating for the natural circulation in the idle loop.

Answer: c

KA: 295001AK207, Core Flow Ind. [3.4/3.4]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: OT 3118, Rev. 14, LOT-00-602, CRO 3, 5

Question Source: VY Exam Bank #3483, Rev. 2 (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 79 (1.00)

The following conditions exist:

- Main condenser backpressure: 5.4" Hg and rising rapidly.
- Circ water in OPEN cycle.
- CRO is reducing Reactor Power with recirc flow at 9%/min.
- Annunciator 9-5-K-8, "STOP/CTRL VLV FAST CLOSURE BYP" is clear.
- TB AO reports visible damage to the LP turbine exhaust boot and the sound of air rushing through.

The SCRO directs the crew to transfer station loads, scram the reactor, then trip the turbine. These actions are required because:

- a. Turbine blade damage may result from excessive exhaust pressure.
- b. A group 1 isolation can be avoided, preserving the main condenser as a heat sink.
- c. The resulting backpressure induced vibration could cause turbine shaft seal failure.
- d. An automatic turbine trip due to low vacuum will NOT cause a scram in this condition.

Answer: a

KA: 295002AK202, Main Turbine [3.1/3.2]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: OT 3120, Rev. 11, Turbine Manual, GEK 41516A, Rev. A, LOT-00-602, CRO 2

Question Source: VY Exam Bank #3486, Rev. 2

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 80 (1.00)

A loss of offsite power has occurred and EDG "A" and "B" have failed to start. Busses 1, 2, 3, 4 and 5 are de-energized. All service water pumps have been placed in STOP, then NORMAL. All ECCS pumps are in PULL-TO-LOCK.

The next immediate operator action is to:

- a. Minimize DC loads on station batteries.
- b. Place all reactor feed pumps in PULL-TO-LOCK.
- c. Direct an AO to attempt a local start of EDG "B".
- d. Attempt to energize Bus 3 or 4 from the Vernon Tie.

Answer: d

KA: 295003AK106, SBO [3.8/4.0]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: LOI EB 1280, OT 3122, App. A, Rev. 18, LOT-00-602

Question Source: VY Exam Bank #3489, Rev. 1

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 81 (1.00)

Given the following conditions:

- Reactor operating at 100% power.
- A complete loss of DC-1 occurs.
- The "A" Recirc Drive Motor amps are pegged high.
- Reactor water level is steady.

What action is required concerning the Reactor Recirc system?

- a. Trip the "A" Recirc MG Drive Breaker locally.
- b. Insert a Manual Reactor Scram.
- c. Trip the "A" Recirc MG DC Lube Oil Pump.
- d. Trip the "A" Reactor Feedwater Pump immediately.

Answer: b

KA: 295004AK303, Reactor Scram [3.1/3.5]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Topic: RESPOND TO A LOSS OF DC-1, 2, 3

Reference: ON 3159, LOT-00-202, REACTOR RECIRCULATION SYSTEM

Question Source: VY Exam Bank #3510, Rev. 0 - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 82 (1.00)

The reactor is operating at 100% power, when the controlling reactor level instrument fails downscale. Which of the following statements describes the correct plant response and operator action?

- a. Reactor water level will lower. The operator shall immediately transfer to Single-Element feedwater control.
- b. Reactor water level will lower. The operator shall immediately transfer the reactor vessel feedwater Master Controller to Manual.
- c. Reactor water level will rise. The operator shall immediately transfer to Single-Element feedwater control.
- d. Reactor water level will rise. The operator shall immediately transfer the reactor vessel feedwater Master Controller to Manual.

Answer: d

KA: 295008AA101, Rx Water Level Control [3.7/3.7]

Exam Level: B

Cognitive Level:

Evolutions - Tier 1/Group 2

Reference: LOI EB 1053, OT 3114, LOT-00-602, CRO 4, 5

Question Source: VY Exam Bank #3475, Rev. 1

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 83 (1.00)

A loss of drywell cooling results in a drywell pressure reaching 2.6 psig.

WHICH of the following describes EDG, RCIC, and RWCU response?

- a. EDGs - running and loaded
RCIC - running and injecting
RWCU - pumps tripped
- b. EDGs - running and NOT loaded
RCIC - not affected
RWCU - not affected
- c. EDGs - running and loaded
RCIC - not affected
RWCU - pumps tripped
- d. EDGs - running and NOT loaded
RCIC - running and injecting
RWCU - not affected

Answer: b

KA: 295012AA202 Drywell Pressure

KA Value: [4.1/4.0]

Exam Level: R

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 2

Reference: OT3111 Rev.10,

Learning Objective: LOT-00-602 Rev. CRO objective 3.

Question Source: VY bank #598

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 84 (1.00)

Given the following conditions:

- Torus water level is 8 feet.
- Torus water temperature is 180°F.
- Reactor pressure is 700 psig.

Under these conditions, RPV Emergency Depressurization is:

- Not required since primary containment limits are not exceeded.
- Required to ensure the energy released during an RPV blowdown can be accepted.
- Required since the downcomers are now exhausting to the torus free air space.
- Prohibited since the SRV tail pipes are now exhausting to the torus free air space.

Answer: b

KA: 295013AK302

KA Value: [3.6/3.8]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 2

Reference: EOP-3 Appendix B BWROG-EPG; LOT-00-607 Obj 2

Question Source: VY Exam Bank Question 3323

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Provide ^{HTL} curve as reference

*Clarification - Reference
will be provided
Question OK as-is*

Question: 85 (1.00)

Given the following conditions:

- A transient occurred requiring Control Room evacuation.
- All required immediate actions per OP3126, Shutdown Using Alternate Shutdown Methods were completed.
- RCIC is being operated for reactor level control from the RCIC Alternate Shutdown Panel (ASP).
- The RCIC turbine coasted to a stop with NO apparent reason indicated at the ASP.

Which of the following describes what occurred to the RCIC system and the system's current status?

- Select a low high level* ✓
- a. A RCIC turbine trip setpoint has been exceeded that cannot be reset preventing RCIC from being restarted from the ASP.
 - b. A RCIC turbine trip setpoint has been exceeded that can be locally reset allowing RCIC to be restarted from the ASP.
 - c. A RCIC system isolation has been exceeded and RCIC is no longer available for reactor water level control from the ASP.
 - d. A RCIC system isolation setpoint has been exceeded with RCIC restart possible once the isolation signal is reset from the ASP.

Answer: b

KA: 295016AA202 Reactor Water Level

KA Value: [4.2/4.3]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 2

Reference: OP 3126 ; LOT-00-612 Obj 4

Question Source: VY Exam Bank

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

*Technical / - ensure
"a" distractor
is incorrect.*

Question: 86 (1.00)

Due to loss of RBCCW, alternate cooling to the RHR pump coolers is being established.

Which of the following describes the operational concern when the operator opens valves SW-36 A(B), SW Loop A(B) X-ties to Alternate Cooling?

- a. RHR SW pump runout may occur.
- b. The RBCCW piping may be overpressurized.
- c. Cross-system contamination from the RBCCW to the RHR SW system will occur.
- d. The RBCCW surge tank will fill and overflow.

Answer: b

KA: 295018AK101 Effects on Component System Operations

KA Value: [3.5 /3.6]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 2

Reference: ON-3147 Rev.8, caution page 3.

Learning Objective: LOT-00-603 Rev.8 SCRO objective 2.

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 87 (1.00)

ON 3146, Low Instrument/Scram Air Header Pressure, requires a manual scram if scram air header pressure drops below 55 psig and cannot be restored.

With the plant at full power, which of the following describes the basis for the scram?

- a. Below 55 psig, accumulator pressure is no longer sufficient to ensure that the control rod would meet its required insertion time.
- b. The scram eliminates the undesirable effects of the irregular rod patterns from random rod insertion.
- c. SDV in-leakage from the drifting open of the scram inlet and outlet valves would create a hydraulic lock, preventing a scram.
- d. The SDV drain valves will fail open and cause the reactor building to become contaminated in the event of a scram.

Answer: b

KA: 295019AK201

KA Value: [3.8/3.9]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: LOT-00-601 Off-Normal Procedures obj 4

Question Source: VY Exam Bank Question 744 - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 88 (1.00)

The plant is operating at 70% reactor power when the "A" outboard MSIV fails closed.

Which of the following describes the response of the reactor? (Assume no operator action is taken).

- a. Reactor power will decrease and stabilize at a lower power.
RPV water level will decrease and then return to a normal level.
- b. Reactor power will decrease and stabilize at a lower power.
RPV water level will increase and then return to a normal level.
- c. Reactor power will increase and stabilize at a higher power.
RPV water level will decrease and then return to a normal level.
- d. Reactor power will increase and stabilize at a higher power.
RPV water level will increase and then return to a normal level.

Answer: d

KA: 295020AA203 Reactor Power

KA Value: [3.7 /3.7]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 2

Reference: OT-3116 Rev.6, page 2.

Learning Objective: LOT-00-604 Rev.9 CRO objective 9.

Question Source: VY Exam Bank

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 89 (1.00)

Given the following plant conditions:

- A reactor startup is in progress.
- Reactor pressure is at 800 psig.
- Both CRD pumps fail.
- Two CRD accumulators are in an alarm condition for low nitrogen pressure.

Which of the following statements describes the significance of 800 psig reactor pressure in this condition?

- a. Below 800 psig, the core pressure drop is such that design peaking factors are conservative enough to ensure thermal power limits will not be exceeded with slower rod insertions times.
- b. Below 800 psig, those rods with inoperable accumulators will be able to meet required scram insertion times due to the action of reactor pressure.
- c. Above 800 psig, the core pressure drop is such that design peaking factors are conservative enough to ensure thermal power limits will not be exceeded with slower rod insertions times.
- d. Above 800 psig, those rods with inoperable accumulators will be able to meet required scram insertion times due to the action of reactor pressure.

Answer: d

KA: 295022AK101 Reactor Pressure vs insertion capability

KA Value: [3.3 /3.4]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 2

Reference: ON 3145 T.S Bases 3.3.D

Learning Objective: LOT-01-601 Off-Normal Procedures, CRO objective 3.

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 90 (1.00)

While performing the Torus Temperature Control leg of EOP-3, Primary Containment Control, the operator is directed to enter EOP-1, RPV Control, and execute concurrently before torus temperature reaches 110°F.

Which of the following describes the reason for entering and performing EOP-1 concurrently without a specific EOP-1 entry condition being met?

- a. It ensures that torus temperature will never exceed the Heat Capacity Temperature Limit.
- b. It ensures that a RHR pump is dedicated to torus cooling regardless of actual reactor water level.
- c. *sl reactor*
It directs a reactor scram and removes the main source of potential energy addition to the torus before conditions warrant injection of boron.
- d. It provides direction for reactor pressure control should torus temperature reach the point requiring emergency depressurization with the Turbine Bypass Valves.

Answer: c

KA: 295026G2.4.6

KA Value: [3.1/4.0]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: BWROG PEGS/SAGS App B B-7-21; LOT-01-624 obj 1

Question Source: VY Exam Bank

Editorial -

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 91 (1.00)

Which of the following describes the reason the reactor is to be emergency depressurized when drywell temperature cannot be restored and maintained below 280°F?

At 280°F:

- a. The drywell spray nozzels are ineffective.
- b. The reactor vessel water level cannot be determined.
- c. The containment's design temperature is being challenged.
- d. The heated drywell spray water returning to the torus is reducing the RHR pumps NPSH.

Answer: c

KA: 295028EK301 Emergency Depressurization

KA Value: [3.6/3.9]

Exam Level: R

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: LOT-00-223 Primary Containment Design Obj 3, EOP-3

Question Source: VY Exam Bank Question No 3771

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 92 (1.00)

A LOCA has occurred and EOP-3, "Primary Containment Control", has been entered. The SCRO is about to order the CRO to spray the drywell but first asks the CRO to verify torus level is below 23 ft. The concern for this is that if spray is initiated when torus level is above 23 ft.:

- a. Torus level will cause RHR to cavitate.
- b. Torus spray header will be submerged.
- c. Torus capacity is insufficient to accept spray water.
- d. Torus-Drywell vacuum breakers will be submerged.

Answer: d

KA: 295029EA101 Containment/Drywell Vacuum Breakers [3.7/3.7]

Exam Level: B

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 2

Reference: LOI EB 1290, EOP Study Guide, LOT-00-607, Obj. 2

Question Source: VY Exam Bank #3552, Rev. 3

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 93 (1.00)

Which of the following describes the reason HPCI must be secured at a torus water level of less than seven feet irrespective of adequate core cooling?

- a. Continued operation will add pressure to the torus.
- b. The HPCI oil system will not receive adequate cooling water.
- c. Below this level the RHR system cannot adequately dissipate the heat the HPCI turbine will add to the pool.
- d. Below this level the torus will not provide sufficient NPSH to the suction of the HPCI pump.

Answer: a

KA: 295030EK201 HPCI Plant Specific

KA Value: [3.8/3.9]

Exam Level: R

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: EOP-3; LOT-00-607 EOP-3, obj 3

Question Source: VY Exam Bank - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 94 (1.00)

Given the following plant conditions:

- Reactor power is 100%.
- EOP-4, Secondary Containment Control, has been entered due to RB vent radiation indicating 50 mRem/hr and increasing.
- ARM #8 located at RB 303' NW is indicating 800 mRem/hr and rising due to a RWCU pipe break.
- RWCU 15 and RWCU 18 failed to isolate the RWCU system.

Which of the following describes the operator's expected response:

- a. Perform a normal plant shutdown per OP-0150.
- b. Manually Scram the Unit and enter OT-3100.
- c. Enter EOP-1, RPV Control as directed in EOP-4.
- d. Enter EOP-5, RPV-ED as directed in EOP-4.

Answer: c

KA: 295033EK203 Cause of High Area Radiation

KA Value: [3.7/4.2]

Exam Level: R

Cognitive Level: Higher Order

Evolutions - Tier 1/Group 2

Reference: LOT-00-611 EOP-4 Obj 3, 4

Question Source: VY Exam Bank Question No 3276 rev 1

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Provide EOP-4 without Entry Conditions

NOT AN RO Level Question!

Question replaced.

Question: 95 (1.00)

With a Reactor Building Vent Exhaust greater than 14 mRem/hr present, EOP-4, Secondary Containment Control, directs the operator to confirm or initiate Reactor Building HVAC Isolation and a Standby Gas Treatment System startup.

This action will ensure that:

- a. A processed and controlled ground release of activity is provided.
- b. A processed and controlled elevated release of the activity is provided.
- c. The Reactor Building atmosphere is contained at a positive pressure until it can be processed and released.
- d. Both the primary and secondary containments are maintained at a slightly negative pressure.

Answer: b

KA: 295034EK302 SBGT/High Rad Sec Cont.

KA Value: [4.1/4.1]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: EOP-4; LOT-00-611 obj 2

Question Source: VY Exam Bank Question No 3293

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 96 (1.00)

The Advanced Offgas System radiation monitor, RAN-OG-3127 trips on a valid Hi-Hi trip signal. The dryer skid and absorber bypass valves (OG-145, OG-146) are open.

Which of the following describes the stack isolation valve, OG-FCV-11, response to the radiation monitor trip?

- a. The valve will remain open.
- b. The valve will close concurrent with the trip signal.
- c. The valve will close after the trip signal has been present for 2 minutes.
- d. The valve will close after the trip signal has been present for 30 minutes.

Answer: c

KA: 295038EK202 Offgas System

KA Value: [3.6 /3.8]

Exam Level: R

Cognitive Level: Memory

Evolutions - Tier 1/Group 2

Reference: OP-2150 Rev.25 page 3 #3

Learning Objective: LOT-00-271 Rev.9 CRO objective 5.

Question Source: VY 1997 Exam - Modified

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 97 (1.00)

Given the following conditions:

- The reactor is in COLD SHUTDOWN
- A loss of shutdown cooling occurred

Based on the direction in ON-3156, Loss of Shutdown Cooling, the SCRO directs a feed and bleed. RWCU letdown is established as the bleed method.

What system shall be directed as the feed method in accordance with ON 3156?

- a. Injection by using CRD pumps.
- b. Injection by using the CS pumps.
- c. Condensate Transfer through the LPCI system.
- d. Condensate and Feed using the condensate pumps.

Answer: a

KA: 295021AK302, Feed and Bleed [3.3/3.4]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 3

Reference: ON 3156, LOT-00-601, Obj. 3

Question Source: VY Exam Bank #3502, Rev. 1 (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 98 (1.00)

The unit is in a refueling outage with core alterations in progress. As the CRO, you note the following indications:

- "Rx Bldg/Refuel Flr CH B Rad Hi" annunciator 9-5-J-1 is lit.
- The reactor building ventilation system isolates.
- The standby gas treatment system initiated.

You shall immediately perform which one of the following:

- a. Determine if the alarm is a distraction (nuisance alarm) due to a transitory event.
- b. Announce via the Gaitronics to evacuate the refuel floor.
- c. Notify Chemistry and Rad. Protection to commence sampling and surveying to determined the source of the activity.
- d. Monitor the radiation instrument to determine if the alarm is due to downscale or high radiation.

Answer: b

KA: 295023AA104 Rad Monitoring Equipment

2.2.32 Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, etc.

KA Value: [3.4/3.7] [3.5/3.3]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 3

Reference: CRP 9-5-J-1

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 99 (1.00)

A leak into the Secondary Containment has resulted in entry into EOP-4, Secondary Containment Control. Two area temperatures have exceeded their Maximum Safe Operating Limit. As a result, the SCRO has directed an RPV-ED.

What is the basis for performing an RPV-ED?

- a. Precludes further area temperature increases, which will prevent operator access required for safe shutdown of the plant.
- b. Precludes further area temperature increases, which will pose a threat to environmental qualifications of equipment required for safe shutdown.
- c. Rejects heat to the main condenser in preference to the secondary containment.
- d. Rejects heat to the main condenser in preference to the primary containment.

Answer: b

KA: 295032EK3.01, Emergency/normal depressurization [3.5/3.8]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 3

Topic: RESPOND TO REACTOR BUILDING HIGH AREA TEMPERATURE/WATER LEVEL

Reference: LOI EB 3202, VY EOP Study Guide, LOT-00-611, EOP-4, SECONDARY
CONTAINMENT/RADIOACTIVITY RELEASE CONTROL, CRO 3

Question Source: VY Exam Bank #3705, Rev. 0

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 100 (1.00)

A fire protection header rupture has resulted in 5 inches of water in the RCIC room.

Entry into EOP-4 is:

- a. Required immediately.
- b. Required when water level reaches 12 inches.
- c. Not required because only one area was affected.
- d. Not required because the Fire Protection System is not a primary system.

Answer: a

KA: 295036EA2.02, Water level in the affected area [3.1/3.1]

Exam Level: B

Cognitive Level: Memory

Evolutions - Tier 1/Group 3

Topic: RESPOND TO REACTOR BUILDING HIGH AREA TEMPERATURE/WATER LEVEL

Reference: LOI EB 1299, VY EOP Man. Vol. 4, LOT-00-611, EOP-4 SECONDARY
CONTAINMENT/RADIOACTIVITY RELEASE CONTROL

Question Source: VY Exam Bank #3706, Rev. 0

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 101 (1.00)

A control room trend recorder for a Technical Specification parameter that is required to be continuously monitored has become inoperable.

WHICH ONE of the following describes operator actions in response to the inoperable trend recorder in accordance with AP-0150?

- a. Attach a yellow sticker to the recorder.
Log the parameter every 15 minutes.
- b. Attach a yellow sticker to the recorder.
Log the parameter every 60 minutes.
- c. Attach a caution tag to the recorder.
Log the parameter every 15 minutes.
- d. Attach a caution tag to the recorder.
Log the parameter every 60 minutes.

Answer: b

KA: G2.1.1 [3.7/3.8]

Exam Level: SRO

Cognitive Level: Memory

Reference: AP-0150, Rev. 32, Note 1, CRO Round Sheet, Pg. 22 of 23; SCRO Obj. 1

Question Source: 1997 VY NRC Exam

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 102 (1.00)

Plant conditions are as follows:

- Drywell pressure is 54 psig.
- Torus pressure is 55 psig.
- Drywell temperature is 360°F.
- Torus level is 22 ft.

WHICH ONE of the following describes the required action(s)?

- a. Spray the drywell.
- b. Spray the drywell and the torus.
- c. Spray the drywell and then RPV-ED.
- d. RPV-ED and then vent the Torus.

Answer: d

Drywell spray is not permitted on the unsafe side of the DWSIL graph. Also, Torus pressure can't be maintained on the safe side of PSP and Torus pressure exceeds PCPL-A. Attachment 2 should include the PC pressure leg of EOP-3 (Primary Containment Control) and graphs of DWSIL, PSP, PCPL-A or EOP-3 flow chart without entry conditions.

KA: 2.1.9 [4.0]

Exam Level: SRO

Cognitive Level: Higher Order

Reference Required: EOP-3 without entry conditions

Reference: EOP-3 and EOP Study Guide, Pg. 8-25 to 8-33

Question Source: New

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 103 (1.00)

The plant is operating at 65% power with only one outstanding LCO:

The "A" Core Spray pump is INOP due to an in-progress repair. There is no estimate of repair time. The system was declared INOP on the previous shift.

One hour into the shift, HPCI fails its scheduled surveillance due to a pump impeller failure and is declared INOP. There is no estimate of repair time.

Which one of the following actions describes the required Tech Spec actions?

- a. Power operation may continue for the next 7 days, provided, all active components of the other Core Spray Subsystem, the LPCI Subsystems, and the diesel generators required for operation of such components, if no external power were available, shall be operable.
- b. Power operation may continue for the next 7 days, provided, all active components of ADS, LPCI subsystems and the RCIC system are operable.
- c. An orderly shutdown of the reactor shall be initiated and the reactor shall be in a cold shutdown condition within 24 hours.
- d. An orderly shutdown shall be initiated and the reactor pressure shall be less than or equal to 150 psig within 24 hours.

Answer: d

KA: 2.1.12 [4.0], Ability to Apply T.S.

Exam Level: SRO

Cognitive Level: Higher Order

Topic: APPLY TS

Reference: TS 3.5.E.3; LOT-00-206, HIGH PRESSURE COOLANT INJECTION, L.O. SR0-1

Question Source: VY Bank #1843 (not used)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 104 (1.00)

The unit is at 80% power

- An applicable Tech Spec Surveillance with a 24 hour frequency was last performed satisfactorily at 0900 on 9/1/00.
- The LCO Required Actions direct that the equipment be restored to OPERABLE status in 4 hours, or be in HOT SHUTDOWN in 12 hours and COLD SHUTDOWN in 36 hours.

a scheduling error
If ~~equipment problems~~ prevent the surveillance from being performed, when is the unit required to be in COLD SHUTDOWN? *1*

- a. By 2100 on 9/3/00
- b. By 0100 on 9/4/00
- c. By 0300 on 9/4/00
- d. By 0700 on 9/4/00

Answer: d

KA: 2.1.25, Knowledge of bases in technical specifications [3.7]

Exam Level: SRO

Cognitive Level: Higher Order

Explanation of Answer: a. Incorrect, 9/1/00 at 0900 + 24 hr frequency + 36 hours to Cold Shutdown;

b. Incorrect, 9/1/00 at 0900 + 24 hr frequency + 6 hour grace + 36 hours to Cold Shutdown; c.

Incorrect, 9/1/00 at 0900 + 24 hr frequency + 4 hrs restoration + 36 hrs to Cold Shutdown; d. Correct, 9/1/00 at 0900 + 24 hr frequency + 6 hour grace + 4 hour restoration + 36 hours to Cold Shutdown

Reference: TS definition

Question Source: New

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: (1.00)

Editorial

Question: 105 (1.00)

Supervillence E test
A Post-Maintenance Test (PMT) requires the performance of a portion of a ~~ST~~ *Supervillence test* to stroke time a valve following maintenance to prove OPERABILITY. The Supervisory Control Room Operator notes that the acceptance criteria for valve stroke time needs to be changed due to a recent Tech Spec revision.

Which of the following describes the MINIMUM required procedure change in accordance with AP-0097 to use the ~~ST~~ *Supervillence test* to complete this PMT?

- a. A "Pre-approved Limited Procedure Change"
- b. A "Provisional Limited Procedure Change"
- c. A "One Time Only Change"
- d. A "Permanent Change"

Answer: a

KA: 2.2.11, Knowledge of the process of controlling temporary changes [3.4]

Exam Level: SRO

Cognitive Level: Memory

Reference: AP 0097, Rev. 1, Section 2.3

Question Source: New

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Editorial

Question: 106 (1.00)

As the refuel floor operator, you are removing a fuel channel. The channel fastener has been removed and you are in the process of removing the channel. While lowering the prep machine, the channel holder tool indicator is indicating a red color.

WHICH ONE of the following describes the significance of the red color on the indicator?

- a. Excessive load has been reached.
- b. Excessive peak load is being approached.
- c. The channel is moving freely and easily.
- d. Separation of the channel and fuel assembly has occurred.

Answer: a

KA: 2.2.28 [3.8]

Exam Level: SRO

Cognitive Level: Memory

Reference: OP-1102, LOT-00-234, Rev. 17, SRO Obj. 5, Pg. 29

Question Source: VY Bank #95; also, 1997 VY NRC Exam

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 107 (1.00)

An Unusual Event (UE) had been declared.

When the UE conditions no longer exist, WHICH ONE of the following is the lowest level emergency plan position that can authorize termination of the UE?

- a. Shift Supervisor/Plant Emergency Director
- b. TSC Coordinator
- c. OSC Coordinator
- d. Site Recovery Manager

Answer: b

KA: 2.4.29 [3.6/4.0]

Exam Level: SRO

Cognitive Level: Memory

Reference: OP-3500, Rev. 18, Page 6, Final conditions

Question Source: 1997 VY NRC Exam

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 108 (1.00)

The unit is at 100% power when the following timeline commences:

- At 1600, Severe winter storm warnings are in effect with high winds expected.
- At 1630, the Shift Supervisor, with concurrence from the Operations & Plant Managers, directs a unit shutdown using OT 3100, Manual Scram. Following the Manual Scram, 8 control rods are at unknown positions and reactor power is at 3%. Wind velocity onsite is now at 80 mph.
- At 1700, the storm causes a complete loss of offsite power. Both Emergency Diesel Generators (EDGs) failed to start. The Crew was successful at starting "A" EDG, but have been unable to close the output breaker. Reactor water level is at - 50" and decreasing.

It is currently 1718. Using the appendices of AP 3125 provided, classify these conditions to determine the appropriate current emergency action level.

- a. Unusual Event
- b. Alert
- c. Site Area Emergency
- d. General Emergency

Answer: d

KA: 2.4.29 [4.0], Knowledge of E-Plan

Exam Level: SRO

Cognitive Level: Higher Order

Material Required: AP 3125, Appendix A & B

Reference: AP 3125

Question Source: New

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 109 (1.00)

Which ONE of the following events is a one-hour reportable event?

- a. Loss of the Gaitronics system.
- b. Scram due to High Reactor Pressure.
- c. Inadvertent Group 3 Isolation while testing Reactor Building Ventilation Radiation Monitors.
- d. HPCI-14 (HPCI steam admission valve) found to be failed closed during monthly testing.

Answer: a

KA: 2.4.30 [3.6]

Exam Level: SRO Only

Cognitive Level: Memory

Topic: REPORT SAFETY LIMIT VIOLATIONS AND REPORTABLE OCCURRENCES

Reference: AP 0156, Rev. 22; LOT-01-400, OPERATIONS DEPARTMENT ADMINISTRATIVE,
L.O. SCRO-8

Question Source: VY Bank #1061 (last used 7/99)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 110 (1.00)

During NORMAL working hours, the SS had just made the determination the plant has entered an Unusual Event. The SS must ensure that the NRC Operations Center is notified:

- a. Immediately.
- b. As soon as possible, but not longer than 15 minutes.
- c. As soon as possible, but not longer than one hour.
- d. As soon as possible, but not longer than 4 hours.

Answer: c

KA: 2.4.40 [4.0], SRO Responsibilities in Emergency Plan

Exam Level: SRO Only

Cognitive Level: Memory

Reference: AP 0156; LOT-01-400, OPERATIONS DEPARTMENT ADMINISTRATIVE, L.O.
SCR0-8

Question Source: VY Bank #3180 (last used 7/99)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 111 (1.00)

With power ascension in progress, the "A" RBM causes an INOP TRIP Rod Block. I&C is called and they inform you that it will take \approx 18 hours to return this channel to service. Reactor power is at 55% and thermal limits indicate that you are not operating on a limiting control rod pattern.

Which of the following is correct?

- a. You are in a T.S. required shutdown and must declare an Usual Event making reports per AP 0156.
- b. The channel may be bypassed but you must initiate insertion of operable rods and complete insertion of all operable rods in 4 hours.
- c. The channel may not be bypassed and startup must be halted until the RBM channel is repaired. Repairs must be completed within 24 hours.
- d. The channel may be bypassed and startup may continue. Ensure the "A" RBM is returned to service within 24 hours.

Answer: d

KA: 2.2.24 [3.8], Ability to Analyze Affect of Maintenance Activities on LCO Status

Exam Level: SRO Only

Cognitive Level: Higher Order

Tier 2/Group 2

Topic: RESPOND TO RBM HI/INOP

Reference: Tech Spec Table 3.2.5 and Note 9; LOT-03-201, RBM, L.O. SCRO-1

Question Source: VY Bank #541 (last used 4/13/00)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 112 (1.00)

During Shift turnover, you are informed that Vermont Yankee is operating at 100% power with one outstanding LCO:

Two days ago, Standby Gas Treatment System "A" was declared INOP due to failure of SGT-3A damper. Repair time is estimated to take two (2) more days.

Three hours into the shift, the "B" Diesel Generator is declared INOP due to a loss of the Starting Air System. Which of the following most correctly describes the actions to be taken as a result of these plant conditions?

- a. Reactor operations may continue during the succeeding seven (7) days, provided that all low pressure core cooling and containment cooling subsystems associated with the "A" Diesel Generator are demonstrated operable, and daily thereafter.
- b. Reactor operations may continue for the succeeding five (5) days, provided the "B" Standby Gas Treatment System is demonstrated operable daily.
- c. The reactor shall be in a Hot Shutdown condition within 24 hours.
- d. The reactor shall be in Hot Shutdown within 12 hours, and in Cold Shutdown within the following 24 hours.

Answer: d

KA: 261000K6.01[3.0]

Exam Level: SRO

Cognitive Level: Higher Order

Reference: TS 3.7.C.3

Question Source: VY Question Bank #1699

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 113 (1.00)

Given the following:

- The plant is in a refueling outage.
- Fuel movement is in progress from the spent fuel pool to the RPV.
- The refuel platform operator is lowering a fuel bundle into the core when decreasing water level is noticed in the reactor cavity.
- The floor radiation levels are normal.
- All SRMs are operable.

As per OP 1101, Management of Refueling Activities and Fuel Assembly Movement, what action is required by the Refueling SRO if the assembly has been lowered half way into the core?

- a. Suspend the move, leave the bundle as-is.
- b. Suspend the move, return the fuel bundle to its original position in the spent fuel pool.
- c. Continue the move by lowering the bundle into its scheduled location in the core.
- d. Continue the move by lowering the bundle into the core but only with the concurrence of the Shift Supervisor and Reactor Engineer.

Answer: c

KA: 2.2.26 [3.7] Knowledge of refueling administrative requirements.

Exam Level: SRO only

Cognitive Level: Higher Order

Reference: OP 1101, Management of Refueling Activities and Fuel Assembly Movement, precautions pg 6 of 39.

Question Source: New Question

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 114 (1.00)

With the Mode Switch in Startup, at 1200 on 9/5/00, the Downscale Trips for IRM Channels "A", "B", and "E" are made inoperable.

Which ONE of the following is the LATEST that one of these channels must be placed in a tripped condition?

- a. 1300 on 9/5/00
- b. 1200 on 9/6/00
- c. 1200 on 9/12/00
- d. 1300 on 9/12/00

Answer: c

KA: 215003 K3.01 [4.0], Loss or Malfunction Effect on RPS

Exam Level: SRO Only

Cognitive Level: Higher Order

Tier 2/Group 1

Topic: PLACE AN INTERMEDIATE RANGE INSTRUMENT IN/OUT OF SERVICE

Reference: TS Table 3.2.5; LOT-02-215, INTERMEDIATE RANGE MONITORS (IRM), SCRO-1

Question Source: VY Bank #3318 (last used 10/99)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 115 (1.00)

A reactor startup is in progress and reactor power is 18%. APRMs "A" and "B" are bypassed and IRM "E" is bypassed. Which one of the following is correct for this condition?

- a. No action is required. The Technical Specification requirements for the minimum number of APRMs for RPS and Rod Blocks must be tracked but the minimum number is currently satisfied.
- b. The minimum number of APRM inputs for one of the Rod Block Trip Systems is not met. A seven day LCO must be entered and the operable rod block trip system tested immediately and daily thereafter.
- c. The minimum number of APRM inputs for one of the RPS trip systems is not met. The RPS "A" trip system must be placed in a trip condition.
- d. The minimum number of APRM inputs for one trip system of RPS and the Rod Block trips is not met. The RPS "A" trip system must be placed in a trip condition and the operable rod block trip system tested immediately and daily thereafter.

Answer: c

KA: 215005, K1.02 [3.7]

Exam Level: SRO Only

Cognitive Level: Higher Order

Tier 2/Group 1

Topic: PLACE AN INTERMEDIATE RANGE INSTRUMENT IN/OUT OF SERVICE

Reference: T.S. Table 3.1.1, Note 3 and OP 0105 (Rev. 5), Phase 2, Precaution 11, LOT-05-215, AVERAGE POWER RANGE MONITOR (APRM), L.O. SCR0-1

Question Source: VY Bank #3342 (last used 8/21/98)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 116 (1.00)

Given the following conditions:

- The unit is in a refueling outage.
- The Mode Selector Switch is in "Refuel".
- The Refueling Platform is over the spent fuel pool.
- A fuel bundle has been loaded on the Main Hoist and raised out of the fuel pool storage rack.

Which of the following actions would result in a rod block?

- a. The Refueling Platform operator raises the Main Hoist to the "full up" position.
- b. The Unit Reactor Operator places the Mode Selector Switch in "Startup/Hot Standby".
- c. The Refueling Platform operator moves the platform over the reactor vessel.
- d. The Unit Reactor Operator selects, but does NOT withdraw, a single control rod.

Answer: c

KA: 295023AK302 Interlocks associated with fuel handling equipment [3.8]

Exam Level: SRO

Cognitive Level: Higher Order

Tier 2/Group 3

Reference: LOT-02-201, App. B

Question Source: New

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 117 (1.00)

You are the SS on shift and the plant is operating at 100% power, when indications/alarms detect an AS-2 battery output breaker tripped condition. Subsequent investigation by electrical maintenance reveals that the breaker will not remain closed. In accordance with Technical Specifications which one of the below listed actions is correct?

- a. Continued reactor operation is permissible if DG-1-1A control power is shifted to Station Battery B-1.
- b. Continued reactor operation is permissible if DG-1-1A control power is shifted to Station Battery B-1 and a 2 hour fire watch is established.
- c. Battery AS-2 must be declared inoperable and the reactor must be shutdown in 24 hours.
- d. No action is required because Battery AS-2 does not have a limiting condition for operation.

Answer: b

KA: 264000 K6.09 [3.5], Knowledge of effect of loss of DC Power

Exam Level: SRO

Cognitive Level: Higher Order

Tier 2/Group 1

Topic: TS-DC DIST.

Reference: Tech Spec 3.10 / TRM 3.10; LOT-00-263 DC ELECTRICAL DISTRIBUTION SYSTEM, L.O. SCRO-1

Question Source: VY Bank #2988 (last used 1/7/00)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

*Tech Reg Manual update manual ok
reference #117*

Question: 118 (1.00)

A common mode failure mechanism with Service Water pressure switches PS-104-120A/B/C/D has been discovered. The Service Water System Engineer reports that the automatic isolation function of the SW Non-Essential Cooling Loop provided by SW-19A/B and SW 20 will not function if required. The engineer reports that replacement of the defective pressure switches will take at least 36 hours.

Based on this information, what, if any action, is required?

- a. The SW system is inoperable. An orderly shutdown shall be initiated and the reactor shall be in cold shutdown within the next 24 hours.
- b. The SW system is inoperable. Reactor operation is permissible only for the next 7 days unless the auto isolation function is made operable.
- c. The SW system can still be considered operable if the Non-Essential Cooling Loop is manually isolated. Continued reactor operation is permissible provided SW-19A/B and SW-20 are closed and remain closed.
- d. The SW System is still operable because the common failure mechanism only affects isolation of the Non-Essential Cooling Loop.

Answer: a

KA: 40000K1.01 [3.3]

Exam Level: SRO

Cognitive Level: Higher Order

Tier 2/Group 2

Reference: TS 3.5.D.4 and basis; LOT-00-276 Service Water; SRO 3; OP 2181, App C.

Question Source: VY Bank #3793

FACILITY: Vermont Yankee Exam Date: Sept. 18, 2000

Question: 119 (1.00)

A plant transient occurs resulting in a reactor scram and appropriate PCIS isolations. The following conditions exist:

- RPV level is 155 and steady.
- Torus sprays are in service.
- Torus venting using CAD is in progress.
- Drywell pressure is 15 psig and steady.
- Drywell temperature is 250 degrees F. and increasing.
- Torus pressure is 14 psig and steady.
- Torus level is 11 feet.
- Drywell and Torus H2 are both at 0.4%.

In accordance with EOPs, WHICH ONE of the following actions is correct?

- a. Initiate drywell sprays
- b. Execute RPV-ED
- c. Restart drywell cooling
- d. Secure venting the torus via CAD

Answer: a

KA: 2.1.9 [4.0]

Exam Level: SRO

Cognitive Level: Higher Order

Tier 1/Group 2

Reference: EOP-3, Primary Containment Control, LOT-00-607, SE-2

Question Source: 1997 VY NRC Exam

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 120 (1.00)

A full power ATWS occurred which caused excessive heat input to the Torus and resulted in a Torus leak. The following conditions currently exist:

- Main Condenser is available.
- Six rods are stuck full out, all other rods are fully inserted.
- Reactor pressure: 950 psig.
- Torus temperature: 190 degrees F. and steady.
- Torus level 11 ft. and dropping.

Determine which of the following actions are required by EOPs as Torus level drops from 11 ft. to 10 ft.

- a. Perform an Emergency Blowdown using EOP-5.
- b. Perform an Emergency Blowdown using Bypass valves.
- c. Depressurize to 900 psig.
- d. Depressurize to 450 psig.

Answer: d

KA: 2.1.25 [3.1], Ability to obtain and interpret station reference materials such as graphs, monograph, and tables which contain performance data

Exam Level: SRO

Cognitive Level: Higher Order

Tier 1/Group 1

Explanation of Answer: Reactor pressure must be dropped to stay on the safe side of the curve.

Dropping pressure to 450 psig will put you on an appropriate curve to keep you safe with torus level > or equal to 10 feet.

Materials Required: EOP-2 ATWS without entry conditions

Reference: EOP-2, ATWS RPV Control

Question Source: New

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 121 (1.00)

A LOCA has occurred and the following conditions exist:

- Reactor pressure is 400 psig
- Reactor is shutdown
- Drywell pressure is 8.5 psig
- Drywell temperature is 270 degrees F.
- Torus temperature is 100 degrees F.
- Instrument reference leg temperatures are 310 degrees F.

WHICH ONE of the following instruments would be a reliable reactor vessel level indication under the listed conditions?

- a. LT-57A indicates 79 inches.
- b. LT-57B indicates 80 inches.
- c. LT-68A indicates 81 inches.
- d. LT-68B indicates 83 inches.

Answer: d

KA: 295028EK101 [3.5/3.7]

Exam Level: SRO

Cognitive Level: Higher Order

Tier 1/Group 1

Reference: EOP-3, Minimum Indicated Level Curve, LOT-00-607, SE #2

Reference Material provided: EOP-3, Minimum Indicated Level Curve

Question Source: 1997 VY NRC Exam (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 122 (1.00)

A loss of all RPV level indication due to high drywell temperature has occurred. The reactor was successfully scrammed at 0950. The following conditions were satisfied at 1120 hours:

- 4 SRVs were manually opened.
- RPV pressure - steady at 120 psig.
- Torus water level - 12.7 feet.
- Torus pressure - 2 psig and stable.
- DW pressure - 2 psig and stable.
- DW temperature - 195 degrees F. and stable.
- Core spray pump "B" injecting.
- RPV water level instrumentation is operational.

For these conditions, injection should be maintained to restore RPV level indication until:

- a. 1145 hours
- b. 1154 hours
- c. 1223 hours
- d. 1250 hours

Answer: b

KA: 295028 EK3.02 [3.8]

Exam Level: SRO

Cognitive Level: Higher Order

Tier 1/Group 2

Reference: EOP-6, LOT-00-608, SRO L.O. #3; EPGs, App. B

Question Source: 1997 VY NRC Exam and VY Bank #1310 (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Reference provided graph for MAX uncovering time

Question: 123 (1.00)

The following plant conditions exist:

- The plant is operating at 100 percent power with all systems normal.
- An armed, violent intruder has gained access to the reactor building.
- An explosive device has detonated causing a 6 inch hole in the bottom of the torus.
- Torus water level is 7.0' and lowering at 2 inches per minute.
- Emergency Make-Up efforts are hindered by the intruder threat.
- The reactor is manually scrammed.
- Control rod 14-31 is stuck at position 48.
- Control rod 42-27 is stuck at position 02.

Assuming a constant inventory loss rate, which one of the following actions must you direct IAW EOPs?

- a. Emergency depressurize open all SRVs
- b. Rapidly depressurize using the Turbine Bypass Valves
- c. Wait for torus level to drop below 5.5' then open all SRVs
- d. Wait for torus level to drop below 5.5' then rapidly depressurize using the turbine bypass valves

Answer: a.

KA: 295030EA 2.93 [3.9]

Exam Level: SRO

Cognitive Level: Higher Order

Tier 1/Group 2

References: EOP - 2,3,5

Question Source: New

FACILITY: Vermont Yankee Exam Date: Sept. 18, 2000

Question: 124 (1.00)

WHICH ONE of the following conditions requires RPV-ED in accordance with EOPs?

Assume a primary system is discharging into the areas listed.

- a. NE corner room - 232' area temperature is 195 deg. F.
NE corner room - 213' area temperature is 192 deg. F.
- b. TIP room radiation level - RB 252' North is 1 rem/hr.
Torus catwalk radiation level is 1.2 rem/hr
- c. Torus room SW area - 213' temperature is 240 degrees F.
Torus room NW area - 213' temperature is 270 degrees F.
- d. Elevator entrance radiation level - RB 318' NW is 800 mr/hr.
RWCU precoat radiation level - RB 318' NW is 1.2 mr/hr.

Answer: b

KA: 295033 EK301 [3.5]

Exam Level: SRO

Cognitive Level: Memory

Tier 1/Group 2

Reference: EOP-4, Table Secondary Containment Limits, LOT-00-611, Rev. 9, SRO Obj. 4

Reference Provided: EOP-4, Table Secondary Containment Limits Only

Question Source: 1997 VY NRC Exam (MODIFIED)

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

Question: 125 (1.00)

Unit conditions are as follows:

- A plant shutdown is in progress due to high coolant activity.
- HVAC exhaust radiation level is 10 mRem/hr and steady.
- The noble gas discharge to areas at the site boundary results in dose rates of 4,500 mRem/year to the total body.

WHICH ONE of the following identifies the minimum Emergency Classification Level (EAL) Classification and the requirement to enter EOP-4?

| <u>EAL</u> | <u>EOP-4 Entry Required</u> |
|------------------|-----------------------------|
| a. Unusual Event | Yes |
| b. Unusual Event | No |
| c. Alert | Yes |
| d. Alert | No |

Answer: b

KA: 295038, EK1.02 [4.4], High Offsite Release - Protection of Public

Exam Level: SRO

Cognitive Level: Higher Order

Tier 1/Group 2

→ Material Required: AP 3125, Appendix A

Reference: AP 3125, Appendix A; EOP-4

Question Source: New

FACILITY: Vermont Yankee

Exam Date: Sept 18, 2000

NOTE:

Paul,
Summary

VERMONT YANKEE - RO EXAM - ANSWER KEY - 09/00

24-"A"; 30-"B"; 24-"C"; 22-"D"

I will
make the...
SRO answer
Key after
the exam
REVIEW

| QUES | ANS | | | | | QUES | ANS | | | | |
|------|-----|--|--|--|--|------|-----|--|--|--|--|
| 1. | C | | | | | 26. | D | | | | |
| 2. | C | | | | | 27. | A | | | | |
| 3. | D | | | | | 28. | C | | | | |
| 4. | A | | | | | 29. | D | | | | |
| 5. | D | | | | | 30. | C | | | | |
| 6. | D | | | | | 31. | C | | | | |
| 7. | B | | | | | 32. | D | | | | |
| 8. | C | | | | | 33. | B | | | | |
| 9. | B | | | | | 34. | D | | | | |
| 10. | C | | | | | 35. | B | | | | |
| 11. | D | | | | | 36. | B | | | | |
| 12. | A | | | | | 37. | C | | | | |
| 13. | B | | | | | 38. | A | | | | |
| 14. | B | | | | | 39. | D | | | | |
| 15. | D | | | | | 40. | C | | | | |
| 16. | C | | | | | 41. | B | | | | |
| 17. | D | | | | | 42. | B | | | | |
| 18. | C | | | | | 43. | D | | | | |
| 19. | D | | | | | 44. | B | | | | |
| 20. | A | | | | | 45. | A | | | | |
| 21. | C | | | | | 46. | B | | | | |
| 22. | A | | | | | 47. | A | | | | |
| 23. | D | | | | | 48. | B | | | | |
| 24. | B | | | | | 49. | C | | | | |
| 25. | A | | | | | 50. | B | | | | |

5A 5B 7C 8D

6C 4A 9B 6D

VERMONT YANKEE - RO EXAM - ANSWER KEY - 09/00

| QUES | ANS | | | | | QUES | ANS | | | | |
|------|-----|--|--|--|--|------|-----|--|--|--|--|
| 51. | B | | | | | 76. | A | | | | |
| 52. | B | | | | | 77. | B | | | | |
| 53. | C | | | | | 78. | C | | | | |
| 54. | A | | | | | 79. | A | | | | |
| 55. | A | | | | | 80. | D | | | | |
| 56. | C | | | | | 81. | B | | | | |
| 57. | D | | | | | 82. | B | | | | |
| 58. | B | | | | | 83. | B | | | | |
| 59. | A | | | | | 84. | B | | | | |
| 60. | A | | | | | 85. | B | | | | |
| 61. | D | | | | | 86. | B | | | | |
| 62. | D | | | | | 87. | B | | | | |
| 63. | A | | | | | 88. | D | | | | |
| 64. | C | | | | | 89. | D | | | | |
| 65. | C | | | | | 90. | C | | | | |
| 66. | A | | | | | 91. | C | | | | |
| 67. | C | | | | | 92. | D | | | | |
| 68. | A | | | | | 93. | A | | | | |
| 69. | A | | | | | 94. | C | | | | |
| 70. | D | | | | | 95. | B | | | | |
| 71. | A | | | | | 96. | C | | | | |
| 72. | B | | | | | 97. | A | | | | |
| 73. | C | | | | | 98. | B | | | | |
| 74. | A | | | | | 99. | B | | | | |
| 75. | B | | | | | 100. | A | | | | |

10A 5B 6C 4D
 24A 30B 24B 22D
 54 46

5C 5A 11B 4D