

Final Submittal
(Blue Paper)

V.C. Summer
2007-301

June 13, 2007

Combined RO/SRO Written Exam with KAs,
Answers, References, and Analysis

V. C. SUMMER JUNE 2007 EXAM

EXAM NO. 05000395/2007301

JUNE 4 - 8, 2007 (OP TEST)

JUNE 13, 2007 (WRITTEN EXAM)

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

7. 003 A4.08 003/BANK/VC SUMMER/LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the setpoints for the two (2) annunciators below?

	<u>RCP A/B/C THERM BAR & BRG FLO LO</u>	<u>CCBP DISCH HDR PRESS LO</u>
A.	90 gpm	30 psig
B✓	90 gpm	70 psig
C.	50 gpm	30 psig
D.	50 gpm	70 psig

A. Incorrect. TB flow is correct but discharge pressure is incorrect. Plausible because it is the auto trip pressure for the CCBP

B. Correct.

C. Incorrect TB flow too low, alarm would have come in at 90. Pressure is too low also

D. Incorrect. TB flow too low, alarm would have come in at 90, but pressure is correct

Ability to manually operate and/or monitor in the control room: RCP cooling water supplies

KA Value: 3.2

Question 1

Reference Provided to Applicants: NONE

Technical Reference: IB-2, XCP-603, 3-4, XCP-601, 2-3

Lesson Objective: IB 2-13

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

9. 004 A3.05 003/MODIFIED//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is in Mode 5.
- The PZR is solid.
- RCS temperature is 190°F.
- RCS pressure is 315 psig.
- Letdown Pressure Control Valve PCV-145 is in AUTO.
- FCV-605A, "A" BYP, and FCV-605B, "B" BYP, are in MANUAL.

Which ONE (1) of the following describes a condition that will *initially* cause PCV-145 to CLOSE?

- A. Lowering the output of the controller for the in-service RHR heat exchanger flow control valve.
- B✓ Raising CCW flow through the in-service RHR Heat Exchanger.
- C. Lowering the setpoint of PCV-145.
- D. Starting an additional RHR Pump.

A. Incorrect. Lowering RHR HX Outlet flow will cause a higher temperature to be seen, meaning pressure will also be increased. PCV-145 opens to compensate

B. Correct. Temperature of RHR HX outlet will lower. Solid plant, pressure will lower with a temperature reduction. When PCV 145 senses lower pressure, it will close.

C. Incorrect. Lowering the setpoint of PCV-145 would call for a lower pressure. The inverse operation of PCV-145 would open the valve to raise letdown through RHR, which would lower RCS pressure

D. Incorrect. Pressure is sensed very close to RHR Pump discharge. Pressure would be sensed as high, and valve would open to lower pressure to the setpoint.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to monitor automatic operation of the CVCS, including: RCS pressure and temperature

KA Value: 3.9

Question 2

Reference Provided to Applicants: NONE

Technical Reference: AB-3 HO

Lesson Objective: AB-3-07

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

10. 005 K3.07 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is in Mode 6.
- "B" Train RHR is in service.
- "A" Train RHR is out of service and expected to be returned to service in approximately 2 hours.
- Refueling is in progress.
- Cavity level is 23.5 feet above the reactor vessel flange.

"B" RHR Pump trips and cannot be restarted.

Which ONE (1) of the following describes the operational restriction(s) associated with this event?

- A. Refueling Cavity level must be raised to greater than 24 feet above the reactor vessel flange prior to continuing refueling activities.
- B. Refueling activities are permitted for up to 1 hour while repairs are initiated to "B" RHR Pump.
- C. All containment penetrations with a direct path to atmosphere must immediately be verified closed.
- D✓ Suspend all activities that could result in a reduction in boron concentration of the RCS.

A. Incorrect. Cavity level already meets requirement of 23'. 24' not required

B. Incorrect. Credible because asterisk in TS 3.9.7.1 allows 1 hour with RHR but not for system failure

C. Incorrect. Containment Isolation not immediately required. Not a fuel handling accident

Correct per TS 3.9.7.1

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the effect that a loss or malfunction of the RHRS will have on the following:
Refueling operations

KA Value: 3.2

Question 3

Reference Provided to Applicants: NONE

Technical Reference: AOP-115.4, TS 3.9.7.1

Lesson Objective: 2310

10CFR55: 41.10, 43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

12. 006 K2.01 002/BANK/VCS/LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following directly supplies power to Charging Pump "A" and RHR Pump "A"?

	<u>Charging Pump "A"</u>	<u>RHR Pump "A"</u>
A.	1DA	1DA
B.	1DA1	1DA
C✓	1DA	1DA1
D.	1DA1	1DA1

C. Correct.

A. Incorrect. RHR is 480 Volts load

B. Incorrect. Power supplies are reversed

D. Incorrect. Charging Pump is 7.2 KV load

Knowledge of bus power supplies to the following: ECCS pumps

KA Value: 3.6

Question 4

Reference Provided to Applicants: NONE

Technical Reference: AB-10

Lesson Objective: AB-10-13

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

11. 006 A3.07 003/MODIFIED//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant was operating at 100% power.
- 7.2 KV Transformer XTF-4 was lost due to a fault.
- The associated D/G did NOT start as designed.
- Subsequently, a LOCA caused a reactor trip and safety injection.
- RCS pressure is currently 350 psig and trending down slowly.

Which ONE (1) of the following describes the operation of RHR Pumps for this condition?

- A. RHR pump A running with its miniflow valve open
- B. RHR pump A running with its miniflow valve closed
- C. RHR pump B running with its miniflow valve open
- D. RHR pump B running with its miniflow valve closed

A Incorrect. Wrong pump, correct miniflow position

B Incorrect. Wrong pump, incorrect valve position

C Correct. RHR pump A is fed from bus 1DA. Transformer XTF-4 normally supplies bus 1DA and therefore RHR pump A. Miniflow open because it will be in auto with RCS pressure above RHR Shutoff head, and flow will be less than 1300 GPM

D Incorrect. Miniflow valve will be open because of low RHR flow

Ability to monitor automatic operation of the ECCS, including: RHR pumps

KA Value: 3.6

Question 5

Reference Provided to Applicants: NONE

Technical Reference: AB-10, AOP 304.1, GS-2

Lesson Objective: AB-10-8

10CFR55: 41.7

Comments:

Taskmaster Question # 4982

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

13. 007 A4.04 004/BANK/WTSI/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is operating in Mode 1 at 100% power.
- The following indications are reported by the RO.
 - TI-471, PRT Temperature is trending up and is now at 158°F.
 - PI-472, PRT Pressure is trending up and is now at 8 psig.

Which ONE (1) of the following components, if leaking, will cause this condition?

- A. XVR-8708A, RHR Pump "A" Suction Relief Valve.
- B. XVR-8121, RCP Seal Return Relief Valve.
- C. XVR-7169, RCDT Pumps Suction Relief Valve.
- D. XVS-8010, PZR Safety Valve.

A-Incorrect. 8708A(B) relieve to the PRT, but at 100% power, the temperature should be closer to ambient temperature. Credible because an ISLOCA through 8701A and 8702A would cause both pressure and temperature in the PRT to increase.

B-Incorrect. 8121 discharges to the PRT but would not cause temp to rise to 148 degrees

C-Incorrect. 7169 is credible because it is inside the RB and would cause pressure and temperature to increase (design temp is 170F); however, it is wrong because this valve relieves to the RB Sump (see E-302-735 and E-911-101).

*D-Correct. Safety valve leakage would be annunciate by Acoustic Monitors
Ability to manually operate and/or monitor in the control room: PZR vent valve*

KA Value: 2.6

Question 6

Reference Provided to Applicants: NONE

Technical Reference: E-302-673, E-302-602

Lesson Objective: AB-2-5

10CFR55: 41.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

16. 008 K1.03 003/BANK//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following:

- The plant is at 100% power.
- All systems are in their normal alignments.
- A leak occurs in the Letdown Heat Exchanger.

Assuming no action by the crew, which ONE (1) of the following describes the effect(s) on the CCW System?

- A. RM-L2A/B indication rises. Surge Tank vent valve PVV-7096 closes when the indication reaches the ALERT level.
- B✓ RM-L2A/B indication rises. Surge Tank vent valve PVV-7096 closes when the indication reaches the HI RAD level.
- C. Surge Tank level lowers. CCW Booster Pumps will trip on low suction pressure.
- D. Surge Tank level lowers. CCW Pumps will lose suction when the Surge Tank empties.

A Incorrect. L/D HEX will cause indication to rise because it is at a higher pressure than CCW. Alert level gives alarm but no valve closure

B Correct

C Incorrect. Level will rise because there will be inflow to CCW. If applicant misunderstands pressure relationship, they could arrive at this answer because CCWBPs do have a low pressure trip

D Incorrect. Level will rise, so CCW BP's will not lose suction.

Knowledge of the physical connections and/or cause-effect relationships between the CCWS and the following systems: PRMS

KA Value: 2.8

Question 7

Reference Provided to Applicants: NONE

Technical Reference: IB-2, XCP-645-3-3

Lesson Objective: IB 2-23

10CFR55: 41.7

Comments:

Taskmaster Question # 3845

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

19. 010 A3.01 002/BANK/VC SUMMER/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The Plant is in Mode 3.
- A PZR PORV begins leaking to the PRT.
- Pressurizer pressure is 985 psig.
- PRT pressure is steady at 5 psig.
- PRT temperature is steady at 90°F.

Assume:

- Ambient heat losses are negligible.
- Steam quality in the pressurizer is 100%.

Which ONE (1) of the following would be the approximate MCB indication on TI-463, RELIEF TEMP °F?

- A. 225°F
- B. 275°F
- C✓ 300°F
- D. 325°F

- A. *Incorrect. Credible because saturation temperature for 20.0 psia/5 psig is approximately 230°F.*
- B. *Incorrect. Credible since it is slightly below the next smallest incremental value on the Mollier.*
- C. *Correct. Enthalpy at 985 psig/1000 psia is around 1192 BTU/lbm. On the Mollier, following the constant enthalpy line to the intersection of the 20 psia line yields a point almost half-way between 280°F and 320°F.*
- D. *Incorrect. Credible since it is slightly above the next largest incremental value on the Mollier*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to monitor automatic operation of the PZR PCS, including: PRT temperature and pressure during PORV testing

KA Value: 3.0

Question 8

Reference Provided to Applicants: Steam Tables

Technical Reference: Steam Tables

Lesson Objective: AB-2-7

10CFR55: 41.5

Comments: Modified from VCSNS Bank question THERMAL SCIENCES 020.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

22. 012 K1.07 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A reactor trip has occurred from 100% power.
- Reactor Trip Breaker "B" remains CLOSED.

Which ONE (1) of the following describes the effect on the Steam Dump System?

- A. The steam dump valves will open and maintain Tavg at 557°F.
- B. The steam dumps will remain closed following the reactor trip due to loss of the arming signal.
- C. The steam dumps will remain closed following the reactor trip due to loss of the 'plant trip' modulation signal.
- D✓ The steam dump valves will open and maintain Tavg at 559°F.

A. Incorrect. For this to be true there would have to be a pressure input failure or steam dump failure. This failure is a plant trip controller failure to activate

B. Incorrect. Arming signal would be lost in plant trip mode from other trip breaker

C. Incorrect. Signal is lost, but steam dumps will open because they will sense a load reject (C-7)

D. Correct. Loss of P-4 Train B, steam dumps will not transfer to plant trip mode. Load Reject will be sensed and steam dumps will open

Knowledge of the physical connections and/or cause effect relationships between the RPS and the following systems: SDS

KA Value: 2.9

Question 9

Reference Provided to Applicants: NONE

Technical Reference: IC-1

Lesson Objective: IC-1-7

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

23. 012 K2.01 001/BANK/WTSI/LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the source of control power to Reactor Trip Breaker "B" and Reactor Trip Bypass Breaker "B"?

	<u>Reactor Trip Breaker B</u>	<u>Reactor Trip Bypass Breaker B</u>
A. ✓	125 VDC Bus 1HB	125 VDC Bus 1HB
B.	125 VDC Bus 1HB	125 VDC Bus 1HA
C.	120 VAC APN-5902	120 VAC APN-5902
D.	120 VAC APN-5902	120 VAC APN-5901

A. *Correct.*

B. *Incorrect*

C. *Incorrect. Signal to trip originates from SSPS, which is powered by 120 VAC power*

D. *Incorrect. Signal to trip originates from SSPS, which is powered by 120 VAC power, and power is aligned from opposite train*

Control power is provided by 125 VDC Busses. Signal to trip originates from SSPS
Knowledge of bus power supplies to the following: RPS channels, components, and interconnections

KA Value: 3.3

Question 10

Reference Provided to Applicants: NONE

Technical Reference: IC-9, IC-5

Lesson Objective: IC-5-15

10CFR55: 41

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

25. 013 K1.06 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A reactor trip has occurred coincident with a loss of off-site power.
- While performing action in the EOPs, the following events occur:
 - RCS pressure is 1700 psig and lowering.
 - RB pressure is 4.7 psig and rising slowly.
- Three minutes after these indications are observed, APN-5904 fails and becomes de-energized.

Which ONE (1) of the following describes the effect, if any, on plant equipment after the APN failure?

- A✓ Train A and Train B ECCS equipment is operating as required; Train A and Train B RB Spray Pump discharge valves are open.
- B. Train A and Train B ECCS equipment is operating as required; Train A and Train B RB Spray Pump discharge valves are closed.
- C. Train A ECCS equipment is operating as required; Train B ECCS equipment is NOT running; Train A and Train B RB Spray Pump discharge valves are open.
- D. Train A ECCS equipment is operating as required; Train B ECCS equipment is NOT running; Train A and Train B RB Spray Pump discharge valves are closed.

A is correct. Loss of power to the ESFLS after it has performed its function will not result in trip of ECCS components. Spray Isolation valves are opened on Phase A

B. Incorrect. Spray discharge valves would be open. Credible if applicant believes they open on HIGH-3

C. Incorrect. Train B will also be running. Equipment will not trip after the ESFLS has performed its function

D. Incorrect. Train B will be running and spray isolation valves will be open

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems: ECCS

KA Value: 4.2

Question 11

Reference Provided to Applicants: NONE

Technical Reference: AB-8

Lesson Objective: AB-8-7

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

26. 013 K3.03 002/BANK//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA has occurred.
- RCS pressure is 200 psig.
- "A" Reactor Building Spray Pump is Out of Service.
- Containment pressure has exceeded the High-3 setpoint.
- Train "B" Phase A has failed to actuate.
- All other actuations and Train "A" ECCS equipment is running as required.
- The most recent Chemistry sample of the RCS indicated that RCS activity is 5×10^{-2} microcuries/ml Dose Equivalent Iodine.

Assuming no action by the crew, which ONE (1) of the following describes the effect on the plant?

- A. Containment will exceed its design pressure.
- B. Off-Site releases will exceed accident analysis assumptions.
- C✓ Only 1 Containment Isolation Valve in each Phase A penetration will be closed.
- D. Only half of the Containment penetrations required for isolation will receive isolation signals.

A-Incorrect. RB Spray from 1 train will maintain design.

B. Incorrect. 1 valve in each penetration is closed

C. Correct. If 1 train fails, the system will still perform its function with the other train

D. Incorrect. Half the valves will be closed, but all the penetrations will still be isolated

Knowledge of the effect that a loss or malfunction of the ESFAS will have on the following:
Containment

KA Value: 4.3

Question 12

Reference(s) - AB-9, IC-9

Proposed References to be provided to applicants during examination - NONE

Learning Objective - 21

10 CFR Part 55 Content - 41.7

Comments -

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

33. 022 G2.4.46 002/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant was at 100% power.
- A reactor trip and safety injection occurred.
- RBCUs XFN-0064A and XFN-0064B started in SLOW.
- While performing the actions of EOP-1.0, *Reactor Trip/Safety Injection Actuation*, the following alarms are received in the control room:
 - XCP-605-3-1, SW FR RBCU 1B/2B FLO LO
 - XCP-605-3-2, SW FR RBCU 1B/2B PRESS LO

Which ONE (1) of the following choices contains both of the conditions that could each independently cause these annunciators to alarm?

- A. SWBP "B" tripped;
MVG-3111B, RBCU 64B/65B TO IND COOLING going CLOSED.
- B✓ SWBP "B" tripped;
MVG-3109C, RBCU 64B OUTLET ISOL going CLOSED.
- C. XFN-0064B (1B RBCU SS FAN) tripped;
MVG-3108C, RBCU 64B INLET ISOL going CLOSED.
- D. XFN-0064B (1B RBCU SS FAN) tripped;
MVG-3109D, RBCU 65B OUTLET ISOL going CLOSED.

A Incorrect. Wrong valve for alarm

B Correct

C Incorrect because, while RBCUs are cooled by SW, RBCU trip would cause different alarms.

D Incorrect because, while RBCUs are cooled by SW, RBCU trip would cause different alarms.

QUESTIONS REPORT

for VCS 2007 NRC EXAM AS GIVEN

Emergency Procedures / Plan Ability to verify that the alarms are consistent with the plant conditions.

KA Value: 3.5

Question 13

Reference Provided to Applicants: NONE

Technical Reference: XCP-606, D-301-222

Lesson Objective: IB-1-13

10CFR55: 41.7

Comments:

QUESTIONS REPORT

for VCS 2007 NRC EXAM AS GIVEN

34. 026 K2.02 001/BANK/VC SUMMER/LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the power supplies that directly feed Containment Spray Header Isolation Valves XVG-3003A and XVG-3003B, respectively?

- A. XSW1DA1 and XSW1DB1
- B. XMC1DA2X and XMC1DB2Y
- C. XMC1DB2X and XMC1DA2Z
- D. XMC1DA2Z and XMC1DB2X

A Incorrect. Power supply to RB Spray Pumps

B Correct

C Incorrect. NaOH and Suction valve power supply

D Incorrect. Power supply for RB Spray system heat tracing

Knowledge of bus power supplies to the following: MOVs

KA Value: 2.7

Question 14

Reference Provided to Applicants: NONE

Technical Reference: GS-2, AB-8, SOP-116, Att 2

Lesson Objective: AB 8-15

10CFR55: 41.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

35. 026 K4.07 002/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA has occurred.
- RCS pressure is 450 psig.
- Reactor Building pressure is 18 psig and lowering.
- RWST level is lowering.
- Reactor Building Sump level is rising.
- "A" Reactor Trip Breaker remained closed.

Which ONE (1) of the following describes the operation of the Reactor Building Spray system as the event continues?

RB Spray Pump suction to the RB Sump Valves, MVG-3005A and B . . .

- A. are manually opened when RWST level reaches its setpoint. RB Spray Pump suction valves from RWST, MVG-3001A and B, are manually closed when MVG-3005A and B are fully open.
- B. automatically open when RWST level reaches its setpoint. RB Spray Pump suction valves from RWST, MVG-3001A and B, automatically close when MVG-3005A and B are fully open.
- C. are manually opened when Reactor Building Sump level reaches its setpoint. RB Spray Pump suction valves from RWST, MVG-3001A and B, are manually closed when MVG-3005A and B are fully open.
- D. automatically open when Reactor Building Sump level reaches its setpoint. RB Spray Pump suction valves from RWST, MVG-3001A and B, automatically close when MVG-3005A and B are fully open.

A Incorrect. Valves have auto feature on level. Credible because manual swapover is standard design

B Correct.

C Incorrect. RB Sump level is required for long term recirc, but the interlock is based on RWST level

D Incorrect. Correct except for the level setpoint is generated from RWST level

QUESTIONS REPORT

for VCS 2007 NRC EXAM AS GIVEN

Knowledge of CSS design feature(s) and/or interlock(s) which provide for the following:
Adequate level in containment sump for suction (interlock)

KA Value: 3.8

Question 15

Reference Provided to Applicants: NONE

Technical Reference: AB-8

Lesson Objective: AB-8, 13, 16

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

46. 039 K4.06 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The unit is in Mode 3.
- A steam line break has occurred on "A" Steam Line in the Reactor Building.

Which ONE (1) of the following describes the plant response to this event?

- A. "A" Main Steam Line pressure will drop. "B" and "C" Main Steam Line pressures will remain constant. All MSIVs will close when at least 2 Containment pressure transmitters indicate 3.6 psig.
- B. "A" Main Steam Line pressure will drop. "B" and "C" Main Steam Line pressures will remain constant. All MSIVs will close when "A" Main Steam Line pressure indicates less than 675 psig.
- C. All 3 Main Steam Line pressures will drop. All MSIVs will close when at least 2 Containment pressure transmitters indicate 3.6 psig.
- D. All 3 Main Steam Line pressures will drop. All MSIVs will close when at least 2 Main Steam Lines indicate less than 675 psig.

A Incorrect. All steam lines will drop because they will all feed the break until MSLI. 3.6 psig is the setpoint for HIGH-1, MSIVs close on HIGH-2 (6.35 psig)

B Incorrect. All 3 steam lines will drop in pressure. Actuation is correct

C Incorrect. Wrong isolation signal

D Correct.

Knowledge of MRSS design feature(s) and/or interlock(s) which provide for the following:
Prevent reverse steam flow on steam line break

KA Value: 3.3

Question 16

Reference Provided to Applicants: NONE

Technical Reference: IC-9, 108D837 (1MS-41-011) Sh.8

Lesson Objective: IC-9-10

10CFR55: 41.

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

56. 059 G2.4.50 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is operating at 100% power.
- The following alarm is received:
 - XCP-624-1-5, SG A LVL DEV
- The RO determines that SG "A" level is rising slowly on LI-474, 475, and 476.
- SG "B" and "C" levels are stable.

Which ONE (1) of the following describes the cause of the alarm and the action required ?

Alarm was received on a . . .

- A✓ 5% deviation from program due to a Feedwater Control Valve failure; Place "A" Feedwater Control valve in manual and restore level to normal.
- B. 5% deviation from program due to a Steam Flow input to "A" SG level control failing low; Select the alternate feed flow and steam flow inputs.
- C. 10% deviation from program due to a Feedwater Control Valve failure; Place "A" Feedwater Control valve in manual and restore level to normal.
- D. 10% deviation from program due to a Steam Flow input to "A" SG level control failing low; Select the alternate feed flow and steam flow inputs.

A Correct.

B Incorrect. For steam flow failure given, level would be going in the opposite direction because feed flow would attempt to also reduce, which would cause level to reduce.

Setpoint is correct

C Incorrect. Wrong setpoint.

D Incorrect. Wrong setpoint and same as B

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Emergency Procedures / Plan Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

KA Value: 3.3

Question 17

Reference Provided to Applicants: NONE

Technical Reference: XCP-624-1-5

Lesson Objective: IC 2-7

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

57. 061 K5.02 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following conditions will result in the most Emergency Feedwater System flow required to maintain SG levels constant following a reactor trip?

	<u>Core Burnup</u>	<u>Initial Power Level</u>
A.	1,000 MWD/MTU	10%
B.	1,000 MWD/MTU	100%
C.	10,000 MWD MTU	10%
D✓	10,000 MWD/MTU	100%

A Incorrect. There are accidents that are more severe at low power. (Steam Break)

B Incorrect. Correct power level but incorrect core burnup.

C Incorrect. Incorrect power level

D is correct because a higher decay heat load exists due to fission product accumulation throughout core life and higher existing power level at time of trip.

Applicant has to understand what decay heat inputs are to arrive at

Knowledge of the operational implications of the following concepts as they apply to the AFW:

Decay heat sources and magnitude

KA Value: 3.2

Question 18

Reference Provided to Applicants: NONE

Technical Reference: TS-3, TS-16

Lesson Objective: TS-16-12

10CFR55: 41.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

58. 062 A1.03 002/BANK/VC SUMMER/HIGHER//RO/VC SUMMER/6/2007/NO
Given the following plant conditions:

- The plant is at 100% power during an A1 maintenance week.
- APN-5901 has been transferred to APN-1FA while work is in progress on XIT-5901.
- The normal feeder breaker for bus 1DA trips open.
- "A" D/G fails to start.

Which ONE (1) of the following describes the subsequent operation of the "A" Train ESFLS?

- A. Output 1 will shed loads and the ESFLS will go through its normal sequence.
- B. Output 1 will shed loads, but then the ESFLS will be prevented from operating.
- C. Output 1 will NOT shed loads, but the ESFLS will go through its normal sequence.
- D✓ Output 1 will NOT shed loads and the ESFLS will be prevented from operating.

A Incorrect. If the APN is aligned to its alternate source, and 1DA is lost, then all power to ESFLS will be lost (Battery Charger, Alternate feed to Inverter)

B Incorrect. With loss of power, no load shed will occur

C Incorrect. For loss of power, load shed will not occur, but loading sequence will also not occur

D Correct

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ac distribution system controls including: Effect on instrumentation and controls of switching power supplies

KA Value: 2.5

Question 19

Reference Provided to Applicants: NONE

Technical Reference: AOP-304.1

Lesson Objective: AOP-304.1-7

10CFR55: 41.7

Comments:

Taskmaster Question # 4305

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

59. 062 A3.04 003/BANK/VC SUMMER/HIGHER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the availability of Channel I (Train A) 120 VAC vital safeguards power during a loss of the 115KV line from the Parr Generating Complex?

- A✓ Is initially available from Battery 1A through inverter XIT-5901, then automatically returns to the normal source after Diesel Generator "A" starts.
- B. The static switch initially transfers the supply to 1FA, then automatically returns to the normal source after Diesel Generator "A" starts.
- C. Is initially available from Battery 1A through inverter XIT-5901, then is manually returned to the normal source after Diesel Generator "A" starts.
- D. The static switch initially transfers the supply to 1FA, then is manually returned to the normal source after Diesel Generator "A" starts.

A correct. Normal supply lost, blocking diode will allow DC Bus to supply. When normal power is restored, voltage is higher on normal supply than on battery supply, so source reverts back to normal

B Incorrect. Would also have to lose battery to be correct. Static switch would not transfer unless output of the inverter was lost. If DC is available, output will not be lost.

C Incorrect. First part is correct, manual operation not required.

D Incorrect. Static switch would not transfer unless output of the inverter was lost. If DC is available, output will not be lost. Manual operation not required.

Normal supply lost, blocking diode will allow DC Bus to supply. When normal power is restored, voltage is higher on normal supply than on battery supply, so source reverts back to normal

Ability to monitor automatic operation of the ac distribution system, including: Operation of inverter (e.g., precharging synchronizing light, static transfer)

KA Value: 2.7

Question 20

Reference Provided to Applicants: NONE

Technical Reference: GS-2, AOP-304.1

Lesson Objective: GS 2-12

10CFR55: 41.7

Comments:

Taskmaster Question # 4177

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

60. 063 G2.4.4 001/NEW//LOWER//RO/VC SUMMER/6/2007/NO

The plant is at 100% power.

A loss of 125 VDC control power to the _____ will require entry to EOP-1.0, *Reactor Trip/Safety Injection Actuation*.

A. FWBP breakers

B✓ MSIVs

C. RCP breakers

D. PZR Spray Valves

A Incorrect. MDFPs would not trip on loss of breaker control power, but if the breaker did trip, could cause a reactor trip

B Correct. Loss of DC will cause MSIV closure.

C Incorrect. Loss of RCP breaker control will not cause RCP trip.

D Incorrect. Spray valves fail closed, so they will not cause a pressure reduction that will result in a trip

Emergency Procedures / Plan Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

KA Value: 4.0

Question 21

Reference Provided to Applicants: NONE

Technical Reference: TB-2, B-208-067-12

Lesson Objective: TB 2-15

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

61. 064 A1.05 001/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A loss of off-site power has occurred.
- Both EDGs start as required.

Which ONE (1) of the following describes the operation of the EDG Room Ventilation system?

Automatically start when...

- A. Diesel Room temperature exceeds 88°F, to maintain room temperature below the Technical Specification limit of 120°F.
- B. the associated Diesel Generator starts, to maintain room temperature below the Technical Specification limit of 88°F.
- C. Diesel Room temperature exceeds 72°F, to maintain room temperature below the Technical Specification limit of 88°F.
- D✓ the associated Diesel Generator starts, to maintain room temperature below the Technical Specification limit of 120°F.

A Incorrect. Starts when EDG starts. 88 degrees is limit for battery rooms

B Incorrect. Correct start, but incorrect temperature (See A)

C Incorrect. 60 degrees is minimum temperature for EDG rooms, 88 is for batteries

D Correct

88 degrees is temperature limit for battery rooms. 60 degrees is minimum temperature for EDG rooms.

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ED/G system controls including: D/G room temperature

KA Value: 2.5

Question 22

Reference Provided to Applicants: NONE

Technical Reference: IB-8, TS 3.7.9

Lesson Objective: IB 8-11

10CFR55: 41.8/43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

62. 064 K1.01 001/BANK/WTSI BANK/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- Emergency Diesel Generator "A" is paralleled to its associated Bus.
- A lagging power factor has been established.

Which ONE (1) of the following describes the operation of the diesel generator voltage control switch?

- A. Lowering the voltage control setpoint will cause the generator to pick up a larger share of the real load.
- B. Raising the voltage control setpoint will cause the generator to pick up a larger share of the real load.
- C. Lowering the voltage control setpoint will cause the generator to pick up a larger share of the reactive load.
- D✓ Raising the voltage control setpoint will cause the generator to pick up a larger share of the reactive load.

A Incorrect. Would have to operate governor control, but reasonable because this would happen to reactive load if voltage control was lowered with a leading power factor

B Incorrect. Would operate governor control for this to happen

C Incorrect. This would be true if power factor was leading (VARS OUT)

D is correct. To pick up or shed real load, the governor control switch is operated.

With a lagging power factor, (VARS OUT) raising the setpoint will pick up reactive load

Knowledge of the physical connections and/or cause-effect relationships between the ED/G system and the following systems: AC distribution system

KA Value: 4.1

Question 23

Reference Provided to Applicants: NONE

Technical Reference: ES-3, IB-5

Lesson Objective: IB-5, 19

10CFR55: 41.8

Comments: Harris 2005 NRC

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

65. 073 A4.01 001/BANK/VCS/LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- An immediate discharge to the penstocks from both Waste Monitor tanks is required.
- Current conditions are as follows.
 - RM-L5 and RM-L9 are out of service
 - Fairfield Hydro is in the "pumping" mode.

Which ONE (1) of the following statements will provide the MINIMUM conditions necessary for monitor tank release?

- A. Either RM-L5 or RM-L9 must be restored to operability prior to release.
- B. Both RM-L5 and RM-L9 must be restored to operability prior to release.
- C✓ The Fairfield Hydro must convert to the generating mode and redundant samples performed prior to release. Two independent qualified individuals must verify release calculations and valve lineups.
- D. The Fairfield Hydro must convert to the generating mode prior to release and either RM-L5 or RM-L9 must be restored to operability. Two independent qualified individuals must verify release calculations and valve lineups.

A Incorrect. Neither rad monitor is required if other conditions are satisfied (C)

B Incorrect. Rad monitors not required if condition satisfied in C

C Correct

D Incorrect. While all 3 are desired for release, the rad monitors can be inop if other compensatory actions are taken

Ability to manually operate and/or monitor in the control room Effluent release

KA Value: 3.9

Question 24

Reference Provided to Applicants: NONE

Technical Reference: SOP-108

Lesson Objective: AB 16-16

10CFR55: 41.11

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

66. 073 K1.01 003/BANK/VCS/LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes operation of XFN-30A(B), CONTR RM EMERG FILTERING SYS FAN A(B), and XFN-32A(B), CONTROL ROOM COOLING UNIT A(B) FAN upon receipt of a high radiation alarm on RM-A1, Control Bldg Supply Air?

- A. Both XFN-32A & B and both XFN-30A & B start, all outside air sources are isolated.
- B✓ Both XFN-32A & B and both XFN-30A & B start, return air is mixed with a small amount of makeup air.
- C. Both XFN-32A & B trip and both XFN-30A & B start, all outside air sources are isolated.
- D. Both XFN-32A & B trip and both XFN-30A & B start, return air is mixed with a small amount of makeup air.

A Incorrect. The outside air intake damper is blocked approximately 10% open

B Correct

C Incorrect. XFN-32A and 32B do not trip. Outside air is mixed

D Incorrect. XFN-32A and 32B do not trip

Knowledge of the physical connections and/or cause-effect relationships between the PRM system and the following systems: Those systems served by PRMs

KA Value: 3.6

Question 25

Reference Provided to Applicants: NONE

Technical Reference: GS-8
Learning Objective: GS-8-13
10 CFR Part 55 Content: 41

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

68. 076 K3.05 002/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is in Mode 5.
 - RHR Train A is in service.
 - RCS temperature is 168°F.
 - RCS pressure is 175 psig.
-
- Subsequently, a Loss of Service Water occurs.
 - The crew is performing actions contained in AOP-117.1, *Total Loss of Service Water*.
 - NEITHER Service Water loop can be restored.

Which ONE (1) of the following describes the effect on the RHR System, and the procedure that will mitigate the event?

- A. Stabilize RHR/RCS system temperature using steam dumps IAW GOP-6, *Plant Shutdown Mode 3 to Mode 5*. Go to AOP-115.3, *Loss of RHR with the RCS Intact*, for long-term mitigation.
- B. Stabilize RHR/RCS system temperature using steam dumps IAW GOP-6, *Plant Shutdown Mode 3 to Mode 5*. Continue using AOP-117.1, *Total Loss of Service Water*, for long-term mitigation.
- C✓ RHR/RCS system temperature will rise as a result of a loss of cooling to Component Cooling Water. Go to AOP-115.3, *Loss of RHR with the RCS Intact*.
- D. RHR/RCS system temperature will rise as a result of a loss of cooling to Component Cooling Water. Continue using AOP-117.1, *Total Loss of Service Water*.

A Incorrect. This is credible because it would be the applicable GOP for these conditions. Incorrect since there is no prompt to Refer To GOP-6 in AOP-117.1. Correct procedure entry

B Incorrect. This is credible because it would be the applicable GOP for these conditions. Incorrect since there is no prompt to Refer To GOP-6 in AOP-117.1. Procedure is credible because it is currently in use.

C Correct. AOP-117.1 directs entry to AOP-115.3 if SW cannot be restored. (RCS INTACT as shown by RCS pressure).

D Incorrect. Credible because CCW will be lost, so procedure is credible. Wrong because AOP-117.1 directs entry to AOP-15.3.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the effect that a loss or malfunction of the SWS will have on the following: RHR components, controls, sensors, indicators, and alarms, including rad monitors

KA Value: 3.0

Question 26

Reference Provided to Applicants: NONE

Technical Reference: AOP-117.1

Lesson Objective: AOP-117.1-8

10CFR55: 41.10/43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

69. 078 K2.02 003/BANK/VC SUMMER/LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following provides the electrical power supply to the Supplemental Air Compressor?

- A. XSW1DA1
- B✓ XSW1DB1
- C. XSW1A1
- D. XSW1B1

A Incorrect. Wrong train

B Correct

C Incorrect. Power to Service Air Compressor

D Incorrect. Same voltage, same designation, wrong power supply

Knowledge of bus power supplies to the following Emergency air compressor

KA Value: 3.3

Question 27

Technical Reference: TB 12

Proposed references to be provided to applicants during examination: None

Learning Objective: TB 12-3

10 CFR Part 55 Content: 41.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

72. 103 A2.03 003/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA has occurred.
- Safety Injection is actuated.
- Reactor Building pressure indicates 14 psig and rising slowly.
- While performing actions of EOP-1.0, *Reactor Trip/Safety Injection Actuation*, the following valves indicate OPEN:
 - RCP SL WTR ISOL 8100
 - LTDN ISOL 8152
 - RB AIR SERV ISOL 2660

Which ONE (1) of the following describes the failure that has occurred and the MINIMUM action necessary to mitigate the condition?

- A✓ Phase A has partially failed. Place either Phase A actuation switches in the ACTUATE position.
- B. Phase A has partially failed. Place both Phase A actuation switches in the ACTUATE position.
- C. Phase B has partially failed. Place either Phase B actuation switches in the ACTUATE position.
- D. Phase B has partially failed. Place both Phase B actuation switches in the ACTUATE position.

A is Correct. Valves indicated all receive close signals on Phase A

B is incorrect. Only required to actuate either switch

C is incorrect. Not Phase B but correct action for 1 switch in Phase A

D is incorrect. Not Phase B but would be correct if phase B failed

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to (a) predict the impacts of the following malfunctions or operations on the containment system-and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations Containment Isolation Phase A and B

KA Value: 3.5

Question 28

Reference Provided to Applicants: NONE

Technical Reference: EOP-1.0

Lesson Objective: 1675

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

4. 002 K3.03 001/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA has occurred.
- RCS pressure is 1750 psig and lowering.
- Reactor Building pressure is 4 psig and rising.
- Steam Generator pressures are 1000 psig and stable.

Which ONE (1) of the following describes the actuations that are a result of this condition?

- A. Safety Injection ONLY.
- B. Safety Injection and Containment Ventilation Isolation ONLY.
- C✓ Safety Injection and Containment Isolation Phase A and Containment Ventilation Isolation ONLY.
- D. Safety Injection and Containment Isolation Phase A and Containment Ventilation Isolation and Containment Isolation Phase B.

A. Incorrect. Phase A on SI, CVI on RB pressure

B. Incorrect. Also Phase A, but credible because applicant can confuse the actuations

C. Correct.

D. Incorrect. 3.6 psig CIA, CVI also actuated. Containment Pressure not high enough for Phase B

Knowledge of the effect that a loss or malfunction of the RCS will have on the following:
Containment

KA Value: 4.2

Question 29

Reference Provided to Applicants: NONE

Technical Reference: IC-9, XCP-612, 1-1, 1080837

Lesson Objective: IC 9-21

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

21. 011 K6.03 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A load rejection has occurred from 100% power.
- All control systems responded as designed.
- Power level is now stable at 70%.

Which ONE (1) of the following conditions will exist during this event?

- A. Charging Flow Control Valve, FCV-122, will be throttling open.
- B. Pressurizer Backup Heaters will be energized.
- C. Pressurizer PORVs will be open.
- D. Letdown Backpressure Control Valve PCV-145 will be throttling closed.

A. Incorrect. FCV-122 will throttle closed because temperature is rising and power is lowering, so program level of PZR should be going down

B. Correct. PZR level will be above program due to load reject, so heaters energize at 5% above program

C. Incorrect. If systems respond as designed, PORVs will not operate

D. Incorrect. PCV-145 will be throttling open because higher backpressure will exist on the letdown line with high level and increased PZR pressure

Knowledge of the effect of a loss or malfunction on the following will have on the PZR LCS:
Relationship between PZR level and PZR heater control circuit

KA Value: 2.9

Question 30

Reference Provided to Applicants: NONE

Technical Reference: XCP-616, 2-1, 2-5

Lesson Objective: IC 3-13

10CFR55: 41.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

29. 017 A1.01 002/MODIFIED/VC SUMMER/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is in Mode 3.
- The following wide-range pressures are indicated:
 - PT-402 - 1335 psig
 - PT-403 - 1350 psig
 - PT-455A - 1285 psig
- Subcooling indication on TI-499A and TI-499B indicates the following:

<u>TI-499A</u>	<u>TI-499B</u>
27°F	22°F

Which ONE (1) of the following describes the core exit temperature used to determine RCS subcooling for the indications above?

- A. Train A - 550°F; Train B - 560°F.
- B. Train A - 557°F; Train B - 550°F.
- C✓ Train A - 557°F; Train B - 560°F.
- D. Train A - 560°F; Train B - 557°F.

A Incorrect. Calculation for PSIA

B Incorrect. Calculation for PSIA and trains reversed

C Correct.

D. Incorrect. Trains reversed

Saturation temperature for PT-403 pressure (1365 psia) is 584°F.

584 F - 557 F (CETC)=27°.

Saturation temperature for PT-402 pressure (1350 psia) is 582.3°F.

582.3 - 560 +22°F.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the ITM system controls including: Core exit temperature

KA Value: 3.7

Question 31

Reference Provided to Applicants: NONE

Technical Reference: Steam Tables

Lesson Objective: TS-2, 239

10CFR55: 41.8

Comments:

TM #4116

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

37. 027 K5.01 002/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the purpose and function of the Reactor Building Charcoal Cleanup Units?

Designed for...

- A. primary means of long term post accident iodine removal from the RB atmosphere. Discharge is aligned to the RB Purge system exhaust.
- B. primary means of long term post accident iodine removal from the RB atmosphere. Discharge is aligned to the RB atmosphere.
- C. RB pre-entry reduction of airborne contaminants. Discharge is aligned to the RB Purge system exhaust.
- D✓ RB pre-entry reduction of airborne contaminants. Discharge is aligned to the RB atmosphere.

A Incorrect. Incorrect alignment, incorrect reason for use. Credible because charcoal filters are designed to remove iodine, which may be present post-accident

B Incorrect. Correct alignment but system not used primarily for Post-Accident

C Incorrect. Correct reason but incorrect alignment

D Correct

Knowledge of the operational implications of the following concepts as they apply to the CIRS:
Purpose of charcoal filters

KA Value: 3.1

Question 32

Reference Provided to Applicants: NONE

Technical Reference: AB-17

Lesson Objective: AB-17-5

10CFR55: 41.4

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

39. 028 K6.01 001/BANK/WTSI BANK/LOWER//RO/VC SUMMER/6/2007/

Given the following plant conditions:

- A Large Break LOCA has occurred.
- Reactor Building H₂ concentration was at 2% and rising.
- 'A' Hydrogen Recombiner is INOPERABLE.

Which ONE (1) of the following describes the effect on the removal of Hydrogen from Containment?

- A✓ Hydrogen concentration will remain below 4% with only one Recombiner in operation.
- B. Hydrogen concentration will rise above 4% but remain below 6% with only one Recombiner in operation.
- C. Hydrogen concentration will remain below 4% only if the Containment Purge System is placed in service in addition to the Recombiner.
- D. Hydrogen concentration will remain below 4% only if Containment Spray is placed in service in addition to the Recombiner.

A Correct. Either H₂ recombiner should keep H₂ below 4%.

B Incorrect. 13% was chosen because it represents the lower limit of explosive gas mixture for H₂.

C Incorrect. Purge is not placed in service as a result of 1 recombiner malfunction

D Incorrect. Spray would not be placed in service at the pressures that H₂ recombiners operate at. (Lower)

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the effect of a loss or malfunction on the following will have on the HRPS:
Hydrogen recombiners

KA Value:2.6

Question 33

Reference Provided to Applicants: NONE

Technical Reference: AB 15

Lesson Objective: AB 15-5

10CFR55: 41.8

Comments:

IP3 2003 NRC Exam, and others

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

41. 033 K4.04 002/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes a feature of the Spent Fuel Pool and/or Cooling system that will maintain radiation dose levels at acceptable limits during plant operations?

- A. Spent Fuel Cooling Pumps will trip on low suction pressure prior to Spent Fuel Pool level dropping below 460'6".
- B. Boron concentration is maintained so that Spent Fuel Pool Keff is less than 0.95 and Spent Fuel Pool Radiation levels are maintained less than 2.5 mr/hr at the surface of the pool.
- C✓ Anti-siphoning holes in the cooling system suction and return lines ensures that Spent Fuel Pool level will not drop below 460'6".
- D. Interlocks on the Spent Fuel Pool Manipulator Crane prevent spent fuel assemblies from travelling closer than 23 feet from the surface of the Spent Fuel Pool.

A Incorrect. Correct minimum level, but SFP Cooling pumps will not trip on low suction., They may trip on everload as a result of low suction, but not a design feature

B Incorrect. Boron concentration is not for shielding, it is for reactivity. Although 2.5 mr/hr is the value in the FSAR for dose rate at pool surface

C Correct

D Incorrect. Interlocks ensure that Fuel will get no closer than 9.5 feet, not 23. 23 feet is credible because it is the LCO for minimum level above spent fuel in the storage racks.

Knowledge of design feature(s) and/or interlock(s) which provide for the following:
Maintenance of spent fuel pool radiation

KA Value: 2.7

Question 34

Reference Provided to Applicants: NONE

Technical Reference: GS-5, SB-4

Lesson Objective:

10CFR55: 41/43

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

42. 035 K5.03 003/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the *initial* **SG Level Response** and **SGWLC System Response** during a rapid increase in power?

- | <u>SG Level Response</u> | <u>SGWLC System Response</u> |
|--------------------------|--|
| A. Decreases | Lag circuit on SG level input minimizes fluctuations |
| B. Decreases | Programmed D/P across the FRV minimizes fluctuations |
| C. Increases | Programmed D/P across the FRV minimizes fluctuations |
| D✓ Increases | Lag circuit on SG level input minimizes fluctuations |

A Incorrect. Swell, vs Shrink, occurs on an up-power transient. The lag circuit TD of 5 seconds is designed specifically to minimize fluctuations due to shrink and swell.

B Incorrect. Swell, vs Shrink, occurs on an up-power transient. The lag circuit TD of 5 seconds, not programmed DP, is designed specifically to minimize fluctuations due to shrink and swell. The programmed DP input to the MFP Master Speed Controller has a long time constant specifically designed to allow the FRV controller to first react to SG level changes (due to SF/FF mismatches).

C Incorrect. Swell does occur on an up-power transient. The lag circuit TD of 5 seconds, not programmed DP, is designed specifically to minimize fluctuations due to shrink and swell. The programmed DP input to the MFP Master Speed Controller has a long time constant specifically designed to allow the FRV controller to first react to SG level changes (due to SF/FF mismatches).

D Correct. Swell does occur on an up-power transient. As described in A, lag circuit smooths out SG level response so Feedwater control does not overreact.

Knowledge of operational implications of the following concepts as they apply to the S/GS:
Shrink and swell concept

KA Value: 2.8

Question 35

Reference Provided to Applicants: NONE

Technical Reference: IC-2

Lesson Objective: IC-2-8

10CFR55: 41.8

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

27. 015 A2.02 004/BANK/VC SUMMER/HIGHER//RO/VC SUMMER/6/2007/NO
Given the following plant conditions:

- A reactor startup is in progress.
- SR Channel N-31 indicates 7×10^3 CPS.
- SR Channel N-32 indicates 7×10^3 CPS.
- IR Channel N-35 indicates $8.7 \times 10^{-6}\%$ power.
- IR Channel N-36 indicates $6.0 \times 10^{-6}\%$ power.

Which ONE (1) of the following describes (1) the existing plant condition, (2) the status of P-6, and (3) the action required in accordance with AOP-401.8, Intermediate Range Channel Failure?

- A. (1) N-36 is undercompensated;
(2) P-6 should NOT be satisfied;
(3) maintain power stable until N-36 is repaired.
- B✓ (1) N-36 is overcompensated;
(2) P-6 should be satisfied;
(3) maintain power stable until N-36 is repaired.
- C. (1) N-36 is undercompensated;
(2) P-6 should be satisfied;
(3) place the unit in Mode 3 until N-36 is repaired.
- D. (1) N-36 is overcompensated;
(2) P-6 should NOT be satisfied;
(3) place the unit in Mode 3 until N-36 is repaired.

A Incorrect. Wrong compensation and P-6 should be satisfied

B Correct.

C Incorrect. Wrong compensation and not required to shut down

D Incorrect. Wrong P-6 status and not required to shut down

SR are close to P-6. IR N-35 is just above P-6, so N-36 is reading low, which is overcompensated. Action for overcompensation or undercompensation (INOP channel) is to maintain below P-6 or above P-10 until channel repairs complete (TS and AOP)

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to (a) predict the impacts of the following malfunctions or operations on the NIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Faulty or erratic operation of detectors or compensating components

KA Value: 3.1

Question 36

Reference Provided to Applicants: NONE

Technical Reference: IC-8, AOP-401.8

Lesson Objective: IC-8-32

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

64. 072 K4.03 003/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is in Mode 6.
- Reactor Building Purge is in operation.
- Refueling activities are in progress.
- A spent fuel assembly is dropped in the cavity.
- Containment radiation monitor indications are all rising.

Which ONE (1) of the following describes the radiation monitors that will initiate isolation of all or part of the Containment Purge?

RM-A4, RB Purge Exhaust Particulate (Iodine) (Gas) Atmos monitor...

- A. ONLY.
- B. AND RM-G17A/B, RB Manipulator Crane Area Gamma ONLY.
- C. AND RM-A2, RB Sample Line Particulate (Iodine) (Gas) Atmos monitor ONLY.
- D✓ AND RM-G17A/B, RB Manipulator Crane Area Gamma, AND RM-A2, RB Sample Line Particulate (Iodine) (Gas) Atmos monitor.

A Incorrect. The other rad monitors will cause purge isolation also

B Incorrect. RM-A2 will cause Purge isolation also

C Incorrect. RM-G17 will also cause isolation

D Correct

RM-G17 is the only ARM at Summer with a control function

Knowledge of ARM system design feature(s) and/or interlock(s) which provide for the following:
Plant ventilation systems

KA Value: 3.2

Question 37

Reference Provided to Applicants: NONE

Technical Reference: GS-9

Lesson Objective: GS-9-18

10CFR55: 41.11

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

70. 086 A2.01 002/BANK/VC SUMMER/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The Fire Protection System actuated due to a Main Transformer Fire.
- System pressure dropped to 80 psig before recovering due to the actuation of necessary equipment.
- The fire is out.
- The deluge valve is isolated and reset.

Which ONE (1) of the following describes the equipment that is running, and the method of shutting the equipment down?

- A. ONLY the Motor Driven Fire Pump is running; must be stopped locally.
- B. ONLY the Motor Driven Fire Pump is running; may be stopped locally or in the control room.
- C✓ The Motor Driven and Engine Driven Fire Pumps are running. Both must be stopped locally.
- D. The Motor Driven and Engine Driven Fire Pumps are running. The Motor Driven Pump may be stopped locally or in the control room, the Engine Driven Pump must be stopped locally.

A Incorrect. If system pressure is reduced to 80 psig then both pumps automatically started. The MDFP may not be stopped in the c/r. Fire system controls are alarm and indication only

B Incorrect. Both pumps start.

C Correct.

D Incorrect. MDFP may not be stopped in c/r

Ability to (a) predict the impacts of the following malfunctions or operations on the Fire Protection System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Manual shutdown of FPS

KA Value: 2.9

Question 38

Reference Provided to Applicants: NONE

Technical Reference: SOP-509, GS-11

Lesson Objective: GS-11, Obj 11

10CFR55: 41.4

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

14. 007 EK3.01 002/BANK/WTSI/LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes an immediate action and the basis for the action in accordance with EOP-1.0, *Reactor Trip/Safety Injection Actuation*?

- A. Insert control rods in Manual; to insert negative reactivity by the most direct manner possible.
- B. Insert control rods in Manual; to reduce or maintain RCS pressure to prevent lifting the Pressurizer safety valves.
- C✓ Place EHC Pumps in PULL-TO-LK NON-A; to prevent uncontrolled cooldown of the RCS.
- D. Place EHC Pumps in PULL-TO-LK NON-A; to minimize secondary makeup requirements.

A Incorrect. Action taken in EOP-13.0 and the correct basis.

B Incorrect. Action taken in EOP-13.0 and the effect will occur

C Correct.

D Incorrect. Reason for actions on a Turbine Trip are to prevent an uncontrolled cooldown, although secondary makeup requirement will be minimized by tripping the turbine.

Knowledge of the reasons for the following as they apply to a reactor trip: Actions contained in EOP for reactor trip

KA Value: 4.0

Question 39

Reference Provided to Applicants: NONE

Technical Reference: EOP-1.0 BD

Lesson Objective: 1675

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

15. 008 AK2.01 002/BANK/ROBINSON 2004 NRC/HIGHER//RO/VC SUMMER/6/2007/YES
Given the following plant conditions:

- A reactor trip and safety injection have occurred.
- RCS pressure is 1050 psig and lowering.
- Tavg is 550°F and lowering.
- Pressurizer level is 65% and rising rapidly.
- Reactor Building pressure is 2 psig and rising.

Which ONE (1) of the following describes the cause of this event?

- A. Letdown line break.
- B. SBLOCA on an RCS cold leg.
- C✓ Stuck open pressurizer PORV.
- D. Stuck open pressurizer spray valve.

A & B. Incorrect. PZR level would be lowering or off-scale low if either of these events occurred.

C. Correct. A vapor space LOCA is occurring, due to RCS pressure lowering and Containment pressure rising with PZR level rising.

D. Incorrect because spray valve failure would not result in containment pressure rising.

Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following: Valves

KA Value: 2.7

Question 40

Technical Reference: TS-16, EOP 1.0 LP

Proposed references to be provided to applicants during examination: None

Learning Objective: 1672, 1675

10 CFR Part 55 Content: 41

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

17. 009 EK1.02 002/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA occurred and RCS pressure reached 1380 psig.
- All actions of EOP-1.0 were performed as required.
- The crew is performing EOP-2.1, *Post-LOCA Cooldown and Depressurization*.
- RCS pressure is currently 1335 psig.
- RCS temperature is currently 496°F.
- Two Charging pumps are running.
- The crew is evaluating stopping 1 Charging Pump.

Given the above conditions, which ONE (1) of the following describes whether the Charging Pump may be stopped, and why?

- A. No, because subcooling is not greater than 30°F.
- B. Yes, because subcooling is greater than 30°F.
- C. Yes, because subcooling is greater than 87.5°F.
- D✓ No, because subcooling is not greater than 87.5°F.

A Incorrect. subcooling is 86°F

B Incorrect. subcooling is greater than 30°F but requirement is 87.5°F

C Incorrect. Credible because subcooling is greater than 82.5°F (limit with RCP(s) running) but less than the requirement of 87.5°F (w/o RCP(s) running)

D Correct. subcooling is 86°F which is less than the required 87.5°F

Knowledge of the operational implications of the following concepts as they apply to the small break LOCA: Use of steam tables

KA Value: 3.5

Question 41

Reference Provided to Applicants: Steam Tables

Technical Reference: Steam Tables

Lesson Objective: EOP-2.1-04

10CFR55: 41.10

Comments:

QUESTIONS REPORT

for VCS 2007 NRC EXAM AS GIVEN

20. 011 EK2.02 002/MODIFIED/VC SUMMER/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The Reactor has tripped from 100% power.
- "A" and "C" Service Water (SW) pumps were running.
- The crew implemented EOP-1.0, *Reactor Trip/Safety Injection Actuation*, then transitioned to EOP-1.1, *Reactor Trip Recovery*.
- MDEFW pumps started on Lo-Lo SG levels after the trip.
- Subsequently, an SI actuated due to a Large Break LOCA.

Which ONE (1) of the following describes the operation of equipment as a result of the SI?

- A. MDEFW pumps will trip and be restarted by the sequencer. Service Water Pumps "A" and "C" will continue to run.
- B. MDEFW pumps will continue to run. Service Water Pumps "A" and "C" will trip and be restarted by the sequencer.
- C. MDEFW pumps will trip and be restarted by the sequencer. Service Water Pumps "A" and "C" will trip and be restarted by the sequencer.
- D✓ MDEFW pumps will continue to run. Service Water Pumps "A" and "C" will continue to run.
-
- A. *Incorrect. EFW pumps would not trip unless there is an UV on that bus. They would be started on the SI sequencer if they were not previously running. SWPs continue to run.*
- B. *Incorrect. SWPs pumps would not trip unless there is an UV on that bus.*
- C. *Incorrect. Neither EFPs/SWPs pumps would trip unless there is an UV on that bus*
- D. *Correct. Both EFPs and SWPs continue to run. Would only trip if there was an UV on their respective buses.*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the interrelations between the Large Break LOCA and the following: Pumps

KA Value: 2.6

Question 42

Reference Provided to Applicants: NONE

Technical Reference: GS-2

Lesson Objective:

10CFR55: 41.10

Comments:

QUESTIONS REPORT

for VCS 2007 NRC EXAM AS GIVEN

28. 015 AK2.08 002/MODIFIED/WTSI/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is operating at 8% power.
- A Loss of Component Cooling Water has occurred.
- "A" RCP motor bearing temperature is 189°F and rising slowly.
- "A" RCP lower seal water bearing temperature is 226°F and rising slowly.
- The crew has entered AOP-118.1, *Loss of Component Cooling Water*.

Which ONE (1) of the following actions is required?

- A. RCP motor bearing temperature exceeds operating limits. Stop 'A' RCP and initiate a plant shutdown IAW GOP-4B, *Power Operation (Mode 1-Descending)*.
- B✓ RCP lower seal water bearing temperature exceeds operating limits. Stop 'A' RCP and initiate a plant shutdown IAW GOP-4B, *Power Operation (Mode 1-Descending)*.
- C. RCP motor bearing temperature exceeds operating limits. Trip the reactor, stop 'A' RCP, and go to EOP-1.0, *Reactor Trip/Safety Injection Actuation*.
- D. RCP lower seal water bearing temperature exceeds operating limits. Trip the reactor, stop 'A' RCP, and go to EOP-1.0, *Reactor Trip/Safety Injection Actuation*.

A: *Incorrect. Motor bearing temp is NOT exceeded.*

B: *Correct. Would shutdown since <P-7. Lower seal water brg limit is 225F*

C: *Incorrect. Motor bearing temp limit is 195F*

D: *Incorrect. ONLY if >P-7, trip reactor. Seal water bearing temp exceeds 225*

Knowledge of the interrelations between the Reactor Coolant Pump Malfunctions (Loss of RC Flow) and the following: CCWS

KA Value: 2.6

Question 43

Reference Provided to Applicants: NONE

Technical Reference: AOP-118.1

Lesson Objective: 4784

10CFR55: 41.10

Comments:

Modified from VCS 2006 NRC Retake

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

31. 022 AK1.02 002/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A Reactor Trip condition existed and the Reactor failed to trip.
- RCS pressure now indicates 2350 psig.

Assuming no other events are in progress, which ONE (1) of the following describes the 1) appropriate action and the 2) reason for that action?

- A. 1) Verify PZR PORVs and Block Valves open
2) To increase flow on FI-943, CHG LOOP B CLD/HOT LEG FLOW GPM
- B✓ 1) Verify PZR PORVs and Block Valves open
2) To increase flow on FI-110, EMERG BORATE FLOW GPM
- C. 1) Place both ESFLS A(B) Resets to NON-ESF LCKOUTS
2) To increase flow on FI-943, CHG LOOP B CLD/HOT LEG FLOW GPM
- D. 1) Place both ESFLS A(B) Resets to NON-ESF LCKOUTS
2) To increase flow on FI-110, EMERG BORATE FLOW GPM

A Incorrect. SI should not have occurred for an ATWS with given conditions.

B Correct. IAW EOP-13.0, Step 4.b Alternative Action

C Incorrect. This would be required to start a Boric Acid Transfer Pump if an UV condition occurred. It is credible because it is the Alternative Action for Step 4.f of EOP-13.0. SI should not have occurred for an ATWS with given conditions.

D Incorrect. This would be required to start a Boric Acid Transfer Pump if an UV condition occurred. It is credible because it is the Alternative Action for Step 4.f of EOP-13.0. Reason is correct.

Knowledge of the operational implications of the following concepts as they apply to Loss of Reactor Coolant Pump Makeup: Relationship of charging flow to pressure differential between charging and RCS

KA Value: 2.7

Question 44

Reference Provided to Applicants: NONE

Technical Reference: TS-10

Lesson Objective: TS-10-19

10CFR55: 41.3

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

36. 027 AK3.01 001/NEW/WTSI/LOWER//RO/VC SUMMER/6/2007/NO

With the unit at 100% power, which ONE (1) of the following describes the potential consequence of PCV-444C, PZR Spray Valve, failing open?

- A. Loss of PZR pressure can result in an unwarranted OP Delta T runback and reactor trip.
- B. PZR pressure will remain stable as PZR heaters will compensate for the pressure reduction.
- C. Loss of PZR pressure may result in steam formation in the reactor vessel head and SG tubes.
- D✓ Loss of PZR pressure can result in an unwarranted OT Delta T runback and reactor trip.

A Incorrect. Pressure reduction should not affect OPDT because pressure input is zeroed out

B Incorrect. A trip would occur prior to any hot channel factors being exceeded based on RCS flow

C Incorrect. There is no LOCA or mechanism to create steam under the head. Spray vlvve failure will not create a hole in RCS

D Correct.

Knowledge of the reasons for the following responses as they apply to the Pressurizer Pressure Control Malfunctions: Isolation of PZR spray following loss of PZR heaters

KA Value: 3.5

Question 45

Reference Provided to Applicants: NONE

Technical Reference: AOP-401.5, TS Basis

Lesson Objective: 3084

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

1. 0029 EK3.09 001/NEW//HIGHER//RO/VCSNS//NO

Given the following plant conditions:

- The crew is responding to an ATWS IAW EOP-13.0, *Response to Abnormal Nuclear Power Generation*, and is attempting an emergency boration of the RCS.
- MVT-8104, EMERG BORATE, valve will not open.

Which ONE (1) of the following describes the required actions to be performed and why?

- A. Open the Charging Pump Suction Header Isolation valves as directed by AOP-106.1, *Emergency Boration*, to maximize Boric Acid flowrate.
 - B✓ Open LCV-115B/D, RWST to CHG PP Suct, as directed by AOP-106.1, *Emergency Boration*, to borate via cold leg injection.
 - C. Open the Charging Pump Suction Header Isolation valves as directed by EOP-13.0, *Response to Abnormal Nuclear Power Generation*, to maximize Boric Acid flowrate.
 - D. Open LCV-115B/D, RWST to CHG PP Suct, as directed by EOP-13.0, *Response to Abnormal Nuclear Power Generation*, to borate via cold leg injection.
- A. Correct procedure, wrong reason
 - B. Correct answer, AOP-106.1 step 4 Alternative Action
 - C. Incorrect procedure correct reason.
 - D. Incorrect procedure, incorrect reason.

0029 EK3.09, Knowledge of the reasons for the following responses as they apply to an ATWS: Opening centrifugal charging pump suction valves from RWST. (3.7/4.0)

Question 46

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

44. 038 G2.2.22 001/BANK/WTSI/HIGHER//RO/VC SUMMER/6/2007/NO
Given the following plant conditions:

- Reactor power is 75%.
- RCS leak rate data is as follows:
 - Total RCS leakage rate is 9.1 gpm.
 - Leakage to PRT is 7.0 gpm.
 - Leakage to the Reactor Coolant Drain Tank is 1.3 gpm.
 - Total primary to secondary leakage is 0.33 gpm.
 - SG 1 – 0.09 gpm
 - SG 2 – 0.17 gpm
 - SG 3 – 0.07 gpm

Which ONE (1) of the following describes RCS leakage in relation to Technical Specification limits?

- A. Identified leakage exceeds the TS limit
- B. Unidentified leakage exceeds the TS limit
- C✓ Primary to Secondary leakage exceeds the TS limit
- D. All RCS leakage is within TS limits

A Incorrect. Identified can be 10 GPM, it is 8.63

B Incorrect. Unidentified can be 1 GPM, it is 0.47

C Correct. Leakage through any 1 SG can only be 150 GPD. SG B exceeds the limit

D Incorrect. Primary to secondary limits are exceeded

Equipment Control Knowledge of limiting conditions for operations and safety limits.

KA Value: 3.4

Question 47

Reference Provided to Applicants: NONE

Technical Reference:

Lesson Objective:

10CFR55:

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

49. 054 AK1.01 001/BANK/WTSI BANK/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is operating at 100% power.
- A Feedwater Line Break occurs at the piping connection to "A" SG.

Which ONE (1) of the following describes the effect of this event?

- A✓ RCS temperature rises prior to reactor trip. SG "A" continues to depressurize after FWIV closure.
- B. RCS temperature lowers prior to reactor trip. SG "A" continues to depressurize after FWIV closure.
- C. RCS temperatures lowers prior to reactor trip. SG "A" pressure stabilizes after FWIV closure.
- D. RCS temperature rises prior to reactor trip. SG "A" pressure stabilizes after FWIV closure.

A Correct. Prior to the trip, less FW being supplied to SG will cause temperature to rise. When reactor trip occurs, Feedwater will be discontinued to SG, and since there is no check valve downstream of the break, the SG will depressurize like a steam line break

B Incorrect. RCS temperature will not lower pre-trip because feed is not getting to SG, so SG heats up, causing higher RCS temperature.

C Incorrect. RCS temperature wrong direction. SG pressure will not stabilize because FWI will not isolate the break

D Incorrect. FWI will not isolate the break

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the operational implications of the following concepts as they apply to Loss of Main Feedwater (MFW): MFW line break depressurizes the S/G (similar to a steam line break)

KA Value: 4.1

Question 48

Reference Provided to Applicants: NONE

Technical Reference: OS-8

Lesson Objective: OS-8-17

10CFR55: 41.5

Comments:

SONGS 2006

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

50. 055 EA1.07 002/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A Station Blackout has occurred.
- The crew is restoring off-site power to Bus 1DA through the normal feed.

Prior to closing the normal feeder breaker to Bus 1DA, which ONE (1) of the following sets of actions must be performed, in accordance with AOP-304.1, *Loss of Bus 1DA with Diesel Unavailable?*

- A✓ De-energize Train "A" ESFLS
Ensure Bus 1DA TRANSFER INIT Switch is in OFF
- B. De-energize Train "A" ESFLS
Ensure Bus 1DA TRANSFER INIT Switch is in ON
- C. Reset NON-ESF LCKOUTS & AUTO-START BLOCKS
Ensure Bus 1DA TRANSFER INIT Switch is in OFF
- D. Reset NON-ESF LCKOUTS & AUTO-START BLOCKS
Ensure Bus 1DA TRANSFER INIT Switch is in ON

A Correct. Do not want unwarranted ESFLS actuation

B Incorrect. Wrong switch position, not required on because bus is dead. This would be on for live bus transfers

C Incorrect. SI is only reset if the SI annunciator is lit, after energization of the bus and prior to the ESFLS being re-energized

D Incorrect. Wrong switch position.

A is correct.

Ability to operate and monitor the following as they apply to a Station Blackout: Restoration of power from offsite

KA Value:4.3

Question 49

Reference Provided to Applicants: NONE

Technical Reference: AOP-304.1

Lesson Objective: 304.1-6

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

52. 056 AA2.50 001/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A loss of off-site power has occurred.
- Both EDGs have responded as designed.
- Subsequently, safety injection occurs.
- The following conditions exist on "A" EDG:
 - Frequency 59.9 Hz.
 - Voltage 7150 Volts
 - KW Output 2600 KW

RB Pressure reaches an actuation setpoint requiring the start of "A" RB Spray pump

Loads stabilize

Which ONE (1) of the following describes the status of "A" EDG?

- A✓ All listed parameters are within limits.
- B. Frequency is below the limit.
- C. Voltage is below the limit.
- D. Output exceeds the continuous KW rating.

A Correct

B Incorrect. 59.5 is low limit

C Incorrect. 6800 is low limit

D Incorrect. 4250 is continuous rating

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to determine and interpret the following as they apply to the Loss of Offsite Power: That load and VAR limits, alarm setpoints, frequency and voltage limits for ED/Gs are not being exceeded

KA Value: 2.8

Question 50

Reference Provided to Applicants: NONE

Technical Reference: IB-5, SOP 306

Lesson Objective: 7

10CFR55: 41.8

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

54. 057 AA2.19 003/BANK//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- IAW GOP-4A, *Power Operation (Mode 1-Ascending)*, power has been stabilized between 12 and 15%.
- Preparations are being made to roll the Main Turbine to 1800 rpm.
- Reactor power indicates the following:
 - IR N-35 - $1 \times 10^1\%$.
 - IR N-36 - $1 \times 10^1\%$.
 - PR N-41 - 15%.
 - PR N-42 - 14%.
 - PR N-43 - 14%.
 - PR N-44 - 14%.
- Inverter XIT-5902 output breaker trips open.

Which ONE (1) of the following describes the effect on the unit?

- A✓ A Power Range Rod Stop (C-2) signal, with no change in reactor power.
- B. A reactor trip due to the deenergization of Intermediate Range Channel N-35.
- C. A reactor trip due to the deenergization of Intermediate Range Channel N-36.
- D. An Intermediate Range Rod Stop (C-1) signal, with no change in reactor power.

A Correct. Power >10%, at power trips are enabled. With a loss of a power range channel (N-42), the associated rod block signal is generated

B Incorrect. Would be correct if APN-5901 was deenergized and power <P-10

C Incorrect. Would be correct if power <P-10

D Incorrect. Would be correct if power <P-10 and failure of IR not causing trip

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: The plant automatic actions that will occur on the loss of a vital ac electrical instrument bus

KA Value: 4.0

Question 51

Reference Provided to Applicants: NONE

Technical Reference: IC-8, IC-9

Lesson Objective: IC-8-27

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

55. 058 AA2.02 003/BANK//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is operating at 100% power.
- The following annunciators are received in the control room:
 - XCP-636, 4-6, DC SYS OVRVOLT/UNDRVOLT
 - XCP-637, 1-5, INV 3/4 TROUBLE
- Inverter output voltage indicates 120 vac.

Assuming NO other alarms are received, which ONE (1) of the following describes the common cause of both of the alarms?

- A. Loss of Alternate Source 1FB.
- B. Loss of Normal Source 1DB2Y.
- C✓ Loss of voltage on Bus 1HB.
- D. Inverter has transferred to Alternate Source 1FB.

- A. *Incorrect. Would not receive DC undervoltage alarm*
- B. *Incorrect. Would not receive DC undervoltage alarm*
- C. *Correct.*
- D. *Incorrect. Would not receive DC undervoltage alarm*

All credible because the applicant must understand inputs to inverters and the inverter trouble alarm will be apparent

Ability to determine and interpret the following as they apply to the Loss of DC Power: 125V dc bus voltage, low/critical low, alarm

KA Value: 3.3

Question 52

Reference Provided to Applicants: NONE

Technical Reference: XCP-636, 1-5, 4-6

Lesson Objective: GS-3-6

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

63. 065 AK3.04 003/MODIFIED/VC SUMMER/LOWER//RO/VC SUMMER/6/2007/NO
Given the following plant conditions:

- A loss of RB Instrument Air has occurred.
- RB Instrument Air header pressure is currently 94 psig and lowering.

Assuming no operator action, which ONE (1) of the following describes the response of the Air System and why?

RB Instrument Air header pressure decreases until...

- A✓ PVA-2659, INST AIR TO RB AIR SERV, automatically opens at 90 psig to ensure an air supply for AOVs inside the Reactor Building.
- B. PVA-2659, INST AIR TO RB AIR SERV, automatically opens at 93 psig to ensure an air supply for AOVs inside the Reactor Building.
- C. PVT-2660, AIR SPLY TO RB, closes at 90 psig to isolate the RB header to avoid a loss of Instrument Air outside the Reactor Building.
- D. PVT-2660, AIR SPLY TO RB, closes at 93 psig to isolate the RB header to avoid a loss of Instrument Air outside the Reactor Building.

A Correct. Valve opens at 90 psig

B Incorrect. Wrong pressure, corresponds to RB Air Compressor operation

C Incorrect. Wrong action from valve. Credible because Air systems do isolate when pressure is decreasing to eliminate propagation of faults

D Incorrect. Same reason as C but different pressure

Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air: Cross-over to backup air supplies

KA Value: 3.0

Question 53

Reference Provided to Applicants: NONE

Technical Reference: XCP-606.2-5, XCP-606.2-6

Lesson Objective: AB-14-6

10CFR55: 41.8

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

74. E04 EK1.2 003/BANK/NORTH ANNA 2006/LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA outside containment has occurred.
- The crew is performing the actions in EOP-2.5, *LOCA Outside Containment*.

Which ONE (1) of the following actions will be attempted to isolate the break and which indication is used to determine if the leak has been isolated in accordance with EOP-2.5?

A✓ Isolate low pressure Safety Injection piping.

RCS pressure is monitored, because SI flow will repressurize the RCS when the break is isolated.

B. Isolate low pressure Safety Injection piping.

PZR level is monitored, because when the break is isolated, RCS inventory will rapidly rise.

C. Isolate high pressure Safety Injection piping.

RCS pressure is monitored, because SI flow will repressurize the RCS when the break is isolated.

D. Isolate high pressure Safety Injection piping.

PZR level is monitored, because when the break is isolated, RCS inventory will rapidly rise.

A. Correct. Per EOP-2.5, monitor RCS pressure. The design basis LOCA ORB is on the LHSI piping, not the HHSI piping.

B and D. Incorrect because RCS inventory will increase, but may not immediately show up on PZR level.

C and D. Incorrect. The design basis LOCA Outside Containment is on the LHSI piping.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment) Normal, abnormal and emergency operating procedures associated with (LOCA Outside Containment).

KA Value: 3.5

Question 54

Reference Provided to Applicants: NONE

Technical Reference: EOP 2.5 Background

Learning Objective: 1886

10 CFR Part 55 Content: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

80. E11 EK1.1 003/MODIFIED//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA has occurred.
- Due to low RHR Sump Level, the crew has transitioned from EOP-2.2, *Transfer to Cold Leg Recirculation*, to EOP-2.4, *Loss Of Emergency Coolant Recirculation*.
- All automatic actions occurred as designed.
- Two Charging pumps and two RHR pumps are running.
- Both RB Spray Pumps are running.
- RHR, Charging, and RB Spray pump amps and flow are stable.
- RWST level is approximately 5% and continues to lower.

Which ONE (1) of the following describes how the Charging, RHR, and RB Spray pumps should be operated in accordance with EOP-2.4?

	<u>Charging Pumps</u>	<u>RB Spray Pumps</u>	<u>RHR Pumps</u>
A✓	Stop BOTH	Leave BOTH running	Leave BOTH running
B.	Stop ONE	Stop BOTH	Stop ONE
C.	Stop BOTH	Stop BOTH	Stop BOTH
D.	Leave BOTH running	Leave BOTH Running	Stop ONE

A. *Correct. RWST level is too low to leave any pumps running that are taking a suction from the RWST. Nothing to indicate that RHR and Spray pumps should be secured. Both should be taking a suction from their sumps.*

B. *Incorrect. RWST level is too low to leave any charging pumps running. Credible since BOTH RB spray pumps may be secured at Step 8. No reason to secure any RHR pumps.*

C. *Incorrect. No need to secure any RB Spray or RHR pumps at this time.*

D. *Incorrect. RWST level at <6% requires immediately stopping the charging pumps (taking suction from the RWST); however, the RB Spray and RHR pumps should be left running under these conditions.*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the operational implications of the following concepts as they apply to the (Loss of Emergency Coolant Recirculation) Components, capacity, and function of emergency systems.

KA Value: 3.7

Question 55

Reference Provided to Applicants: NONE

Technical Reference: EOP-2.4

Lesson Objective: EOP-2.4-6

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

81. E12 G2.2.25 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

The crew is performing actions of EOP-3.1, *Uncontrolled Depressurization of All Steam Generators*.

Which ONE (1) of the following describes the Technical Specification implications of the event?

- A✓ RCS cooldown rates above 100°F per hour may potentially result in non-ductile failure of the reactor vessel.
- B. Pressurizer cooldown rates above 100°F per hour may potentially result in pressurized thermal shock to the pressurizer.
- C. Loss of SG inventory may ultimately result in the RCS Pressure Safety Limit being exceeded.
- D. Loss of SG inventory may ultimately result in the Reactor Core Safety Limit being exceeded.

A Correct per TS basis

B Incorrect because PZR limit is 200 deg F per hour, and PTS requires neutron embrittlement, which would not be present in the PZR

C Incorrect. Should not lose inventory if procedure is followed

D Incorrect. Should not lose inventory if procedure is followed

Equipment Control Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

KA Value: 2.5

Question 56

Reference Provided to Applicants: NONE

Technical Reference: TS 3.4.9.1 and 3.4.9.2

Lesson Objective: EOP-3.1-4

10CFR55: 41.10/43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

1. 001 AA2.04 002/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Given the following:

- The unit is at 85% power at MOL.
- A continuous uncontrolled control rod withdrawal occurs.

Which ONE (1) of the following parameters will DECREASE?

- A. Steam Generator Pressure
- B. Main Generator Electrical Output
- C✓ Overpower Delta T setpoint
- D. VCT Level

C is correct. OP Delta T setpoint will lower as power and Tave rise.

A incorrect. SG pressure will rise because RCS temperature rises, Tsat of the SG will rise

B incorrect. Tsat of SG means Psat of SG rises, so Main Generator Output will also rise due to additional steam flow

D incorrect. VCT level will rise because PZR level rises due to RCS heatup. With constant letdown and lowering charging flow, VCT will rise

Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal:
Reactor power and its trend

KA Value: 4.2

Question 57

Reference Provided to Applicants: NONE

Technical Reference: IC-6

Lesson Objective: IC 6-3

10CFR55: 41.7

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

38. 028 AK3.03 002/BANK/VCS/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The unit was initially operating at full power.
- A loss of **ALL** offsite power occurred in conjunction with a steam generator tube rupture.
- All safeguards equipment functioned as required.
- The following plant conditions now exist:
 - Ruptured S/G pressure = 1100 psig, stable
 - Core exit TC = 505°F, slowly decreasing
 - RCS Pressure = 1600 psig, stable
 - PZR Level = 4%, stable
 - Total SI Flow = 600 gpm
- The RCS has been cooled down to target temperature.
- In accordance with EOP-4.0, *Steam Generator Tube Rupture*, the RO opens one PZR PORV.
- Soon after opening the valve, the operator observes that all channels of PZR level are rapidly increasing.
- ECCS flow has increased from 600 gpm to 650 gpm.

Which ONE (1) of the following is the cause of this indication?

- A. PZR level instruments are not calibrated for temperatures less than 600°F.
- B. Safety injection flow is driving the RCS to a water - solid condition.
- C✓ Voiding in the reactor vessel head is forcing water up the surge line.
- D. Backflow has been established from the ruptured S/G to the RCS.

A is incorrect because PZR temperature still > 600F; also, colder ref. leg causes lower reading.

B is incorrect because indicated increase in SI flow would only raise PZR level 0.66%/min.

C is correct. per Note - step 23 of EOP-4.0

D is incorrect RCS pressure = S/G pressure; therefore, no backflow (backflow established in EOP-4.1)

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the reasons for the following responses as they apply to the Pressurizer Level Control Malfunctions: False indication of PZR level when PORV or spray valve is open and RCS saturated

KA Value: 3.5

Question 58

Reference Provided to Applicants: NONE

Technical Reference: EOP-4.0 and basis

Lesson Objective: OS-8-6

10CFR55: 41.5

Comments:

Reference: EOP-4.0

Taskmaster Question: #514

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

43. 036 AK3.02 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is in Mode 6, core reload is in progress.
- A fuel assembly is being inserted into the core when downward motion stops.
- The Refueling SRO notes the following:
 - The SLACK CABLE light is ON
 - The LOWER SLOW ZONE light is OFF
 - The GRIPPER TUBE DOWN light is OFF

Which ONE (1) of the following describes the reason that downward movement stopped and the subsequent operation related to the interlock?

- A✓ Total load fell more than 150-300# below nominal full load; bypassing the interlock is not possible.
- B. The fuel assembly approached 10" from the bottom of the core; bypassing the interlock is not possible.
- C. Total load fell more than 150-300# below nominal full load; bypass the interlock to allow the assembly to be fully inserted.
- D. The fuel assembly approached 10" from the bottom of the core; bypass the interlock to allow the assembly to be fully inserted.

A Correct. Per GS-4, page 67 of 79, normal setpoint for SLACK CABLE is 300# below full weight of mast + fuel assembly. The SLACK CABLE interlock may not be bypassed (see GS-4, page 67 of 79). NOTE: A range is provided in Choices A & C because the positions of the Load Selector switch provide for a range. Testing the setpoints for the various switch positions is beyond RO level of knowledge.

B Incorrect. Credible since this is the setpoint for the LOWER SLOW ZONE interlock, which stops downward movement. This interlock is effectively "bypassed" by using the jog control to lower the assembly.

C Incorrect. SLACK CABLE light energizes at around 300# below full load. This interlock cannot be bypassed

D Incorrect. Incorrect since the LOWER SLOW ZONE light is deenergized. Credible since this is the setpoint for the LOWER SLOW ZONE interlock, which stops downward movement. This interlock is effectively "bypassed" by using the jog control to lower the assembly.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the reasons for the following response as they apply to the Fuel Handling Incidents: Interlocks associated with fuel handling equipment.

KA VAlue: 2.9

Question 59

Reference Provided to Applicants: NONE

Technical Reference: GS-4, FHP-604

Lesson Objective:

10CFR55: 41

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

48. 051 AK3.01 002/BANK/VC SUMMER/LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the purpose of C-9, Condenser Availability, and C-16, Condenser Pressure, permissive signals?

A. C-9 prevents 2 steam dump valves from operating during conditions that could damage the condensers.

C-16 arms ALL condenser dump valves when condenser is below 4.5" Hg abs and adequate circ water pumps are available.

B. C-9 arms ALL condenser dump valves when condenser is below 7.5" Hg abs and adequate circ water pumps are available.

C-16 prevents 2 steam dump valves from operating during conditions that could damage the condensers.

C. C-9 anticipates condenser heat load problems by blocking 2 condenser dump valves at 7.5 "Hg abs.

C-16 prevents ALL condenser steam dump valves from operating during conditions that could damage the condensers.

D✓ C-9 prevents ALL condenser steam dump valves from operating during conditions that could damage the condensers.

C-16 anticipates condenser heat load problems by blocking 2 condenser dump valves at 4.5 "Hg abs.

A Incorrect. C-9 affects all steam dumps, not just 2. Arming signal does not come from C-16, it is generated by P-4. 7.5" is credible because it is the Turbine Trip setpoint, but 4.5" is the arming signal.

B Incorrect. Partially correct explanation of C-16 but incorrect for C-9. 7.5" is credible because it is the Turbine Trip setpoint, but 4.5" is the arming signal.

C Incorrect. C-16 and C-9 functions are reversed

D Correct. C-9 is condenser availability, and will only allow steam dump operation if vacuum is satisfactory. C-16 limits steam dump operation as vacuum approaches the C-9 setpoint

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the reasons for the following responses as they apply to the Loss of Condenser Vacuum: Loss of steam dump capability upon loss of condenser vacuum

KA Value: 2.8

Question 60

Reference Provided to Applicants: NONE

Technical Reference: IC-1

Lesson Objective: IC-1-13

10CFR55:41 41.4

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

73. E03 G2.1.33 003/BANK/WTSI/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The reactor has tripped. Safety Injection is actuated.
- An RCS cooldown is in progress in accordance with EOP-2.1, *Post LOCA Cooldown and Depressurization*.

- The following table is a plot of the cooldown:

<u>TIME</u>	<u>RCS TCOLD</u>	<u>TIME</u>	<u>RCS TCOLD</u>
0800	547°F	0945	425°F
0815	530°F	1000	395°F
0830	520°F	1015	382°F
0845	505°F	1030	364°F
0900	498°F	1045	340°F
0915	478°F	1100	310°F
0930	447°F	1115	280°F

At which time was the Tech Spec RCS Cooldown rate limit FIRST exceeded?

- A. 0915.
- B. 0930.
- C✓ 1000.
- D. 1115

- A. *Incorrect. 52 deg F in 1 hour, greater than 50 required by the procedure, < T.S.*
- B. *Incorrect. 31 degrees in 15 minutes and 51 degrees in thirty minutes which would indicate exceeding 100 degrees per hour however for one hour the rate was 73 degrees.*
- C. *Correct. This is 103 degrees in one hour.*
- D. *Incorrect. Credible because limits were exceeded at 1115, but limits were FIRST exceeded at 1000 because c/d rate was 103 deg F for that hour*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Conduct of Operations: Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications

KA Value: 3.4

Question 61

Reference Provided to Applicants: NONE

Technical Reference: TS 3.4.9.1

Lesson Objective: EOP-2.1-4

10CFR55: 41.10/43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

75. E06 EK2.2 002/BANK/WTSI/LOWER/RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the reason that a RED condition on the Integrity CSF Status Tree may develop while performing actions of EOP-14.1, *Response to Degraded Core Cooling*?

- A. Core Exit Thermocouple temperature will decrease rapidly when Low Head SI Pumps are started and SI flow is initiated.
- B. Core Exit Thermocouple temperature will decrease rapidly when SG depressurization and SI Accumulator injection occur.
- C. RCS Cold Leg temperature will decrease rapidly when Low Head SI Pumps are started and SI flow is initiated.
- D✓ RCS Cold Leg temperature will decrease rapidly when SG depressurization and SI Accumulator injection occur.

D. Correct. SG depressurization will cause Tc to rapidly decrease. Note in EOP-14.1 warns of red condition on integrity.

A. Incorrect. Core Exit thermocouples will decrease when SI started, but CETs do not input to the Integrity CSF ST.

B. Incorrect. Core Exit Thermocouples do not input Integrity CSFST, but condition would exist

C. Incorrect since the WOG ERG Background documents do not reflect potential for a Red Path to EOP-16.0 after initiation of High Head or Low Head SI. Absence of a CAUTION similar to that related to SG depressurization/SI accumulator injection is enough to indicate that SI flow should not cause a PTS concern.

Knowledge of the interrelations between the (Degraded Core Cooling) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

KA Value: 3.8

Question 62

Reference Provided to Applicants: NONE

Technical Reference: EOP-14.1

Lesson Objective: 2073

10CFR55: 41.10

Comments: North Anna 2006

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

77. E08 EA2.1 002/BANK/WTSI/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA has occurred.
- The crew is performing actions contained in EOP-2.0, *Loss of Reactor or Secondary Coolant*.
- The following conditions currently exist:
 - Integrity - RED
 - Containment - RED
 - Subcriticality - ORANGE
 - Core Cooling - ORANGE
 - Inventory - YELLOW
 - Heat Sink - YELLOW

Which ONE (1) of the following describes the correct procedure flowpath for these conditions?

- A. EOP-17.0, *Response to High Reactor Building Pressure*, followed by EOP-16.0, *Response to Imminent Pressurizer Thermal Shock Condition*.
- B✓ EOP-16.0, *Response to Imminent Pressurizer Thermal Shock Condition*, followed by EOP-17.0, *Response to High Reactor Building Pressure*.
- C. EOP-14.1, *Response to Degraded Core Cooling*, followed by EOP-16.0, *Response to Imminent Pressurizer Thermal Shock Condition*.
- D. EOP-16.0, *Response to Imminent Pressurizer Thermal Shock Condition*, followed by EOP-14.1, *Response to Degraded Core Cooling*.

A Incorrect. Red on Integrity is priority

B Correct

C Incorrect. Higher priority safety function is integrity, but the Red condition on Containment is pressure, not flooding

D Incorrect. Red condition on Containment is pressure

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to determine and interpret the following as they apply to the (Pressurized Thermal Shock) Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

KA Value: 3.4

Question 63

Reference Provided to Applicants: NONE

Technical Reference: EOP-16.0, EOP User's Guide

Lesson Objective: EOP-16.0-2

10CFR55: 41.10/43.2

Comments:

IP3 NRC Exam; BVPS-2 NRC exam

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

79. E10 G2.1.23 003/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A reactor trip has occurred due to a loss of offsite power.
- The crew is performing actions of EOP-1.4, *Natural Circulation Cooldown with Steam Void in Vessel*.
- During the event, RCP seal cooling was lost, but subsequently restored.
- The operating crew is preparing to initiate the RCS cooldown.

The following conditions are indicated:

- RVLIS NR level is 89%.
- RCS subcooling is 60°F.
- PZR Level is 72% and stable.

Which ONE (1) of the following actions is required in accordance with EOP-1.4?

- A✓ Use PZR Heaters as necessary to saturate PZR water and continue in EOP-1.4.
- B. Initiate Safety Injection and go to EOP-1.0, *Reactor Trip Or Safety Injection*.
- C. Start a RCP and go to the applicable portion of the appropriate GOP.
- D. Return to EOP-1.3, *Natural Circulation Cooldown*.

A. *Correct. Per EOP-1.4, Alternative Action, Step 1.b.3).*

B. *Incorrect. Reference Page SI actuation criteria are not met.*

C. *Incorrect. Since seal cooling was lost, an engineering evaluation must be performed prior to RCP restart*

D. *Incorrect. CAUTION at the beginning of the procedure warns that EOP-1.3, Steps 1-9, must be completed before continuing with EOP-1.4 (which establishes credibility for EOP-1.3), it would not be implemented.*

Choices B & C are actions that may be taken near this point in the procedure based on different conditions presented

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation.

KA Value: 3.9

Question 64

Technical Reference: EOP 1.3

Proposed references to be provided to applicants during examination: None

Learning Objective: 1800

10 CFR Part 55 Content: 41.10/43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

83. E16 EA1.3 002/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Which ONE (1) of the following describes the status of RB ventilation and RBCU's upon completion of the actions contained in EOP-17.2, *Response to High Reactor Building Radiation Level?*

- A. RB Purge isolated
All RBCU fans in SLOW
- B. RB Purge isolated
RBCU fans selected on switch RBCU TRAIN A/B EMERG, running in SLOW
- C. RB Mini Purge in service
All RBCU fans in SLOW
- D. RB Mini Purge in service
RBCU fans selected on switch RBCU TRAIN A/B EMERG, running in SLOW

A Incorrect. Not all fans will be running

B Correct. Ensure Containment Ventilation Isolation has occurred and place the selected fans in slow speed

C Incorrect. Purge will not be running and fans will not all be running

D Incorrect. Purge will not be running

Ability to operate and / or monitor the following as they apply to the (High Containment Radiation) Desired operating results during abnormal and emergency situations.

KA Value: 2.9

Question 65

Reference Provided to Applicants: NONE

Technical Reference: EOP-17.2

Lesson Objective: 2196

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

88. G2.1.7 005/BANK/WTSI/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- An RCS leak is in progress.
- The crew is performing the appropriate AOP for the plant condition.
- Letdown is isolated.
- Charging flow is maximized.
- RCS pressure is 1990 psig and lowering.
- Reactor Building pressure is 1.8 psig and rising.
- Pressurizer level is 18% and lowering.
- VCT level is 15% and lowering.

Which ONE (1) of the following describes the status of the plant and the action required?

- A. An RPS setpoint has been exceeded. Trip the Reactor and initiate Safety Injection when immediate actions of EOP-1.0 have been completed.
- B. An RPS setpoint has been exceeded. Trip the reactor and concurrently perform actions of the in-use AOP when immediate actions of EOP-1.0 have been completed.
- C✓ An RPS setpoint has NOT been exceeded, Trip the Reactor, perform the immediate actions of EOP-1.0, then initiate Safety Injection.
- D. An RPS setpoint has NOT been exceeded, Trip the Reactor, perform the immediate actions of EOP-1.0, continue to implement the AOP concurrently, then initiate Safety Injection when Pressurizer level is <12%.

A Incorrect. Parameters are within reactor trip setpoints, none has been exceeded. SI would be actuated when the reactor is tripped

B Incorrect. RPS has not been exceeded, but AOP may still be used post-trip

C Correct. AOP 101.1 requires tripping the reactor with max charging and minimum letdown, and initiating SI when IAs complete. RCS pressure not low enough, RB pressure not high enough for RPS actuation. OP and OT DT not given. PZR level will go below 12% with no further action to be taken. VCT will also go below 5%

D Incorrect. Safety Injection IS required

QUESTIONS REPORT

for VCS 2007 NRC EXAM AS GIVEN

Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation

KA Value: 3.7

Question 66

Reference Provided to Applicants: NONE

Technical Reference: AOP-101.1

Lesson Objective: 4793

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

85. G2.1.17 001/NEW//LOWER//RO/VC SUMMER/6/2007/NO

In accordance with OAP-100.4, *Communication*, which ONE (1) of the following communications should use the phonetic alphabet?

- A. Communications involving safety system trains. (Train Alpha)
- B✓ Communications involving manipulation of plant components. (Alpha Charging Pump)
- C. Communications describing Containment Isolation (Phase Bravo)
- D. All communications that are not 'information only'.

A Incorrect. Train designations are excluded

B Correct

C Incorrect. Phase designations for ESF are excluded

D Incorrect. Not ALL, but some would be excluded

Ability to make accurate, clear and concise verbal reports.

KA Value: 3.5

Question 67

Reference Provided to Applicants: NONE

Technical Reference: OAP-100.4

Lesson Objective: OAP-100.4-2

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

86. G2.1.27 002/BANK/HARRIS 2005 NRC/HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is at 46% power and increasing IAW GOP-4A, *Power Operation (Ascending)* at 3% per hour.
- A loss of Feedwater occurs.
- All three S/G NR levels are at 5% and lowering.
- It is now 60 seconds later.

Which ONE (1) of the following is the expected response of the ATWS Mitigation System Actuation Circuitry (AMSAC)?

- A. AMSAC will NOT actuate because it is not armed.
- B. AMSAC will TRIP the reactor and START the EFW pumps.
- C. AMSAC will NOT actuate because the time delay on reactor power has not timed out.
- D✓ AMSAC will TRIP the main turbine and START the EFW pumps.

B-Incorrect. Approx 40% power equivalent on First Stage pressure is correct, but turbine is tripped, not reactor

A-Incorrect. Arms at approx 40%

C-Incorrect. Time delay for power is 260 seconds after going BELOW 40% to ensure transients do not preclude initiation.

D-Correct. Turbine Trip and start EFW

Knowledge of system purpose and or function.

KA Value: 2.8

Question 68

Technical Reference: IC-18

Proposed references to be provided to applicants during examination: None

Learning Objective: IC-18-12

10 CFR Part 55 Content: 41

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

90. G2.2.24 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

The unit is at 100% power.
All systems are in normal alignments.

Which ONE (1) of the following activities requires entry into a technical specification LCO action statement?

- A. CCW Pump B mechanical seal repair.
- B. Charging Pump A removal from service for oil change.
- C. Boric Acid Transfer Pump recirc valve leak repair.
- D✓ RHR Heat Exchanger Discharge flow control valve repair.

A Incorrect. One CCW Pump would require entry to LCO because a swing pump can provide the function for that train

B Incorrect. Same as A. Charging has a swing pump.

C Incorrect. Although B ATP is part of boration control system and reactor makeup, it is not required IAW TS

D Incorrect. RHR discharge is a required ECCS flowpath, requiring entry to LCO 3.5.2

Ability to analyze the affect of maintenance activities on LCO status.

KA Value: 2.6

Question 69

Reference Provided to Applicants: NONE

Technical Reference: TS 3.5.2

Lesson Objective: SB-4-19

10CFR55: 41.10/43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

92. G2.2.28 001/BANK/WTSI/LOWER//RO/VC SUMMER/6/2007/NO
Which ONE (1) of the following describes the MINIMUM Source Range Nuclear Instrumentation requirement that must be met prior to off-loading fuel from the reactor vessel?

	<u>Visual in control room</u>	<u>Audible in control room</u>	<u>Audible in RB</u>
A.	1	1	1
B✓	2	1	1
C.	2	2	1
D.	2	2	2

A Incorrect. 2 channels required in control room

B Correct

C Incorrect. Only 1 audible channel require din control room (Either channel)

D Incorrect. Either channel required for audible indication, not both

Knowledge of new and spent fuel movement procedures.

Question Number: RO 70

Importance Rating: 2.6

Technical Reference: REP-107.002, TS 3.9

Proposed references to be provided to applicants during examination: None

Learning Objective:

10 CFR Part 55 Content: 41.10/43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

95. G2.3.4 003/MODIFIED//LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A General Emergency exists.
- The TSC is manned.
- A valve in the Aux Building must be closed to prevent damage to valuable safety related equipment.
- Radiation levels are extremely high.

Which ONE (1) of the following describes the maximum dose that is allowed to perform this operation and whose permission is required?

An individual may receive . . .

- A. Up to 10 Rem with permission from the Duty SS
- B. 25 Rem, or more, with permission from the Duty SS
- C✓ Up to 10 Rem with permission from the ED
- D. 25 Rem, or more, with permission from the ED

A Incorrect. In E-plan, Duty SS cannot authorize PSE
B Incorrect. Duty SS cannot authorize, but correct dose
C Correct. Correct dose for saving plant equipment
D Incorrect. Life saving dose

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

KA Value: 2.5

Question 71

Technical Reference: EPP-20

Proposed references to be provided to applicants during examination: None

Learning Objective: 4160

10 CFR Part 55 Content: 41.12

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

93. G2.3.1 002/BANK/WTSI/LOWER//RO/VC SUMMER/6/2007/NO

Given the following information:

- A 27 year old new V.C Summer employee has a fully completed NRC Form 4 and a 2007 radiation exposure history as follows:
 - 2650 millirem from previous employment with Progress Energy in 2007.
 - 110 millirem since becoming a V.C. Summer employee.

Which ONE (1) of the following describes the MAXIMUM ADDITIONAL exposure the employee may receive prior to reaching his MAXIMUM Administrative Dose Control Limit, including any applicable extensions, IAW HPP-0153, *Administrative Exposure Limits*?

- A✓ 1240 millirem
- B. 1350 millirem
- C. 2240 millirem
- D. 2350 millirem

A Correct. Total dose so far is 2760 mr. 1240 more to go.

B Incorrect. Adds up to 4R without Summer dose included

C Incorrect. Adds up to 5R. Although within federal limits, it exceeds VCSNS admin limits.

D Incorrect. 2650 + 2350 adds up to 5R if Progress Energy dose is not considered.

A is correct because approvals are allowed up to 4000 mr total yearly dose

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

KA Value: 2.6

Question 72

Reference(s) - 10CFR20.1302, HPP-153

Proposed References to be provided to applicants during examination - None

Learning Objective - NONE

10 CFR Part 55 Content - 41.12

Comments -

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

100. G2.4.9 001/NEW//LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The Unit is in Mode 5.
- RCS Drain Down to Mid Loop is in progress in preparation for welding on a Hot Leg opening.
- RHR Pump A is in service.
- During the drain down, RHR amps and discharge pressure begin fluctuating erratically.
- The crew enters AOP-115.1, *RHR Pump Vortexing*.
- The drain-down is stopped.

Which ONE (1) of the following describes the FIRST action that will be required in accordance with AOP-115.1?

- A✓ Reduce RHR flow.
- B. Align the RHR Pump to the RWST.
- C. Raise RCS level.
- D. Vent the operating RHR loop.

A Correct. First action will be to reduce flow in an attempt to stop cavitation. All other actions are subsequent

B Incorrect. Subsequent action. See AOP

C Incorrect. Subsequent action

D Incorrect. Second action

Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.

KA Value: 3.3

Question 73

Reference Provided to Applicants: NONE

Technical Reference: AOP-115.1

Lesson Objective: 2276

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

99. G2.4.29 002/BANK/VCS/LOWER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- T=0 A fire is occurring in the Aux Building 436'.
- T+2 Fire Brigade Leader reports to the scene.
- T+15 Notification of Unusual Event declared.

In accordance with EPP-013, *Plant Fire*, who, by title, is coordinating the fire fighting efforts with the Fire Brigade Leader?

- A. Shift Supervisor
- B. Emergency Director
- C. OSC Supervisor
- D. Health Physics Shift Leader

A Correct. NOUE, the SS will still be coordinating fire fighting efforts

B Incorrect. The ED would not actually coordinate fire fighting efforts, but would coordinate the E-Plan recovery effort.

C Incorrect. OSC would not be manned for NOUE, but this would be correct for Alert and above

D Incorrect. HP Leader will consult on the fire because it is in the RCA, but will not coordinate the fire fighting efforts

EPP-013 states that when the ERO is not manned, the Shift Supervisor will coordinate Knowledge of the emergency plan.

KA Value: 2.6

Question 74

Reference Provided to Applicants: NONE

Technical Reference: EPP-13

Lesson Objective: 4140

10CFR55: 41.10

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

97. G2.4.13 001/NEW//HIGHER//RO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A reactor trip and safety injection have occurred.
- Off-Site power is lost subsequent to safety injection actuation.
- Equipment failures during performance of EOP-2.0, *Loss of Reactor or Secondary Coolant*, resulted in the following conditions:
 - Bus 1DA is de-energized due to a fault.
 - CSF Status Trees indicate as follows:
 - Subcriticality GREEN
 - Core Cooling ORANGE
 - Heat Sink RED
 - Integrity GREEN
 - Containment YELLOW
 - Inventory YELLOW

Which ONE (1) of the following describes the requirement for Critical Safety Function Status Tree Monitoring in accordance with OAP-103.04, *EOP/AOP User's Guide*?

- A✓ Continuous monitoring is required.
- B. Monitor every 5 - 10 minutes unless a change in status occurs.
- C. Monitor every 10 - 20 minutes unless a change in status occurs.
- D. Monitored for information only.

A Correct. Red or Orange path exists, must continuously monitor

B Incorrect. Continuous monitoring is required

C Incorrect. Continuous monitoring is required

D Incorrect. Only in EOP-6.0 does this apply.

QUESTIONS REPORT

for VCS 2007 NRC EXAM AS GIVEN

Knowledge of crew roles and responsibilities during EOP flowchart use.

KA Value: 3.3

Question 75

Reference Provided to Applicants: NONE

Technical Reference: OAP-103.04

Lesson Objective: OAP-103.04-10

10CFR55: 41.10

Comments:

SRO

ONLY

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

30. 022 AA2.02 005/BANK/WTSI/HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is at 100% power with all systems in normal alignments.
- The RO determines that actual Pressurizer level is trending DOWN and VCT level is trending UP.
- CHG LINE FLO HI/LO annunciator has actuated.
- FI-122A, CHG FLOW GPM, reads 0 gpm.
- Charging pump current is 5 amps.
- RCS temperature and pressure are stable.

Which ONE (1) of the following describes the procedure that should be implemented and the initial actions required?

- A✓ AOP-102.2, *Loss of Charging*; stop the operating Charging Pump and isolate Letdown.
- B. AOP-102.2, *Loss of Charging*; reduce letdown to 45 gpm and verify the charging system valve lineup.
- C. AOP-101.1, *Loss of Reactor Coolant Not Requiring SI*; stop the operating Charging Pump and isolate Letdown.
- D. AOP-101.1, *Loss of Reactor Coolant Not Requiring SI*; open FCV-122 as necessary and reduce Letdown to 45 gpm.

A *Correct*

B. *Correct procedure; incorrect actions.*

C. *Incorrect procedure, correct actions*

D. *Incorrect procedure; incorrect actions.*

Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Pump Makeup: Charging pump problems

KA Value: 3.7

Question 76

Reference Provided to Applicants: NONE

Technical Reference: AOP-102.2

Lesson Objective: AOP-102.2-2

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

5. 0029 EA2.09 001/MODIFIED/KEWAUNEE/HIGHER//SRO/KNP//KNP 2003

Given the following plant conditions:

- Reactor power is 100%.
- Reactor Trip Breaker testing is being performed.
- Reactor Trip Bypass Breaker 'A' and Reactor Trip Breaker 'B' are both RACKED IN and CLOSED.
- Reactor Trip Bypass Breaker 'B' and Reactor Trip Breaker 'A' are both RACKED OUT and OPEN.

After completion of the testing, the Electricians RACK IN and Operations attempts to CLOSE Reactor Trip Bypass Breaker B.

- Immediately upon attempting closure, Reactor Trip Bypass Breaker 'B' opens.
- NO other breakers reposition.

Which ONE (1) of the following describes the response to this condition?

The reactor has . . .

- A. NOT tripped, immediately enter EOP-13.0, *Response To Abnormal Nuclear Power Generation*, and direct the NROATC to commence rod insertion.
- B✓ NOT tripped, immediately enter EOP-1.0, *Reactor Trip/Safety Injection Actuation*, direct the NROATC to manually trip the reactor.
- C. tripped, have an operator "backup" the reactor trip, then verify the turbine/generator has tripped.
- D. tripped, direct an operator to verify turbine/generator has tripped, when time permits, direct the IBAO to locally open both Reactor Trip Breaker 'B' and Reactor Trip Bypass Breaker 'A'.

Answer: **B** NOT tripped, the NCO should manually trip the reactor.

Distract A Comments:

Distract C Comments:

Distract D Comments:

QUESTIONS REPORT

for VCS 2007 NRC EXAM AS GIVEN

KA - 029 EA2.097 Ability to determine or interpret the following as they apply to a
ATWS: occurrence of a mainturbine/reactor trip (4.4/4.5)

Cognitive Level - Higher

Reference Allowed -

Exam Level - SRO

Facility - Kewaunee 1

Vendor - WEC

Reference:

Objective:

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

45. 038 G2.4.31 002/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is at 47% power.
- The following alarm is received in the control room:
 - XCP-646-2-1, RM-G19 HI RAD
- The RO confirms that RM-G19B is off-scale high.
- Charging Pump flow is rising slowly.
- Chemistry and Health Physics have confirmed that the alarm is valid.

Which ONE (1) of the following describes additional actions that will be required in accordance with the alarm response?

- A. Remove Condensate Polishers from service; Go to AOP-101.1, *RCS Leak not Requiring SI.*
- B✓ Remove Condensate Polishers from service; Go to AOP-112.2, *SG Tube Leak not Requiring SI.*
- C. Place Condensate Polishers in service; Go to AOP-101.1, *RCS Leak not Requiring SI.*
- D. Place Condensate Polishers in service; Go to AOP-112.2, *SG Tube Leak not Requiring SI.*

A Incorrect. Correct actions but incorrect procedure

B Correct. SG Tube leak with RM-G19 alarming. Actions are correct

C Incorrect. Would not place condensate polishers in service; remove them. Credible because polishers provide cleanup function. Wrong procedure

D Incorrect. Incorrect action on polishers, but correct procedure

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Emergency Procedures / Plan Knowledge of annunciators alarms and indications, and use of the response instructions.

KA Value: 3.4

Question 78

Reference Provided to Applicants: NONE

Technical Reference: XCP-646, 2-1

Lesson Objective: 2264

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

47. 040 G2.4.50 004/BANK/WTSI/HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A transient has occurred resulting in the following alarm:
 - PR FLUX HI ROD STP
- Reactor power indicates the following:
 - N41 – 101.9% and stable
 - N42 – 102.8% and stable
 - N43 – 101.9% and stable
 - N44 – 103.1% and stable
 - Tavg is 578°F and stable

Which ONE (1) of the following has occurred, and which action(s)/procedure(s) is/are required to be implemented?

- A. A Rod Stop was initiated by 1 PR channel ONLY; initiate RCS boration to reduce power in accordance with the applicable alarm response.
- B. A Rod Stop was initiated by 2 PR channels; reduce turbine load to reduce power in accordance with applicable alarm response procedures.
- C. A Rod Stop was initiated by 2 PR channels; initiate RCS boration to reduce power in accordance with the applicable alarm response.
- D✓ A Rod Stop was initiated by 1 PR channel ONLY; reduce turbine load to reduce power in accordance with applicable alarm response procedures.

A. Incorrect. Correct # of PR channels (>103%). Incorrect because procedure is wrong. No reactor trip required for this event.

B. Incorrect. Incorrect # of PR channels. Incorrect because procedure is wrong. No reactor trip required for this event.

C. Incorrect # of PR channels. Correct action and procedure.

D. Correct. Correct # of PR channels (>103%). Correct action and procedure.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Emergency Procedures / Plan Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

KA Value: 3.3

Question 79

Reference Provided to Applicants: NONE

Technical Reference: XCP-621

Lesson Objective: 2413

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

51. 055 EA2.02 002/MODIFIED//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant was operating at 98% power when a loss of off-site power occurred.
- Eight minutes later, the following plant conditions exist:
 - 1DA and 1DB Bus voltage is zero (0).
 - RCS pressure is 2235 psig and slowly increasing.
 - RCS Loop T_{HOT} is 602°F in all 3 loops and stable.
 - RCS Loop T_{COLD} is 565°F in all 3 loops and stable.
 - Core exit TCs indicate approximately 610°F and rising slowly.
 - Steam Generator pressures are approximately 1100 psig and stable.
 - PZR level is 20% and stable

Which ONE (1) of the following describes the current plant conditions and action that will be directed?

- A. Heat removal is being maintained by steam line PORVs. Verify that Natural Circulation exists in accordance with EOP-6.2, *Loss of All ESF AC Power Recovery With SI Required*.
 - B. Heat removal is being maintained by condenser steam dumps. Verify that Natural Circulation exists in accordance with EOP-6.1, *Loss of All ESF AC Power Recovery Without SI Required*.
 - C. Natural Circulation does not exist. Heat removal may be established in accordance with EOP-6.2, *Loss of All ESF AC Power Recovery With SI Required*.
 - D✓ Natural Circulation does not exist. Heat removal may be established in accordance with EOP-6.1, *Loss of All ESF AC Power Recovery Without SI Required*.
- A. *Incorrect. Wrong procedure entry. Plant conditions do not dictate SI required. (must have <30F subcooling or <18% PZR level or existing SI flow)*
- B. *Incorrect. Condenser is not available.*
- C. *Incorrect. Wrong procedure entry. Plant conditions do not dictate SI required.*
- D. *Correct. With temperatures stable and T_{cold} above T_{sat} for SG pressure, and DT less than full load, Natural Circulation exists if CETs are stable or lowering. B*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to determine or interpret the following as they apply to a Station Blackout: RCS core cooling through natural circulation cooling to S/G cooling

KA Value: 4.6

Question 80

Reference Provided to Applicants: NONE

Technical Reference: EOP-6.0

Lesson Objective: EOP-6.0-7

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

53. 056 G2.4.6 002/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A reactor trip has occurred due to loss of off-site power.
- ESF equipment responds as designed.
- Off-Site power has NOT been restored.
- CST level indicates 14 feet.

Assuming power will be unavailable for an extended period of time, (>4 hours) which ONE (1) of the following describes the event mitigation strategy upon exit from EOP-1.0, *Reactor Trip/Safety Injection Actuation*?

- A✓ Go to EOP-1.1, *Reactor Trip Recovery*; cooldown the RCS using EOP-1.3, *Natural Circulation Cooldown*.
- B. Go to EOP-1.1, *Reactor Trip Recovery*; stabilize the primary and secondary plants, and remain in EOP-1.1 until power is restored.
- C. Go To GOP-5, *Reactor Shutdown From Startup to Hot Standby (Mode 2 to Mode 3)*; refer to AOP-304.3, *Loss of All Balance of Plant Buses*, to restore service bus power.
- D. Go To GOP-5, *Reactor Shutdown From Startup to Hot Standby (Mode 2 to Mode 3)*; refer to SOP-211, *Emergency Feedwater System*, to swap EFW to Service Water.

A Correct. EOP-1.1 is correct transition when plant responds as designed to Loss of Off-Site power. EDGs have started, so EOP-6.0 is not necessary

B Incorrect. Would not stay in EOP-1.1, would cooldown in EOP-1.3

C Incorrect. Wrong procedure

D Incorrect. Wrong procedure

Emergency Procedures / Plan Knowledge symptom based EOP mitigation strategies.

KA Value: 4.0

Question 81

Reference Provided to Applicants: NONE

Technical Reference: EOP-1.0

Lesson Objective: 1679

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

2. 001 AA2.05 004/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is at 50% power.
- ALL controls are in automatic.
- ALL MCB switches are in their normal position for this power level.
- An event occurs resulting in the following indications:
 - RCS T_{avg} rising approximately 5°F above T_{ref} .
 - Reactor Power is rising.
 - First Stage Pressure Transmitter PT-446 indicates 330 psig and stable.
 - First Stage Pressure Transmitter PT-447 indicates 800 psig.
 - Control Bank D is withdrawing at 16 steps per minute.

Which ONE (1) of the following describes the procedure entry required to mitigate the event and the reason for the procedural actions taken?

- A✓ AOP-403.3, *Continuous Control Rod Motion*; to minimize the impact on power distribution limits.
- B. AOP-403.3, *Continuous Control Rod Motion*; to prevent an out of spec negative DELTA-I.
- C. AOP-401.7, *Turbine First Stage Pressure Transmitter Failure*; to minimize the impact on power distribution limits.
- D. AOP-401.7, *Turbine First Stage Pressure Transmitter Failure*; to prevent an out of spec negative DELTA-I.

A Correct. Correct event and procedure. Bases is IAW T.S. page B 3/4 1-3.

B. Incorrect. Correct event and procedure. Incorrect since DELTA-I should go positive for outward rod movement.

C Incorrect. Wrong event, although rod motion would occur for a T_{ref} input failure if PT-446 failed. Since given information says "all switches in normal" and the selector switch for T_{ref} is normally in the PT-446 position, a failure of PT-447 would NOT cause rod motion and AOP-401.7 should not be implemented to mitigate the event. Bases is IAW T.S. page B 3/4 1-3.

D Incorrect. Wrong event, although rod motion would occur for a T_{ref} input failure. Incorrect since DELTA-I should go positive for outward rod movement.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal:
Uncontrolled rod withdrawal, from available indications

KA Value: 4.6

Question 82

Reference Provided to Applicants: NONE

Technical Reference: AOP-403.3

Lesson Objective: 2403

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

76. E07 EA2.2 003/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A Steam Generator Tube Rupture has occurred.
- Due to equipment failures, the crew is performing actions contained in EOP-4.3, *SGTR with Loss of Reactor Coolant - Saturated Recovery*.
- The Shift Engineer informs you that all CSF Status Trees are GREEN with the exception of the following:
 - Core Cooling - YELLOW due to RVLIS level
 - Inventory - YELLOW due to RVLIS level

Which ONE (1) of the following describes the correct implementation of procedures for this event?

- A. Select another post-SGTR cooldown method IAW EOP-4.0. Implementation of Yellow Path procedures is not allowed while in EOP-4.3.
- B. Remain in EOP-4.3 while addressing BOTH Yellow Path procedures. You may choose to implement the actions of either Yellow Path procedure.
- C. Select another post-SGTR cooldown method IAW EOP-4.0 and address ONLY the Core Cooling Yellow Path, due to its higher priority.
- D✓ Remain in EOP-4.3 and address ONLY the Inventory Yellow Path due to conflict between the Core Cooling Yellow Path and EOP-4.3 actions.

- A. Incorrect. Not necessary to select another SGTR cooldown method, but Contingency procedures do not preclude the use of yellow path procedures, unless the Contingency is EOP-6.0 (which is what lends credibility to this choice).*
- B. Incorrect. Normally this would be true, but a caution in EOP-4.3 prohibits performance of Yellow Core Cooling procedure due to conflict.*
- C. Incorrect. Not necessary to select another SGTR cooldown method and; although EOP-14.2 is a higher priority, it would not be performed due to the conflict with EOP-4.3*
- D. Correct. IAW EOP-4.3 NOTE (before Step 1).*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to determine and interpret the following as they apply to the (Saturated Core Cooling)
Adherence to appropriate procedures and operation within the limitations in the facility's license
and amendments.

KA Value: 3.9

Question 83

Reference Provided to Applicants: NONE

Technical Reference: OAP-103.4

Proposed references to be provided to applicants during examination: None

Learning Objective: OAP-103.4-10

10 CFR Part 55 Content: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

78. E08 G2.2.22 002/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions.

- 0547 A Reactor Trip occurred
- 0548 Tavg = 552°F and RCS pressure is 2080 psig
- 0748 Tavg = 379°F and RCS pressure is 1550 psig
- 0948 Tavg = 248°F and RCS pressure is 1850 psig

Which ONE (1) of the following describes the limit that has been exceeded and the reason why?

(REFERENCE PROVIDED)

<u>Limit</u>	<u>Reason</u>
A. Plant Operational Limits Curve T1	RCS pressure is too high
B✓ Plant Operational Limits Curve T1	RCS temperature is too low
C. TS Cooldown Limit (Figure 3.4-3)	RCS pressure is too high
D. TS Cooldown Limit (Figure 3.4-3)	RCS temperature is too low

A Incorrect. Pressure is less than the upper limit. Plausible because Limit A of the Plant Operational Limits Curve (EOP 12.0, CSF on Integrity) is based on Pressure-Temperature combinations.

B Correct. Temperature is to the left of T1 by 2°F.

C Incorrect. Temperature is to the right of the Cooldown Rate curve. Pressure is approaching curve limits.

D Incorrect. Temperature is to the right of the Cooldown Rate curve. Temperature is away from the curve, and less than T1.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Equipment Control Knowledge of limiting conditions for operations and safety limits.

KA Value: 4.1

Question 84

Reference Provided to Applicants: NONE

Technical Reference: EOP-12.0

Lesson Objective: 2029

10CFR55: 43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

82. E15 G2.1.14 002/MODIFIED/WTSI/HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A LOCA has occurred.
- The crew has completed EOP-1.0, *Reactor Trip/Safety Injection Actuation*, to the point of transition to another procedure.
- All ESF equipment is operating as designed.
- The following conditions exist in the Reactor Building:
 - RB Pressure 10.5 psig and rising slowly.
 - RHR Sump Level 424 feet and rising slowly.

Which ONE (1) of the following describes the condition that exists, the procedure transition that will be made, and the strategy for recovery?

- A. ORANGE condition on High Reactor Building Pressure. Enter EOP-17.0, *Response to Reactor Building High Pressure*, and attempt to locate and isolate the source of the leak; notify plant staff to obtain recommended action for disposal of waste.
 - B✓ ORANGE condition on RHR Sump Level. Enter EOP-17.1, *Response to Reactor Building Flooding*, and attempt to locate and isolate the source of the leak; notify plant staff to obtain recommended action for disposal of waste.
 - C. ORANGE condition on High Reactor Building Pressure. Enter EOP-17.0, *Response to Reactor Building High Pressure*, and ensure RB Isolation and Heat Removal functions are satisfied.
 - D. ORANGE condition on RHR Sump Level. Enter EOP-17.1, *Response to Reactor Building Flooding*, and ensure RB Isolation and Heat Removal functions are satisfied.
- A. *Incorrect. 12 psig is ORANGE Path only if RB Spray less than 2500 GPM.*
B. *Correct. 420 feet in sump is ORANGE.*
C. *Incorrect. YELLOW exists, but ORANGE is higher priority.*
D. *Incorrect. Not Orange on pressure.*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Conduct of Operations: Knowledge of system status criteria which require the notification of plant personnel.

KA Value: 3.3

Question 85

Reference Provided to Applicants: NONE

Technical Reference: EOP-12.0, EOP-17.1

Lesson Objective: 2029

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

8. 004 A2.15 003/MODIFIED//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is at 100% power.
- The following alarms are received in the sequence listed, approximately 10 seconds apart:
 - XCP-616, 1-5, PZR LCS DEV HI/LO
 - XCP-616, 1-2, PZR LVL HI
 - XCP-616, 1-1, PZR LVL HI
- The RO determines that PZR level indicates the following:
 - LI-459 indicates 95% and rising
 - LI-460 indicates 56% and lowering
 - LI-461 indicates 55% and lowering
- Trip Status light CHAN 1 PZR LVL HI is illuminated

Which ONE (1) of the following describes the actions that will be directed by the CRS and the TS implications?

Select unaffected PZR level channels, operate PZR heaters, and ...

A. reduce charging flow to maintain PZR level.

Does not satisfy TS LCO 3.3.1, Reactor Trip System Instrumentation ONLY.

B. reduce charging flow to maintain PZR level.

Does not satisfy TS LCO 3.3.1, Reactor Trip System Instrumentation, AND does not satisfy TS LCO 3.3.3.6, Accident Monitoring Instrumentation.

C✓ raise charging flow to maintain PZR level.

Does not satisfy TS LCO 3.3.1, Reactor Trip System Instrumentation ONLY.

D. raise charging flow to maintain PZR level.

Does not satisfy TS LCO 3.3.1, Reactor Trip System Instrumentation, AND does not satisfy TS LCO 3.3.3.6, Accident Monitoring Instrumentation.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

A. Incorrect.

B. Incorrect. Lowering charging flow would make the situation worse, but credible if the applicant misunderstands the failure. Opposite of actual failure, action would be correct

C. Correct. Failed channel is LI-459. Actual PZR level will be lowering, so raising charging flow will raise level to program.

D. Incorrect. Would not isolate letdown if charging flow can be raised. Would isolate letdown after charging flow was raised and PZR level still cannot be maintained

Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: High or low PZR level

KA Value: 3.7

Question 86

Reference Provided to Applicants: NONE

Technical Reference: AOP-401.6

Lesson Objective: 3095

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

18. 010 A2.02 001/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- A manual reactor trip was performed due to high turbine vibration.
- The crew is making the appropriate transition from EOP-1.0, *Reactor Trip/Safety Injection Actuation*.
- RCS pressure is 2175 psig and slowly lowering.
- PT-444, CNTRL CHAN PRESS PSIG, has failed high.
- The RO reports that PZR Spray Valve PCV-444C indicates open.

Which ONE (1) of the following describes the procedure that will be used and the action required to mitigate this event?

- A✓ Refer to AOP-401.5, *Pressurizer Pressure Control Channel Failure*, while performing the EOPs. Ensure PZR Spray valves are closed and energize PZR Heaters to stabilize RCS pressure.
- B. Refer to AOP-401.5, *Pressurizer Pressure Control Channel Failure*, while performing the EOPs. Trip all RCPs and energize PZR Heaters to stabilize RCS pressure.
- C. Go to EOP-1.1, *Reactor Trip Recovery*. Trip ONLY RCP "A" and energize PZR Heaters to stabilize RCS pressure.
- D. Go to EOP-1.1, *Reactor Trip Recovery*. Trip ALL RCPs and energize PZR Heaters to stabilize RCS pressure.

A Incorrect. Would not perform the AOP for this failure, would go to EOP-1.1

B Incorrect. Would not perform the AOP and would only trip 2 RCPs

C Correct.

D Incorrect. Would only trip 2 RCPs

Correct action is in accordance with EOP-1.1 Alternative action for PZR pressure trend.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Spray valve failures

KA Value: 3.9

Question 87

Reference Provided to Applicants: NONE

Technical Reference: EOP-1.1 Step 8 Alternative Action

Lesson Objective: 1778

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

32. 022 G2.4.30 001/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

<u>Date</u>	<u>Time</u>	<u>Event</u>
5/21	1230	BOTH Train A RBCUs declared inoperable due to common cause failure.
5/28	1230	RBCUs not returned to service. Plant shutdown to Mode 3 initiated.
5/28	1645	Plant in Mode 3.

Which ONE (1) of the following describes the LATEST time on 5/28 that an initial report to the NRC must be made?

- A. 1330
- B✓ 1630
- C. 1745
- D. 2045

A Incorrect. would be a 1 hour call. 4 hours required

B Correct. 4 hour call

C Incorrect. 1 hour after shutdown complete. Call is for when shutdown is commenced

D Incorrect. 4 hours after shutdown complete. Call required after shutdown is commenced.

4 hour report for initiation of plant shutdown required by tech specs

Emergency Procedures / Plan Knowledge of which events related to system operations/status should be reported to outside agencies.

KA Value: 3.6

Question 88

Reference Provided to Applicants: NL-122

Technical Reference: 10CFR50.72, NL-122, F-1

Lesson Objective: 4964

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

24. 013 A2.05 002/BANK/WTSI/HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is currently at full power.
- The following sequence of events occurred:

0200 The normal feeder breaker to 7.2kV bus 1DA tripped open. The A EDG started and the sequencer correctly started all loads.

0215 The A EDG tripped

0220 DC bus 1HA was lost

- No operator actions have been taken.
- The A EDG has been repaired and the operating crew is preparing to restart the EDG and reenergize 7.2kV bus 1DA.

Which ONE (1) of the following describes (1) what action is required prior to re-energizing the bus, and (2) the time allowed, by Tech Specs, to be in Mode 3?

- A. (1) Open all load breakers on 7.2kV bus 1DA from the MCB.
(2) 2 Hours
- B✓ (1) Open all load breakers on 7.2kV bus 1DA from the switchgear room.
(2) 2 Hours
- C. (1) Open all load breakers on 7.2kV bus 1DA from the MCB.
(2) 1 Hour
- D. (1) Open all load breakers on 7.2kV bus 1DA from the switchgear room.
(2) 1 Hour

A Incorrect. Cannot operate breakers from MCB

B Correct

C Incorrect. 2 hours prior to shutdown. Cannot operate from MCB

D Incorrect. 2 hours prior to shutdown

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to (a) predict the impacts of the following mal-functions or operations on the ESFAS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of DC Control Power

KA Value: 4.2

Question 89

Reference Provided to Applicants: NONE

Technical Reference: TS section 3.8.2.1, AOP-304.1

Lesson Objective: AOP-304.1-05

10CFR55:43.5, 43.2

Comments: Harris 2005 NRC Added TS for SRO

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

67. 076 G2.4.6 002/BANK/VC SUMMER/HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is in a normal service water system alignment with 'A' and 'B' SW pumps running.
- XCP-604-1-2 "SWP A/C TRIP" alarms.
- Annunciator XCP-604-1-4 "SWP A/C DISCH PRESS LO" alarms.
- Annunciator XCP-605-1-4 "SWP B/C DISCH PRESS LO" alarms.
- PI-4402, Service Water Pump 'A' Discharge Pressure, indicates 5 psig.
- PI-4422, Service Water Pump 'B' Discharge Pressure, indicates 48 psig.
- 'A' SW pump will not restart.
- AOP-117.1, *Total Loss of Service Water*, has been entered.

Which ONE (1) of the following describes the actions that should be taken to mitigate this event?

- A. Refer to SOP-117, *Service Water System*, and ensure the 'C' SW pump automatically started on low header pressure.
- B. Continue in AOP-117.1, *Total Loss of Service Water*, trip the reactor, and trip all RCPs.
- C✓ Refer to SOP-117, *Service Water System*, and start the 'C' SW pump on the 'A' train.
- D. Continue in AOP-117.1, *Total Loss of Service Water*, and isolate all CCW loads.

- A. *Incorrect. SOP-117 will be referenced, however if diesel generators are required, fire service water would be aligned to supply. Credible because the "C" SWP will auto-start on low pressure if aligned as a standby pump vs an installed spare (see drawing B-208-101-SW-03).*
- B. *Incorrect. AOP-117.1 is a procedure to enter however the procedure allows stopping up to 2 RCPs when plant conditions permit.*
- C. *Correct. AOP-117.1 directs the operator to refer to SOP-117 and to start the spare service water pump, this would mitigate this event.*
- D. *Incorrect. AOP-118.1 may be referenced, but only unnecessary CCW loads would be isolated.*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Emergency Procedures / Plan Knowledge symptom based EOP mitigation strategies.

KA Value: 4.0

Question 90

Reference Provided to Applicants: NONE

Technical Reference: AOP-117.1

Lesson Objective: AOP-117.1-6

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

3. 001 G2.1.23 002/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- Following a turbine runback, the crew is stabilizing the plant in accordance with the appropriate AOP.
- Control Bank "D" Group Counters are at 180 steps.
- On DRPI, one Control Bank "D" rod indicates 196 steps; all others indicate 182 steps.
- The affected rod has a blown movable gripper fuse and has been determined to be trippable.

Which ONE (1) of the following actions is appropriate for this event?

Realign the mispositioned rod to meet TS limits within...

- A. 1 hour to ensure Shutdown Margin is maintained.
- B. 6 hours to ensure Shutdown Margin is maintained.
- C✓ 1 hour to ensure acceptable power distribution limits are maintained.
- D. 6 hours to ensure acceptable power distribution limits are maintained.

*A Incorrect. 1 hour is required by T.S. 3.1.3.1 Action d, but calculated SDM would be unaffected by a **misaligned** rod. If the rod were untrippable, then SDM would be affected.*

B Incorrect. 6 hours is credible because it is a time mentioned in actions a., b., and c. of TS 3.1.3.1

C Correct. 1 hour is required by T.S. 3.1.3.1 Action d. Misalignment limits are based on impact on power distribution limits.

D Incorrect. 6 hours is credible because it is a time mentioned in actions a., b., and c. of TS 3.1.3.1 Misalignment limits are based on impact on power distribution limits.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation.

KA Value: 4.0

Question 91

Reference Provided to Applicants: NONE

Technical Reference: AOP-403.5, TS 3.1.3.1

Lesson Objective: 2423

10CFR55: 43.2, 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

40. 029 G2.1.32 001/NEW//LOWER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- Reactor Building Purge is desired.
- RB Equipment Hatch is OPEN.

Which ONE (1) of the following describes an acceptable alignment for Reactor Building Purge?

- A. 2 supply fans and 1 exhaust fan running; RM-A2 operability desired but NOT required during purge.
- B✓ 1 supply fan and 2 exhaust fans running; RM-A2 operability desired but NOT required during purge.
- C. 2 supply fans and 1 exhaust fan running; RM-A2 operability required during purge.
- D. 1 supply fan and 2 exhaust fans running; RM-A2 operability required during purge.

A Incorrect. 2 Exhaust fans will keep a negative pressure in RB with hatch open. True statement with regard to the Rad Monitor

B Correct.

C Incorrect. 2 Exhaust fans, not supply; and rad monitor not required, only desired

D Incorrect. Operability not required

1 supply fan and 2 exhaust fans with equipment hatch open results in negative RB pressure. RM-A2 only required during Core Alts

Conduct of Operations: Ability to explain and apply all system limits and precautions.

KA Value: 3.8

Question 92

Reference Provided to Applicants: NONE

Technical Reference: SOP-114 Notes

Lesson Objective: AB-17-7

10CFR55: 43.4, 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

71. 086 A2.03 001/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is in Mode 5.
- Welding activities in the Cable Spreading Room are in progress.
- The Simplex Panel indicates actuation of Fire Protection in the room.
- Maintenance reports that Fire Suppression is actuated, but there is no actual fire.

Which ONE (1) of the following describes the fire suppression actuation and the action to be taken?

- A. CO2; Evacuate personnel from the area and stop the discharge in accordance with the associated Fire Emergency Procedure and Fire Pre-Plan.
- B. CO2; Evacuate personnel from the area and stop the discharge in accordance with SOP-509, *Fire Suppression System*.
- C. Pre-Action Sprinkler; Terminate the actuation in accordance with the associated Fire Emergency Procedure and Fire Pre-Plan.
- D✓ Pre-Action Sprinkler; Terminate the actuation in accordance with SOP-509, *Fire Suppression System*.

A Incorrect. CO2 not used in room

B Incorrect. CO2 not used in room, but procedure is correct

C Incorrect. Inadvertent actuation would be stopped using the SOP, not the fire pre-plans

D Correct

Cable Spreading Rooms are equipped with pre-action systems. Relay Room and TSC Computer room have CO2

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Ability to (a) predict the impacts of the following malfunctions or operations on the Fire Protection System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Inadvertent actuation of the FPS due to circuit failure or welding

KA Value: 2.9

Question 93

Reference Provided to Applicants: NONE

Technical Reference: FEP-1.0, EPP-13, SOP-509

Lesson Objective: GS-11-11

10CFR55: 43.5

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

84. G2.1.11 002/MODIFIED//HIGHER//SRO/VC SUMMER/6/2007/NO
Given the following plant conditions:

- The plant is in Mode 1.
- Makeup to 'A' SI Accumulator was just completed.
- 'A' SI Accumulator parameters are as follows:
 - Boron Concentration 2197 ppm
 - Pressure 650 psig
 - Level 67%

Which ONE (1) of the following describes the action required in accordance with Technical Specifications and why?

A✓ Restore boron concentration to within limits within 1 hour.

To minimize the potential for reaching unacceptable peak cladding temperatures during a LOCA with postulated failure of 1 other SI Accumulator.

B. Restore boron concentration to within limits within 1 hour.

To maintain the calculated DNBR in the core at or above the design limit during short-term transients until core is reflooded.

C. Restore pressure to within limits within 1 hour.

To minimize the potential for reaching unacceptable peak cladding temperatures during a LOCA with postulated failure of 1 other SI Accumulator.

D. Restore pressure to within limits within 1 hour.

To maintain the calculated DNBR in the core at or above the design limit during short-term transients until core is reflooded.

A Correct. Boron Concentration is low. Pressure is within limits. Level is within the normal band. Level is given as a parameter due to the conditions stating that makeup was initiated. Action is required within 1 hour for accumulator LCOs not involving the Isolation valve.

B Incorrect. Wrong time and reason

C Incorrect. Pressure is within limits but would be correct reason

D Incorrect. Pressure is within limits

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of less than one hour technical specification action statements for systems.

KA Value: 3.8

Question 94

Technical Reference: TS 3.5.1

Proposed references to be provided to applicants during examination: None

Learning Objective: AB 10-21

10 CFR Part 55 Content: 43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

87. G2.1.6 002/BANK/WTSI/LOWER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- You are the Control Room Supervisor.
- An explosion occurs resulting in significant damage in the unit.
- The Shift Supervisor was seriously injured in the explosion and is incapacitated.
- There are no procedures or directives that provide adequate direction on control of the plant and rescue of injured people for this situation.
- Immediate action is required.

Which ONE (1) of the following describes the requirement for performing this action?

- A✓ You may approve this action in accordance with 10CFR50.54(x) and (y).
- B. You must obtain concurrence from one other SRO prior to performing the action.
- C. The NRC must be notified prior to the action and should concur with the action to be taken.
- D. The Plant Manager must be notified and should concur prior to taking the action.

A Correct.

B incorrect. Could be correct for procedure changes

C incorrect. NRC concurrence is not required for the action; they must be notified as soon as possible but no later than 1 hour.

D incorrect. Plant Manager concurrence or approval is not required

Ability to supervise and assume a management role during plant transients and upset conditions.

KA Value: 4.3

Question 95

Reference Provided to Applicants: NONE

Technical Reference: 10CFR50.54(x), SAP-200

Lesson Objective: SAP-200-4

10CFR55: 43.1

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

89. G2.2.21 003/BANK/VC SUMMER/HIGHER//SRO/VC SUMMER/6/2007/NO
Given the following plant conditions:

- 100% power.
- All major controls are in AUTO.
- Charging Pump "A" is running.
- Charging Pump "B" has been out-of-service for Auxiliary Oil Pump replacement.
- Charging Pump "C" is aligned to Train "B".
- Charging Pump "B" is ready for post-maintenance testing.

Which ONE (1) of the choices correctly completes the following statement regarding the operability of Train "B" during the post-maintenance testing?

Train "B" must be declared inoperable when _____.

A. Charging Pump "B" breaker is racked up.

B. Charging Pump "B" control power is restored.

C. Charging Pump "C" breaker is racked down.

D. Charging Pump "C" control power is de-energized.

A. *CORRECT.*

B. *INCORRECT. Plausible if candidate is mistaken regarding breaker being able to close versus closing on the bus.*

C. *INCORRECT. Plausible if candidate thinks Charging Pump "C" breaker must be racked out prior to racking in Charging Pump "B" breaker.*

D. *INCORRECT. Plausible if candidate thinks Charging Pump "C" must be available for starting to have the train remain operable.*

Knowledge of pre- and post-maintenance operability requirements.

KA Value:3.5

Question 96

Reference Provided to Applicants: NONE

Technical Reference: SOP-102

Lesson Objective: AB-3-23.2

10CFR55: 43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

91. G2.2.25 004/NEW//LOWER//SRO/VC SUMMER/6/2007/NO

The plant is in Mode 1.

RCS Temperature has gone below the Technical Specification Minimum Temperature for Criticality.

If the conditions CANNOT be corrected, which ONE (1) of the following describes the MAXIMUM time allowed prior to placing the plant in Mode 3 and the basis for the action in accordance with Technical Specifications?

A. 30 minutes; RPS Instrumentation is no longer operating in its analyzed range.

B. 30 minutes; Analysis assumptions for calculation of Mode 1 Shutdown Margin are no longer valid.

C. 1 hour; RPS Instrumentation is no longer operating in its analyzed range.

D. 1 hour; Analysis assumptions for calculation of Mode 1 Shutdown Margin are no longer valid.

A. Correct. 15 minutes to correct the conditions and 15 minutes to mode 3 if the condition cannot be corrected.

B. Incorrect. Reason is incorrect. Shutdown margin is affected by lowering RCS temperature, but the assumptions made are not invalidated by temperature going below 551 degrees.

C. Incorrect. 60 minutes is a typical number used in TS, and the applicant may confuse the 30 total minutes to be in Mode 3 with 30 minutes to restore, followed by 30 minutes to Mode 3.

D. Incorrect. Shutdown margin is affected by lowering RCS temperature, but the assumptions made are not invalidated by temperature going below 551 degrees. 60 minutes is a typical number used in TS, and the applicant may confuse the 30 total minutes to be in Mode 3 with 30 minutes to restore, followed by 30 minutes to Mode 3.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

KA Value: 3.7

Question 97

Reference Provided to Applicants: NONE

Technical Reference: TS 3.1.1.4 Basis

Lesson Objective:

10CFR55: 43.2

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

94. G2.3.2 002/NEW//HIGHER//SRO/VC SUMMER/6/2007/NO

Given the following plant conditions:

- The plant is coming out of a refueling outage.
- Operations Dept. is performing system valve lineups.
- A valve alignment in the Reactor Building should take approximately 30 minutes in a radiation field of 6 Rem/Hr.

Which ONE (1) of the following describes the MINIMUM review requirements that must be met prior to performing the alignment?

- A. A Pre-Job Brief and review of RWP/SRWP for valve lineups ONLY
- B. A review of the RWP/SRWP for valve lineups and ALARA Committee review ONLY
- C. A Pre-Job Brief and ALARA Committee Review ONLY
- D✓ A Pre-Job Brief, Review of RWP/SRWP, and ALARA Committee Review

A Incorrect. Dose is high enough for ALARA Review also

B Incorrect. Requires a PJB

C Incorrect. Requires review of SRWP

D Correct

Knowledge of facility ALARA program.

KA Value: 2.9

Question 98

Reference Provided to Applicants: NONE

Technical Reference: SAP-123, OAP-100.3, SAP-153, SAP-121

Lesson Objective: OAP-100.3-4, OAP-100.6-6

10CFR55: 43.4

Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

98. G2.4.22 001/BANK//HIGHER//SRO/VC SUMMER/6/2007/YES

Given the following plant conditions:

- The plant is operating at 100% power.
- EDG "B" is out of service and is expected to return to service in two (2) hours.
- Subsequently, the following events occur:
 - A loss of offsite power.
 - The reactor is tripped and the crew enters EOP-1.0, *Reactor Trip or Safety Injection*.
 - SI is NOT actuated.
 - The crew made a transition to EOP-15.0, *Loss of Secondary Heat Sink*, based on a CSFST RED Path.
 - EDG "A" output breaker subsequently trips on a differential lockout on Bus 1DA.

Which ONE (1) of the following describes the actions that will be taken and its bases?

- A. Immediately transition to EOP-6.0, *Loss Of All ESF AC Power*. All other procedures in the ERG network assume both 7.2 KV ESF busses are available.
 - B✓ Immediately transition to EOP-6.0, *Loss Of All ESF AC Power*. All other procedures in the ERG network assume a minimum of ONE (1) 7.2 KV ESF bus is available.
 - C. Remain in EOP-15.0 until feed is restored and the RED condition is cleared, and then transition to EOP-6.0, *Loss of All ESF AC Power*. RED path Function Recovery procedures must be performed until the condition is cleared.
 - D. Remain in EOP-15.0 until directed to return to procedure in effect, and then transition to EOP-6.0, *Loss of All ESF AC Power*. RED path Function Recovery procedures must be finished to completion.
-
- A. *Incorrect. Only one 7.2 kV bus is required. Other procedures only assume at least 1 ESF bus energized.*
 - B. *Correct. Neither 7.2 kV bus is available, go directly to EOP-6.0.*
 - C. *Incorrect. Plausible since the Red Path is still in effect. This is the guidance with the exception relating to Station Blackout.*
 - D. *Incorrect. Normally a correct statement under the circumstances of normal EOP performance. EOP-6.0 entry conditions require discontinuing other EOPs.*

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.

KA Value: 4.0

Question 99

Reference Provided to Applicants: NONE

Technical Reference: EOP-6.0

Lesson Objective: EOP-6.0-02

10CFR55: 43.5

Comments: 2006 NRC SRO Retake Exam - Editorial mods and additional information

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

96. G2.4.11 004/MODIFIED/VC SUMMER/HIGHER//SRO/VC SUMMER/6/2007/YES

Given the following plant conditions:

- Mode 5 with RHR Train "A" running in the shutdown cooling mode.
- RCS subcooling is 45 °F.
- SG "B" and "C" are available for heat removal.
- A total loss of CCW flow has occurred.
- Seal Injection flow is normal.
- The operating crew is in AOP-118.1, TOTAL LOSS OF COMPONENT COOLING WATER, and has referred to AOP-115.3, LOSS OF RHR WITH THE RCS INTACT.

Which ONE (1) of the following describes the correct action and the reason for that action?

- A. Stop any running RCP and RHR Pump "A" within 10 minutes to prevent pump seal damage.
- B. Align RCS Feed and Bleed within 10 minutes to provide cooling and then stop any running RCP.
- C. Stop RHR Pump "A" immediately and align for RCS Bleed and Feed to provide cooling.
- D✓ Within 90 minutes stop "A" RHR pump to prevent system damage.

A Incorrect.

B Incorrect.

C Correct.

D Incorrect.

Answer Explanation:

An RCP cannot be started w/o CCW and RHR Pump is not required to be stopped immediately. Criteria for RCS Bleed and Feed is not met.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

Knowledge of abnormal condition procedures.

KA Value: 3.6

Question 100

Technical Reference: AOP-118.1, Step 14 CAUTION (pg. 7)

Proposed references to be provided to applicants during examination: None

Learning Objective: AOP-118.1, AOP-115.3

Question Source: Modified

Question History: VCS Bank Question

Question Cognitive Level: Comprehension

10 CFR Part 55 Content: 55.41

Comments:

Facility: VC Summer		Date of Examination: 6/4/2007
Examination Level (circle one): RO / SRO		Operating Test Number: NRC
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M,R	2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation (3.7) Perform a QPTR Calculation for dropped control rod
Conduct of Operations	N,R	2.1.25 Ability to obtain and interpret station reference materials such as graphs, nomographs, and tables which contain performance data (3.1) Review a Shutdown Margin calculation
Equipment Control	N, R	2.2.13 Knowledge of tagging and clearance procedures (3.8) Review a manual tagout of safety related equipment
Equipment Control	M, R	2.2.12 Knowledge of Surveillance Procedures (3.4) Operational Leak Rate Test (*)
Radiation Control	M, R	2.3.2 Knowledge of facility ALARA program (2.9) Determine Worker Exposure
Emergency Plan	N, R	2.4.44 Knowledge of Emergency Plan Protective Action Recommendations (4.0) For plant conditions indicating a General Emergency, perform a PAR
NOTE: All items (5 total are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.)		
(*) This JPM given to One (1) candidate		

*Type Codes & Criteria:

- (C)ontrol room
- Class(R)oom
- (D)irect from bank (≤ 3 for ROs; \leq for SROs & RO retakes)
- (N)ew or (M)odified from bank (> 1)
- (P)revious 2 exams (≤ 1 ; randomly selected)
- (S)imulator

Admin Task Description

- A1a The applicants will perform a QPTR calculation that will result in QPTR being outside of requirements. The applicants will also determine Technical Specification action requirements. The conditions of this JPM are significantly modified from a bank JPM.
- A1b The applicants will review a Shutdown Margin calculation that will contain critical errors, resulting in Shutdown Margin Being outside of requirements. They will then determine appropriate action required in accordance with Technical Specifications. This is a new JPM.
- A2 The applicants will review a tagout prepared manually without the aid of computers. There will be 4 critical errors on the prepared tagout, including a sequencing error, component misidentification, and tag assignment missing for a critical component. This JPM is new.
- A2 (*) The applicant will conduct and Operational Leak Rate Test (STP-114.02) W/O IPCS Lear Rate Program available and determine leakage is outside the TS limit.
- A3 Given a task to perform in the Radiological Controlled Area, determine the worker's exposures. (SRO ONLY) determine any administrative requirements. This is a modified JPM.
- A4 The applicants will be given plant conditions indicating that a general emergency exists. They must classify the event and make initial Protective Action Recommendations must be made. This JPM is new.

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

1. 0029 EA2.09 001/MODIFIED/KEWAUNEE/HIGHER//SRO/KNP//KNP 2003

Given the following plant conditions:

- Reactor power is 100%.
- Reactor Trip Breaker testing is being performed.
- Reactor Trip Bypass Breaker 'A' and Reactor Trip Breaker 'B' are both RACKED IN and CLOSED.
- Reactor Trip Bypass Breaker 'B' and Reactor Trip Breaker 'A' are both RACKED OUT and OPEN.

After completion of the testing, the Electricians RACK IN and Operations attempts to CLOSE Reactor Trip Bypass Breaker B.

- Immediately upon attempting closure, Reactor Trip Bypass Breaker 'B' opens.
- NO other breakers reposition.

Which ONE (1) of the following describes the response to this condition?

The reactor has . . .

- A. NOT tripped, immediately enter EOP-13.0, *Response To Abnormal Nuclear Power Generation*, and direct the NROATC to commence rod insertion.
- B✓ NOT tripped, immediately enter EOP-1.0, *Reactor Trip/Safety Injection Actuation*, direct the NROATC to manually trip the reactor.
- C. tripped, have an operator "backup" the reactor trip, then verify the turbine/generator has tripped.
- D. tripped, direct an operator to verify turbine/generator has tripped, when time permits, direct the IBAO to locally open both Reactor Trip Breaker 'B' and Reactor Trip Bypass Breaker 'A'.

Answer: **B** NOT tripped, the NCO should manually trip the reactor.

Distract A Comments:

Distract C Comments:

Distract D Comments:

QUESTIONS REPORT
for VCS 2007 NRC EXAM AS GIVEN

KA - 029 EA2.09 Ability to determine or interpret the following as they apply to a
ATWS: occurrence of a mainturbine/reactor trip (4.4/4.5)

Question 77

Cognitive Level - Higher

Reference Allowed -

Exam Level - SRO

Facility - Kewaunee 1

Vendor - WEC

Reference:

Objective:

Comments: