LICENSEE POST-EXAM COMMENTS

V. C. SUMMER NUCLEAR STAION

EXAM NO. 50-0395/2000-301
August 7 - 11, 2000

LICENSEE POST-EXAM COMMENTS

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A SCANA COMPANY

August 18, 2000

Mr. Harold O. Christensen
Chief Operator Licensing and Human
Performance Branch Division of Reactor Safety
United States Nuclear Regulatory Commission
Sam Nunn Atlanta Federal Center
61 Forsyth St. SW – Suite 23T85
Atlanta, GA 30303-8931

SUBJECT: VIRGIL C. SUMMER REACTOR OPERATOR AND SENIOR REACTOR OPERATOR INITIAL EXAMINATION FORMAL COMMENTS

Dear Mr. Christensen:

In accordance with NUREG-1021, Virgil C. Summer Nuclear Station is submitting formal comments regarding the August 11, 2000, Reactor Operator and Senior Reactor Operator Initial Examinations. Enclosure 1 gives the question, choices, answer, and references of the questions used during the examination. Enclosure 2 gives the recommended action, justification, and reference for the questions with comments. Excerpts of the reference material are included in the package.

Comments for Job Performance Measures are included in Enclosure 3.

If you have any questions, please call me at (803) 931-5100.

Sincerely,

Terry L. Matlosz
Manager, Nuclear Training

WRQ/TLM/dgw

Enclosures

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ENCLOSURE 1

3. 002A2.02 001/ ROT2G2/ SROT2G2/ 4.2/4.4/ C/A/ BANK/ SM00301/ BOTH/ MM27

The plant is operating at 80% power when PT-444 fails high. What immediate actions must be taken by the operator to prevent a low pressure reactor trip?

✓A. Close both pressurizer spray valves and one pressurizer PORV.
B. Close two pressurizer PORVs and energize backup heaters.
C. Close one pressurizer spray valve and one pressurizer PORV.
D. Close both pressurizer spray valves and two pressurizer PORVs.
SOURCE: VCS Exam Bank #1678

4. 003A4.05 001/ ROT2G1/ SROT2G1/ 3.1/3.0/ C/A/ BANK/ SM00301/ BOTH/ MM28

The following indications are observed for RCP "A":

- Seal injection flow has increased
- Seal return flow has decreased
- RCP standpipe level has been verified high

Which one of the following is a probable cause for the indications on RCP "A"?

A. No. 1 seal differential pressure <200 psid
B. No. 1 seal has failed
✓C. No. 2 seal has failed
D. No. 3 seal has failed
SOURCE: VCS Exam Bank #2168

5. 003AA1.05 001/ ROT1G2/ SROT1G1/ 4.1/4.1/ C/A/ NEW/ SM00301/ BOTH/ ME05

Given the following conditions:

- Reactor power was at 85% with manual rod control.
- The reactor operator announced that Bank D control rod H2 dropped.
- Reactor power is now 78%

Which one of the following describes the correct required action?

✓A. Decrease main turbine load to maintain Tavg within 5 degrees of Tref.
B. Decrease main turbine load to reduce reactor power to less than 75%.
C. Initiate a dilution to increase Tavg to within 5 degrees of Tref.
D. Trip the reactor and implement EOP-1.0, "Reactor Trip/Safety Injection Actuation."
REF: AOP-403.6, Revision 2, page 2
SOURCE: NEW (MEE)

12. 007EG2.4.2 001/ ROT1G2/ SROT1G2/ 3.9/4.1/ MEMORY/ MOD/ SM00301/ BOTH/ MM31

Which one of the following symptoms would require a reactor trip and safety injection if one has not occurred and the trip is not blocked?

A. Reactor building pressure 2.1 psig and rising slowly
✓B. Pressurizer pressure 1800 psig
C. Main steamline pressure 775 psig
D. Main steamline differential pressure of 90 psid
REF: EOP-1.0, Attachment 2
SOURCE: Mod of VCS Exam Bank # 2111

13. 008AK1.01 001/ ROT1G2/ SROT1G2/ 3.2/3.7/ C/A/ NEW/ SM00301/ BOTH/ ME70

Which one of the following represents the conditions of the steam entering the PRT from a leaking PORV if pressurizer pressure is 1385 psig and PRT pressure is 5 psig? Assume an ideal thermodynamic process.

✓A. Superheated steam 260°F - 270°F.
B. Superheated steam 250°F - 260°F.
C. Saturated steam 225°F - 235°F.
D. Saturated steam 275°F - 285°F.
REF: Mollier Diagram
SOURCE: NEW 1998 Watts Bar RO exam

14. 008K3.01 001/ ROT2G3/ SROT2G3/ 3.4/3.5/ MEMORY/ BANK/ SM00301/ BOTH/ MM33

Which one of the following is the MAXIMUM time the reactor coolant pumps can operate following the loss of component cooling water?

A. 2 minutes
B. 5 minutes
✓C. 10 minutes
D. 15 minutes
SOURCE: VCS Exam Bank #1925

15. 009EG2.4.48 001/ ROT1G2/ SROT1G2/ 3.5/3.8/ C/A/ NEW/ SM00301/ BOTH/ ME63

The plant has experienced a small break LOCA and the operators have tripped all three RCPs in accordance with the EOP reference page. RVLIS wide range level is 24%, Upper range is pegged low and Narrow range is 42%. Which one of the following describes the status of the core?

A. The core fully covered.
✓B. The core is about one third uncovered.
C. The core is about two thirds uncovered.
D. The core is about three quarters uncovered.
REF: IC-3, Revision 2, page 12
SOURCE: NEW (MEE)

16. 010K1.01 001/ ROT2G2/ SROT2G2/ 3.9/4.1/ C/A/ NEW/ SM00301/ BOTH/ MM35

A leak in the piping connection for PT-445 (pressurizer pressure control pressure transmitter) will result in which one of the following?

A. A pressurizer low pressure trip only.
✓B. A pressurizer low pressure trip and high level trip.
C. A pressurizer low pressure trip and pressurizer heater deenergization.
D. Pressurizer heater deenergization only.
REF: VCS Lesson Plan IC-3, fig IC3.5
SOURCE: NEW (MSM)

17. 011A3.03 001/ ROT2G2/ SROT2G2/ 3.2/3.3/ C/A/ MOD/ SM00301/ BOTH/ ME51

Given the following conditions:

- The plant is stable at 90% power.
- Charging, Letdown, and Pressurizer Level Control systems are in automatic.
- The selected pressurizer control channel LT-459 fails low.
- No operator action is taken.

Which one of the following describes the system response?

A. Charging flow will increase, seal injection flow will increase.
✓B. Charging flow will increase, seal injection flow will decrease.
C. Charging flow will decrease, seal injection flow will increase.
D. Charging flow will decrease, seal injection flow will decrease.
SOURCE: Modified 1997 RO #3

39. 058AA1.03 001/ ROT1G2/ SROT1G2/ 3.1/3.3/ C/A/ NEW/ SM00301/ BOTH/ MM56

The unit is at 100% power. Preparations are underway to remove the 1A battery from service for maintenance. Battery charger XBC1B is out of service, battery charger XBC1A-1B is aligned to DPN1HB.

When the 1A battery breaker is opened, the following annunciators actuate on panel XCP-636:

- "DG A LOSS OF DC"
- "TRAIN A BATT CHGR TRBL XBC1A/1A-1B"
- "DC SYS OVRVOLT/UNDRVOLT"

Which one of the following describes a possible cause for the annunciators described above?

A. Excessive voltage is being delivered from battery charger XBC1A.
B. Excessive voltage is being delivered from battery charger XBC1A-1B.
✓C. Battery charger XBC1A has ceased to produce voltage.
D. Battery charger XBC1A-1B has ceased to produce voltage.
REF: ARP-001, panel XCP-636, rev 8, Lesson Plan GS-3
SOURCE: NEW (MSM)

40. 059AK2.01 001/ ROT1G2/ SROT1G1/ 2.7/2.8/ C/A/ NEW/ SM00301/ BOTH/ MM57

Which one of the following ensures that liquid effluent releases do not inadvertently exceed desired quantities of radionuclides?

A. Before the waste monitor tanks can be discharged, the Fairfield pumped storage facility must be in the generating mode with at least 40% flow.
B. A liquid waste release permit must be generated prior to release.
✓C. RCV-018 trips closed if high radiation levels are sensed by RM-L5.
D. The Duratek demineralization system includes media for the removal of Colbalt-58 and 60, Iodines, and Cesium.
REF: LP AB-16, pages 26, 33, 24
SOURCE: NEW (MSM)

41. 059K4.19 001/ ROT2G1/ SROT2G1/ 3.2/3.4/ MEMORY/ BANK/ SM00301/ BOTH/ MM58

Which one of the following conditions will directly result in closing all feedwater isolation valves?

A. LI-474, S/G A LVL has failed high.
✓B. Reactor trip breakers open with Tavg=560 F (A&C loops).
C. AMSAC actuation.
D. High-High Turbine Building sump level.
REF: Lesson Plan TB-7, pg 39, Lesson Plan IC-9, page 53
SOURCE: VCS TB-7 Exam Bank # 1812

42. 061AA1.01 001/ ROT1G2/ SROT1G2/ 3.6/3.6/ MEMORY/ NEW/ SM00301/ BOTH/ MM68

Refueling operations are in progress when "MANIP CRN RM-G17A HI RAD" annunciator actuates. Which one of the following describes the automatic actions the operator will verify in response to this condition?

✓A. PVB-1A, "CNTMT SPLY ISOL" and PVB-2A, "CNTMT EXH ISOL," CLOSE
B. PVB-1A, "CNTMT SPLY ISOL" and PVB-2A, "CNTMT EXH ISOL," OPEN
C. PVB-1B, "CNTMT SPLY ISOL," PVB-2A, "CNTMT EXH ISOL," PVG-6057, "ALT PUR SPLY ISOL VLV, and PVG-6067, "CNTMT PUR EXH ISOL VLV" CLOSE
D. PVB-1B, "CNTMT SPLY ISOL," PVB-2A, "CNTMT EXH ISOL," PVG-6057, "ALT PUR SPLY ISOL VLV, and PVG-6067, "CNTMT PUR EXH ISOL VLV" OPEN

REF: ARP-019, rev 1, XCP-644, point 1-5
ARP-019, rev 1, XCP-643, point 2-2
SOURCE: NEW (MSM)

43. 061K5.01 001/ ROT2G1/ SROT2G1/ 3.6/3.9/ MEMORY/ NEW/ SM00301/ BOTH/ ME56

A plant trip has occurred and no MD EFW pumps are available. Which one of the following describes the expected time to cooldown form hot standby to hot shutdown using the maximum cooldown rate of 50°F per hour?

A. The cooldown will take 5 hours regardless of the availability of the MD EFW pumps.
B. If the MD EFW pumps can be restored, the cooldown will take 2 hours, if power can not be restored, it will take 5 hours.
C. If the MD EFW pumps can be restored, the cooldown will take 5 hours, if power can not be restored, it will take 7 hours.
✓D. If the MD EFW pumps can be restored, the cooldown will take 5 hours, if power can not be restored, it will take 12 hours.

REF: Lesson Plan IB-3, page 35
SOURCE: NEW (MEE)

44. 062K1.04 001/ ROT2G2/ SROT2G2/ 3.7/4.2/ C/A/ NEW/ SM00301/ BOTH/ MM60

The unit is operating at 100% power with all control systems normally aligned when a sustained total loss of offsite power occurs. Which one of the following ensures that the water extinguishing fire protection system is available during this period?

A. The electric fire pump will load onto a vital bus in step 8 of the ESFLS blackout sequence and will automatically start if low system pressure is sensed.
B. The electric fire pump will, procedurally, be manually aligned to a vital bus and will be started locally if low system pressure is sensed.
✓C. The diesel fire pump will start 15 seconds after the loss of AC power.
D. The diesel fire pump will start 15 seconds after the loss of AC power, provided a low system pressure condition exists.

REF: GS-11, page 14,16
SOURCE: NEW (MSM)

60. 103A1.01 001/ ROT2G3/ SROT2G2/ 3.7/3.1/ MEMORY/ NEW/ SM00301/ BOTH/ ME64

Which one of the following is correct regarding the use of adverse containment values in the EOPs?

A. Once the adverse radiation level setpoint or containment pressure setpoint is exceeded, the adverse values must be used throughout the recovery, until Engineering conducts an evaluation.

✓B. If containment pressure decreases below the adverse setpoint after it has been exceeded, the normal values are used. Once the adverse radiation level setpoint is exceeded, the adverse values must be used throughout the recovery, until Engineering conducts an evaluation.

C. If radiation levels decrease below the adverse setpoint after it has been exceeded, the normal values are used. Once the containment pressure setpoint is exceeded, the adverse values must be used throughout the recovery, until Engineering conducts an evaluation.

D. If containment pressure and radiation levels decrease below their adverse setpoints after they have been exceeded, the normal values are used.

REF: OAG-103.4, Revision 3, page 8

SOURCE: NEW (MEE)

61. G2.1.20 001/ ROT3/ SROT3/ 4.3/4.2/ MEMORY/ NEW/ SM00301/ BOTH/ ME36

Which one of the following represents the proper use of a Reference Use procedure?

A. The procedure may be performed from memory but the user must reference the procedure after its completion to validate completion of required action.

B. The procedure is readily available for reference. The procedure may be performed completely from memory but the user is responsible for results.

✓C. The procedure must be referenced prior to the task and periodically during the performance.

D. Each step of the procedure must be referenced prior to performing that step.

REF: SAP-123, Procedure Use and Adherence, pages 3, 14

SOURCE: NEW (1998 Watts Bar Exam)

62. G2.1.22 001/ ROT3/ SROT3/ 2.8/3.3/ MEMORY/ NEW/ SM00301/ BOTH/ ME55

Which one of the following is the Techinical Specification definition of MODE 4 (Hot Shutdown) operations?

A. Keff < .95; $\leq$ 200°F

B. Keff < .95; 350°F >Tavg > 200°F

C. Keff < .99; Tavg $\geq$ 350°F

✓D. Keff < .99; 350°F >Tavg > 200°F

REF: Tech Spec Definitions, page 1-7

SOURCE: NEW (MEE)

69. G2.4.7 001/ ROT3/ SROT3/ 3.1/3.8/ MEMORY/ NEW/ SM00301/ BOTH/ ME65

Which one of the following is the reason for reducing Tave to less than 500 degrees if the primary coolant specific activity exceeds 100/E bar microcuries per gram?

A. Prevent additional fuel cladding oxidation and pellet cladding interaction.
✓B. Prevent exceeding dose limits following a steam generator tube rupture.
C. Enhances the ability of the mixed bed demineralizers to remove ionic fission products.
D. Minimize the deposition of particulate fission and activation products on surfaces with in the core.

REF: Tech Spec Basis 3/4.4.8, page B3/4 4-5
SOURCE: NEW (MEE)

70. WE04EK2.1 001/ ROT1G2/ SROT1G1/ 3.5/3.9/ C/A/ NEW/ SM00301/ BOTH/ ME33

Given the following conditions:

- RCS pressure is 1900 psig and decreasing.
- PZR level is decreasing.
- AB sump level is increasing.
- All S/G pressures are 850 psig.

Which one of the following is the most probable cause of these conditions?

✓A. Leak in the RHR pump suction line from the RCS.
B. Leak in an RCS sample line.
C. Stuck open Main Steam atmospheric relief.
D. Stuck open PZR PORV.

REF: EOP-2.5 Lesson Plan, Revision 7, page 10
SOURCE: NEW (MEE)

ENCLOSURE 2

Question #5:

Proposed Action:

Accept either choice A. OR B.

Justification:

Based only on the information given, the candidate may determine that the only ***required***, overt action is to decrease load from the given (78%) to the limit of (75%).

Depending on core life, the candidate may roughly calculate that a decrease in reactor power of 7% would not be enough at one time in life; yet would be enough in another time of life, to drive Tavg 5 degrees out from Tref. Therefore the candidate may determine that this choice could be correct, depending on assumptions of core lifetime.

The attached graphs reflect the impact of dropping rod H2 on Tfuel, ΔT, Tavg, and power. Figures ① (BOL) and ② (EOL) with a constant secondary power (therefore, constant 1st stage pressure and constant Tref). At BOL, Tavg changes by 7.5°F and at EOL, Tavg changes by only 2.5°F. In both cases, power returns to the original power level, which is a function of steam demand.

Figures ③ (BOL) and ④ (EOL) show similar results with a slight affect on steam pressure. The final power level is only slightly less than the original power level, therefore the impact on Tref (1st stage pressure) is relatively small.

If the candidate correctly read the intent of the question, he could determine that he is being asked what the "next step in the procedure" is , versus "what is the next required, overt action." In this case, the original choice A. would be correct.

STATIC CALCULATIONS BOL / EOL

```
      INLET TEMPERATURE IS 556.2 F, 291.2 C AND AVERAGE IS 584.8 F, 307.1 C
3   150 0.850 0.999146 1459  8.344 556.2 291.2 HD HD 1.787 1.509 1.192  8.31 228 228 228 228 228          VCS12 - DROP ROD H-0
4   150 0.785 1.000000 1459  8.344 556.2 291.2 HD HD 1.818 1.510 1.212  9.72 228 228 228 228 228          VCS12 - DETERMINE RE

 DROPPED ROD WORTH = 85 pcm
 DELTA CHANGE IN POWER =  6.5%
 DELTA CHANGE IN CORE AVERAGE TEMP = 2.2 F


      INLET TEMPERATURE IS 556.2 F, 291.2 C AND AVERAGE IS 584.8 F, 307.1 C
3 10000 0.850 0.998889 1099  6.284 556.2 291.2 HD HD 1.827 1.571 1.134  0.99 228 228 228 228 228          VCS12 - DROP ROD H-0
4 10000 0.787 0.999998 1099  6.284 556.2 291.2 HD HD 1.803 1.580 1.171  3.70 228 228 228 228 228          VCS12 - DETERMINE RE

 DROPPED ROD WORTH = 111 pcm
 DELTA CHANGE IN POWER =  6.3%
 DELTA CHANGE IN CORE AVERAGE TEMP = 2.2 F


      INLET TEMPERATURE IS 556.2 F, 291.2 C AND AVERAGE IS 585.4 F, 307.4 C
3 21710 0.850 0.998622   68  0.388 556.2 291.2 HD HD 1.712 1.482 1.196  5.37 228 228 228 228 228          VCS12 - DROP ROD H-0
4 21710 0.803 1.000004   68  0.388 556.2 291.2 HD HD 1.811 1.492 1.261  9.28 228 228 228 228 228          VCS12 - DETERMINE RE

 DROPPED ROD WORTH = 138 pcm
 DELTA CHANGE IN POWER =  4.7%
 DELTA CHANGE IN CORE AVERAGE TEMP = 1.6 F
```

Note: these calculations are basically a "reactivity balance" based only on specific parameters such as IRW of the dropped rod, power defect, and MTC. The secondary system is not "attached" to this core model.

JEFF BRADFUTE
345-4864

BOL

$\alpha_M = -8.5$ pcm/F

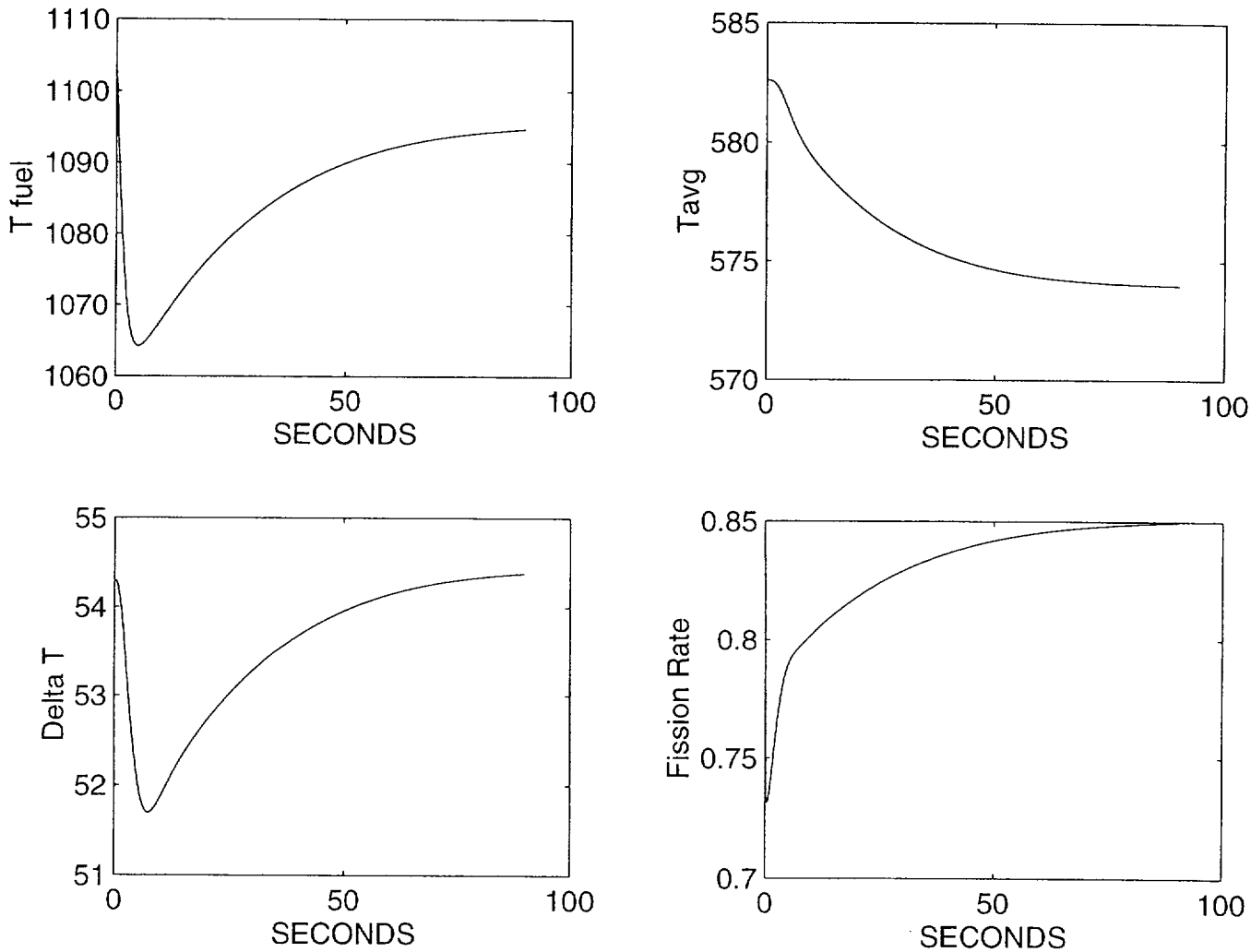
$\alpha_D = -1.6$ pcm/F

$\rho = -85$ pcm

85% power

(1)

Q_{sec} = constant



EOL

$\alpha_M = -30$ pcm/F

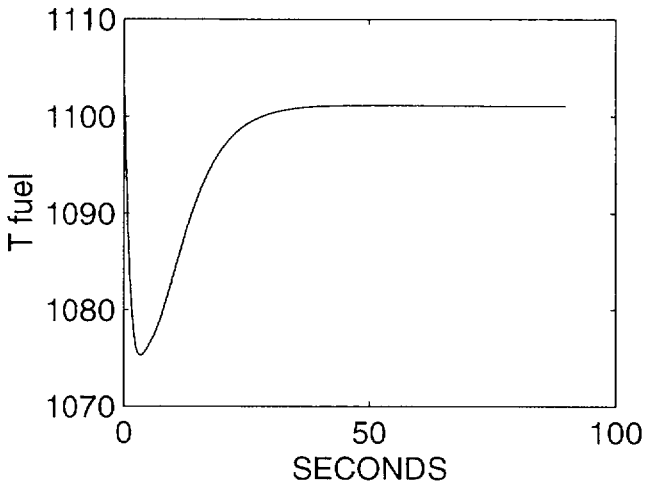
$\alpha_D = -1.6$ pcm/F

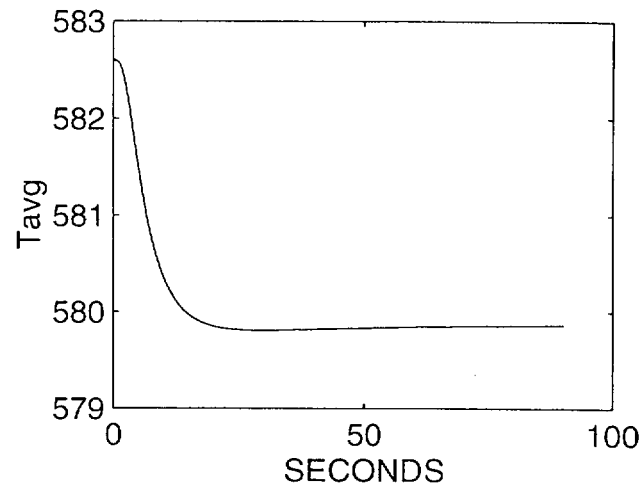
$\rho = -85$ pcm

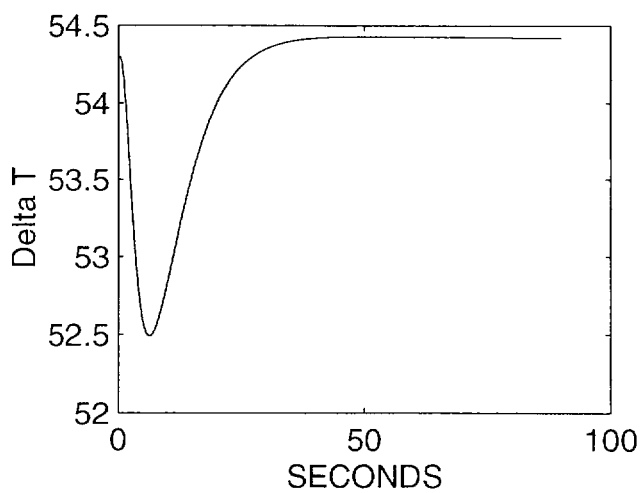
85% power

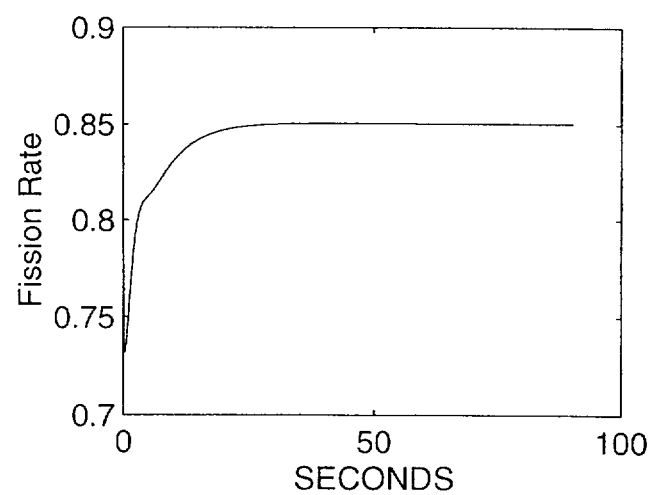
(2)

Q_{sec} = constant









BOL

$\alpha_M = -8.5$ pcm/F

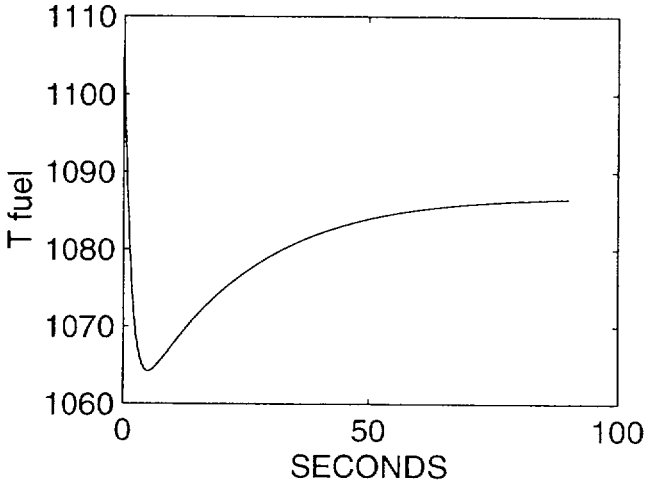
$\alpha_D = -1.6$ pcm/F

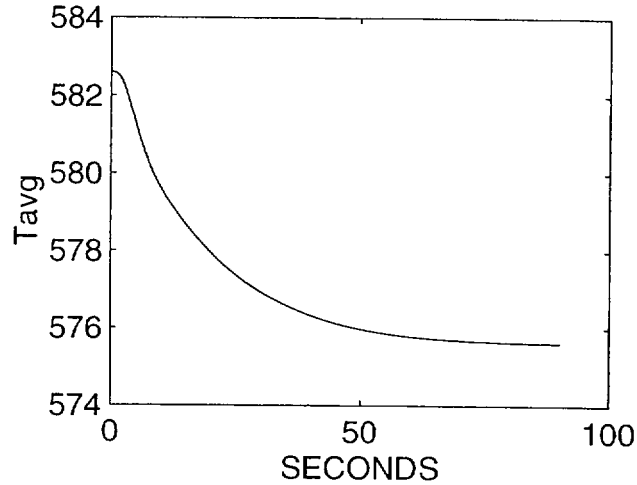
$\rho = -85$ pcm

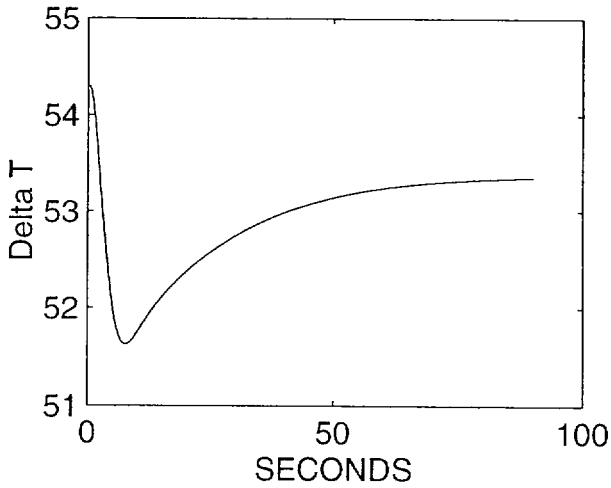
85 % power

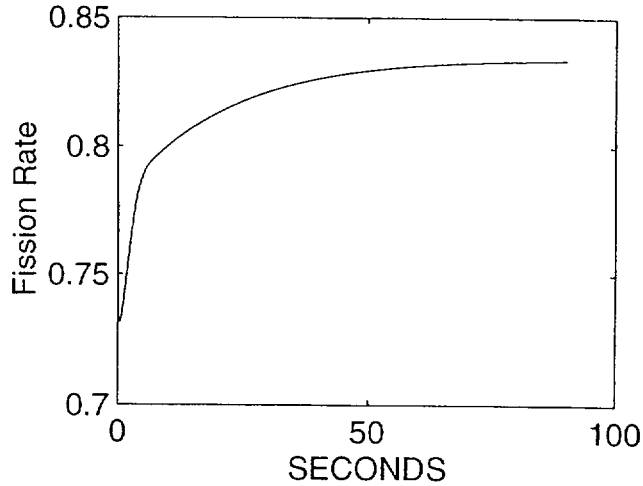
(3)

Steam pressure affects Q_{sec}









EOL

$\alpha_M = -30$ pcm/F

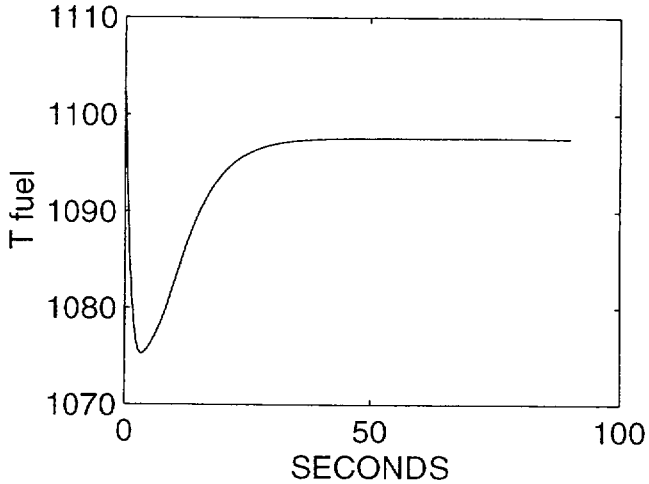
$\alpha_D = -1.6$ pcm/F

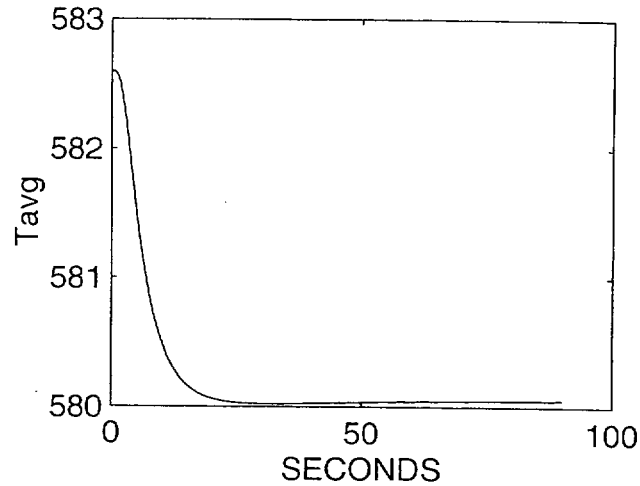
$\rho = -85$ pcm

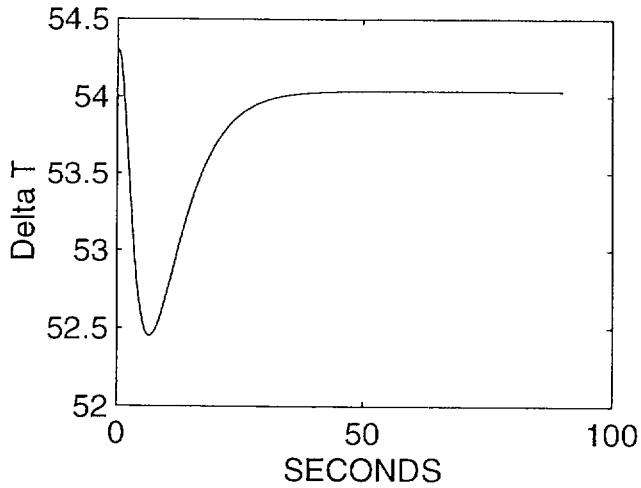
85 % power

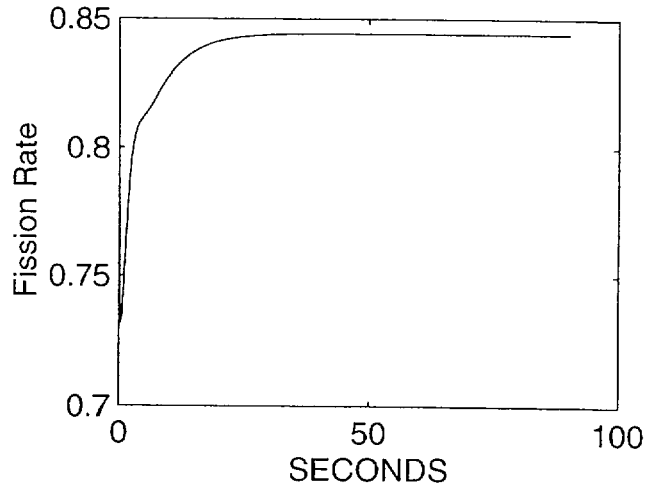
(4)

Steam pressure affects Q sec









Question # 13:

Proposed Action:

Accept either choice A. or B.

Justification:

Choices A. and B. overlap in that they both allow a value of 260°F.

If the Mollier Diagram was used to determine the temperature, the candidate could start with intersection of 1400 psia and the saturation line. A reasonable range of enthalpy at this intersection would be 1172-1175 btu/lbm. Following a constant enthalpy of 1172 btu/lbm to the point where it intersects 20 psia (given PRT pressure of 5 psig plus 15 psia) will yield a temperature almost exactly half-way between 240°F and 280°F. NOTE: Using the tables, versus the Mollier Diagram would yield a calculated value of 260.1°F for an enthalpy of 1172 btu/lbm.

Question # 16:

Proposed Action:

Delete question because there is NO correct answer

Justification:

Original question was written for candidate to determine impact on Channel II & III bistables, not the reactor trip function.

Since no information was provided that would suggest the candidate evaluate failure only on bistables, the candidate would logically assume the question asks for reactor trip functions.

If the pipe in question shears, it would have the following impact:

- "Indicated" (sensed) pressure on PT-445 would fail LOW. No control actions would occur as a result of PT-445 failing LOW.
- "Indicated" (sensed) pressure on PT-444 would fail LOW. PZR heaters would energize as a result.
- Reference leg of LT-461 would depressurize, ΔP sensed the transmitter would fail low, therefore indicated level would fail HIGH on LT-461. The high level trip bistable would actuate, but NO Reactor Trip would occur, since only 1/3 met.
- "Indicated" (sensed) pressure on PT-457 would fail LOW, tripping 1/3 bistables for low PZR pressure. NO Reactor Trip would occur since trip is 2/3.

- Actual PZR pressure would decrease, which could lead candidate to assume that PZR pressure would decrease to the low pressure trip setpoint on all three protection channels.
- Since question does not stipulate conditions of the plant (i.e., 100%, HOT SHUTDOWN), candidate would not be able to determine if the low PZR pressure trip was enabled.

Question # 40:

Proposed Action:

Accept choices b. & c.

Justification:

The release permit and RCV-018 act in conjunction to prevent releases from inadvertently exceeding the desired quantities of radionuclides. They are not mutually exclusive. While a high radiation level on RM-L5 is the only *action* that will prevent an excessive release, the permit defines the value for the monitor's setpoint for the isolation of RVC-018. Since the stem does not limit the answer to an *action*, then completing a permit prior to discharge will also help prevent inadvertent releases.

Question # 43:

Proposed Action:

Delete the question

Justification:

There are no correct answers.

This question was developed from training handout IB-3, EFW, which states: "At a maximum cool down rate of 50°F per hour, the cooldown form hot standby to hot shutdown takes approximately 5 hours. If only the turbine-driven pump is used, the cooldown time is extended by approximately 7 hours because of turbine-driven pump flow rate limitations at the low steam pressure available near the end of the cooldown." The original intent of this discussion in the handout was to provide a broad understanding of the time frames involved in cooling down the plan with or without the MDEFPs. It was never intended to provide specific operational limitations. A Commitment has been entered to change the training handout to more accurately reflect specific limitations.

Actual operational time frames are more accurately described in the EFW Design Bases Document, on page 3.1-2, which states: "for a Loss of Feedwater with a Station Blackout (loss of all AC), the EF System must deliver 380 gpm to 2/3 SG's to maintain the plant at hot standby condition for period of two hours after reactor trip, followed by a four-hour cooldown to 350°F." This implies that the cooldown time is not extended by the use of only the TDEFP.

Additionally, since the stem of the question stipulates that the candidate should assume a maximum cool down rate of 50°F per hour is established, the correct answer should have been 4 hours. (557°F - 350°F [HOT SHUTDOWN] = 200°F; 200°F ÷ 50°F/hr = 4 hrs)

"The minimum required flow is delivered to the effective Steam Generator(s) within one minute following any Auxiliary Feedwater actuation signal." (Ref. 7.4.9, attach, System Requirements # 4)

Westinghouse recommends that "the assured supply of condensate quality water provided for the Auxiliary Feedwater system be not less than that necessary to maintain the plant at hot standby condition for a period of two hours after reactor trip, followed by a four hour cooldown to 350°F." (CGWG-345, Ref. 7.4.5, cover letter) A four hour cooldown from 550°F to 350°F equates to a 50°F/hr cooldown rate (Westinghouse SSDM, Ref. 7.9.1, Section V-7, PURPOSE, pg. 1).

Plant Technical Specifications Bases indicate that the minimum required Condensate Storage Tank water volume "... ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 11 hours with steam discharge to the atmosphere concurrent with total loss of offsite power." (Ref. 7.2.2, Section B3/4.7.1.3)

"Under loss of offsite power, secondary system design shall provide sufficient makeup feedwater to the Steam Generators for generating steam to remove residual heat until power can be restored or reactor heat load can be accommodated by the residual heat removal system." (ANS N-18.2, Ref. 7.1.1, Section E4.7.3.5)

For Loss of Feedwater with a Station Blackout (loss of all AC), the EF System must deliver 380 gpm to 2/3 SG's to maintain the plant at hot standby condition for a period of two hours after reactor trip, followed by a four hour cooldown to 350°F. (CGWG_2146, Ref. 7.4.15, Table 2-1) Per Telecon dated 4/10/87, the minimum flow required at the initiation of RHR with Steam Generator pressure at 100 psia was reduced to 200 gpm. (Ref. 7.4.24)

Plant Technical Specifications require that each pump be tested every thirty one days to demonstrate that the MDEFP's can each develop "a discharge pressure of greater than or equal to 1600 psig at greater than or equal to 90 gpm flow" (Ref. 7.2.2, Section 4.7.1.2.a.1) and that the TDEFP can develop "a discharge pressure of greater than or equal to 1330 psig at greater than or equal to 97 gpm flow when secondary steam supply pressure is greater than 865 psig." (Ref. 7.2.2, Section 4.7.1.2.a.2)

"Where portions of the secondary system are relied upon to serve safety-related functions related to Conditions II, III and IV faults, they shall also meet the applicable performance, mechanical design and testing criteria in Engineered Safety System, Section E5." (ANS N-18.2, Ref. 7.1.1, E4.7.3.6) "Any supporting system which is necessary for the minimum operation requirements of the emergency core cooling system shall be capable of accepting the failure of a single active component." (ANS N-18.2, Ref. 7.1.1, Section E5.4.3.4) "Sufficient redundancy shall be provided to enable the secondary system to remove reactor residual heat in the shutdown condition with the failure of a single active component." (ANS N-18.2, Ref. 7.1.1, E4.7.3.8)

COMMITMENT REPORT

Commitment Type: TMD
Commitment ID: 00-IB-3A

Description:
Revise discussion of time frames to cool down RCS

Source: WRQ
Status:
Source Date:
Resolved: NO
Action Completion Date: 09/30/00
Days Remaining: 44
Resolved Date:
Critical: NO

Recommended Action:
Revise discussion on page 35 of 84 to more closely reflect EFW DBD, pa 3.1-2

Responsible Person: QUICK

Routing:

Affected Documents:

Actions Taken: **Action Dates:**

Question # 61:

Proposed Action:

Accept either choice A. or C.

Justification:

Original correct answer is verbatim from the DEFINITIONS of SAP-123

Choice A. meets the criteria of 6.3.3.B.3 (page 14 of 18), which states: "Use the procedure to validate completion of required actions when each work segment is completed." Since 6.3.3.B allows use of "one or more of the following:", of which 6.3.3.B.3 is one of the options listed, then it is also correct.

At VCSNS, the most frequently used procedures that would allow "Reference Use" are segmented such that the operator would apply option 6.3.3.B.3.

A procedure feedback has been initiated to change the definition of Reference Use to more closely match section 6.3.3.B.

NUCLEAR OPERATIONS
COPY NO. 35

PROCEDURE DEVELOPMENT FORM - A

I. DATE: 11/16/98 PROC.# SAP-123 REV. # 2 CHG. B COMM. #
TITLE: PROCEDURE USE AND ADHERENCE

NEW PROC ___ CHANGE X PERMANENT X
REVISION ___ RESTRICTED ___ FROM ___ TO ___

SAFETY RELATED ___
QUALITY RELATED ___
NON-SAFETY RELATED X

II. DESCRIPTION: (1) ADDED PROVISIONS TO ALLOW WORKING COPIES TO BE MADE FROM CONTROLLED COPIES. (2) PROVIDE GUIDANCE FOR DIRECT REPORTING OF VERIFICATIONS TO STEP 6.2.9 (3) CLARIFIED EXPECTATIONS FOR REFERENCE USE IN STEP 6.3.3.B

REASON FOR CHANGE: (1) MAKE PROCEDURE CONSISTENT WITH SAP-139 AND DCPs.
(2) GUIDANCE NEEDED - PROCEDURE FEEDBACK
(3) AMSO DIRECTION - EXPECTATIONS VAGUE

Originator: [signature] Sign/Print: Alan B. Courtney

III. WILL THIS REVISION/CHANGE/NEW PROCEDURE:

	*YES	NO	N/A
1. Result in significant increased personnel radiation exposure? (ALARA review)		X	
2. Result in a release of effluents to the Environment?		X	
3. Degrade the effectiveness of the Radiation Emergency Plan?			X
4. Degrade the safeguards effectiveness of the Physical Security, Safeguards Contingency of Training and Qualification Plans?			X

* If any question 1 through 4 is answered "YES", refer to appropriate section of procedure for direction.

REQUIRED REVIEW AND COMMENT:

X MOPS ✓	X MHPS ✓	() GMNPO	() QA	() TU	() ISD	()
X MMS ✓	X MDE ✓	() GMES	() QC	() CHS	() RC	()
X MQS ✓	X MNT ✓	() GMNSS	() SAS	() HPS	X MP&SO	()
X MPSE ✓	X MNL&OE ✓	() GMSPD	() MNTS	() PSE	X MMPU ✓	()
X MCHS ✓	X MNPS ✓	X OPS ✓	() NPS	() DE	()	()

REQUESTED REVIEWS:

T A Stoher, 11/18/98
Discipline Supervisor Date

IV. 10CFR50.59 SCREENING REVIEW/SAFETY EVALUATION
☒ REQUIRED ☐ EXEMPT ☐ PSRC SUPPORTING DOCUMENT: ___ T A Stoher
Discipline Supervisor Concurrence

V. TEMPORARY APPROVAL:
QUALIFIED REVIEWER ___ DATE ___ QA REVIEW ___ DATE ___
TELECON BY ___ TELECON BY ___
SHIFT SUPERVISOR ___ DATE ___ FINAL APPROVAL REQUIRED BY: DATE ___

VI. DISCIPLINE SUPERVISOR FINAL REVIEW:
PSRC REVIEW PRIOR TO IMPLEMENTATION? YES ✓ NO ✓ TAS 1/26/99
TRAINING REQUIRED? YES ___ NO ✓
IF YES, PRIOR TO PROCEDURE IMPLEMENTATION? YES ___ NO ___
P/CAP AFFECTED? YES ___ NO ✓
COMMENTS RESOLVED: T A Stoher, 1/26/99
Discipline Supervisor Date

VII. P/CAP ACCEPTABLE?
C. YES ___ NO ___ N/A ___ / NL&OE Date
N. YES ___ NO ___ ___ / RESP. MGR. Date

VIII. FINAL QA REVIEW (As Applicable)
Wm U Pearson 12/18/99
QA Concurrence Date

IX. APPROVAL AUTHORITY:
N/A ___ / Training Completed Date
[signature] 3/12/99
Procedure Approval/Concurrence Date

X. PSRC REVIEW:
A. REVIEWED BY: 99-06
[signature] 3/9/99
PSRC Chairman Date
COMMENTS: YES ___ NO ✓

B. PSRC COMMENTS RESOLVED:
___ / Responsible Manager Date
___ / PSRC Chairman Date

4.5 MASTER CONTROL COPY - The one Controlled Copy to be used to coordinate in-progress revisions and changes, and to verify Working Copies. The location of the Master Control Copy is specified in SAP-139.

4.6 WORKING COPY - A copy of a procedure to be used in the plant. A Working Copy shall be made in accordance with DCP-101. All working copies must be compared to the Master Control Copy to verify it is the latest revision including all changes. A Working Copy may be only that segment of a procedure which is needed to perform the desired evolution or activity. CHG B

4.7 ADHERENCE - Compliance with the direction provided in the procedure step-by-step and in the sequence written, if the sequence must be followed to accomplish the activity.

4.8 LEVEL OF USE - The designation of the minimum required reference to the procedure during the performance of the activity. Levels of use are as follows:

4.8.1 CONTINUOUS USE - Reading each step of the procedure prior to performing that step.

4.8.2 REFERENCE USE - Referring to a procedure prior to work start and periodically during task performance.

4.8.3 INFORMATION USE - An activity may be performed from memory, but in accordance with approved procedures.

4.8.4 MULTIPLE USAGE LEVELS - Intended for application to those procedures within which segments are not all subject to the same level of use.

4.9 INFREQUENTLY PERFORMED TEST OR EVOLUTION - A test or evolution that has a frequency of six months or greater and meets the criteria delineated per Attachment III. New activities that are being performed for the first time will also have the pre-job briefings specified in this procedure.

E. The following activities are not sequence critical unless so stated within the procedure:

1. Initial conditions and prerequisites. These may be completed in any order, but must all be complete prior to beginning procedure steps.

2. Installation of test equipment and gauges. These may be installed in any order, but should all be installed prior to beginning procedure steps.

3. Data acquisition. While normally completed with each associated step, in some cases all data may be acquired after procedure completion.

F. Equipment lineups are typically specified in the order in which components are located in the plant, for ease of location. Changes in the order in which lineups are performed may be made depending on system status at the time the lineup is performed.

G. Independent procedure readers may be prescribed in the Continuous Use mode. For example, a procedure reader may be used to read each step out loud to the worker(s), who will repeat back and then perform the action required by the procedure step.

H. The Continuous Use mode should be used when training personnel.

6.3.3 Reference Use procedures will be used as follows:

A. Reference Use procedures are for work activities that have the following characteristics:

1. The work consists of segments that can be easily accomplished from memory.

2. There are no immediate consequences due to improper actions. Any errors can be identified and corrected prior to affecting nuclear safety and reliability.

3. The task is performed frequently and is within the knowledge skills of experienced individuals.

B. Each individual performing activities in this manner shall adhere to one or more of the following:

1. Review the procedure prior to beginning work.

2. Review the procedure periodically during task performance to ensure that the correct steps are being performed. CHG B

3. Use the procedure to validate completion of required actions when each work segment is completed.

C. Where appropriate, sign-off blocks are provided for certification that all segments are completed.

6.3.4 Information Use procedures will be used as follows:

A. Information Use procedures are for work activities that have the following characteristics:

1. Frequently performed and not complex.

2. The entire activity is easily memorized.

3. The task is within the knowledge and skills of experienced individuals.

4. There are no immediate consequences to nuclear safety and reliability.

B. Each person who performs these activities should review the procedure periodically to ensure that the correct steps are being performed and to verify that any procedure revisions and changes have not been overlooked.

C. Performance of an activity from memory, without referring to the procedure, does not relieve the user from the responsibility to perform the activity in accordance with the procedure.

D. Though attachments for Information Use procedures are often electronically produced, or maintained in bulk, it is the responsibility of the user to ensure any attachment used is consistent with the current revision and change.

PROCEDURE FEEDBACK FORM

DATE: 8/16/00

SECTION I

Originator: Rusty Quick

Procedure #: SAP-123 Revision: 2 Change: C

Procedure Name: Procedure Use and Adherence

Description of the problem: Definition of "Reference Use" is not consistent with section 6.3.3.B., which was modified by Change B on 3-12-99.

Recommended Resolution: Revise the definition of "Reference Use" to be more consistent with Section 6.3.3.B

Proposed procedure change attached: ☐

SECTION II

PRIORITY: ☐ A ☐ B ☐ C ☐ D ☐ E

Priority A - Prompt inclusion into the procedure (within 90 days or prior to the next test/performance).

Priority B - Routine inclusion into the procedure (usually within 12 months).

Priority C - Consider for incorporation in the next revision or change.

Priority D - Incorporate prior to the next Refueling Outage.

Priority E - Void the feedback item.

Authorized By: _____ Date: _____

SECTION III

Resolution: _____

_____

_____

_____

_____

_____

Documents requiring revision due to inclusion of this feedback item (i.e., Tech Specs, DBD, FSAR, etc.):

1. _____
2. _____
3. _____

Other procedures affected by the same feedback item:

1. _____
2. _____
3. _____
4. _____

Resolution incorporated on: _____
Date

Copy returned to originator on: _____
Date

Question # 70:

Proposed Action:

Accept either choice A. or B.

Justification:

The given conditions do not provide enough information to allow the candidate to determine a frame of reference to definitively select choice A. The original intent of the question was for the examinee to assume that the EOP network had been entered; that the increasing AB sump level indicated an Intersystem LOCA was in progress; then to project that EOP-2.5, LOCA Outside Containment, would be entered. If the examinee made that assumption, he could then apply knowledge of the sequence of diagnostics and the bases for that sequence. Based on that assumption, choice A. would be correct.

As stated, the conditions may lead the examinee to assume that the EOP network had not been entered. This assumption is credible for the following reasons:

- The given RCS pressure (1900#) is still above the Reactor Trip setpoint of 1850#.
- There are no "before-and-after" values for the examinee to determine the rate of change of RCS pressure and PZR level.

It is very possible to select a range of plant conditions that would have RCS pressure decreasing and PZR level decreasing, such as during a slow controlled cooldown evolution. If the examinee did not assume that conditions warranted entry into the EOP network, then there would be no need to apply knowledge of the most probable source of leakage outside containment. In this event, he may apply the knowledge of a recent plant event, where a leaking RHR drain line actually caused conditions similar to those stipulated in the given conditions of this test item. This assumption may lead the examinee to select choice B.

ENCLOSURE 3

JPM A.1.a Calculate RCS Leak Rate

Proposed grading criteria:

Tavg: Accept deviation value of **+41.0 to +41.5 gallons** based on a range from curve V-7 of 82.0-83.0 gallons/°F.

PZR Level: N/A

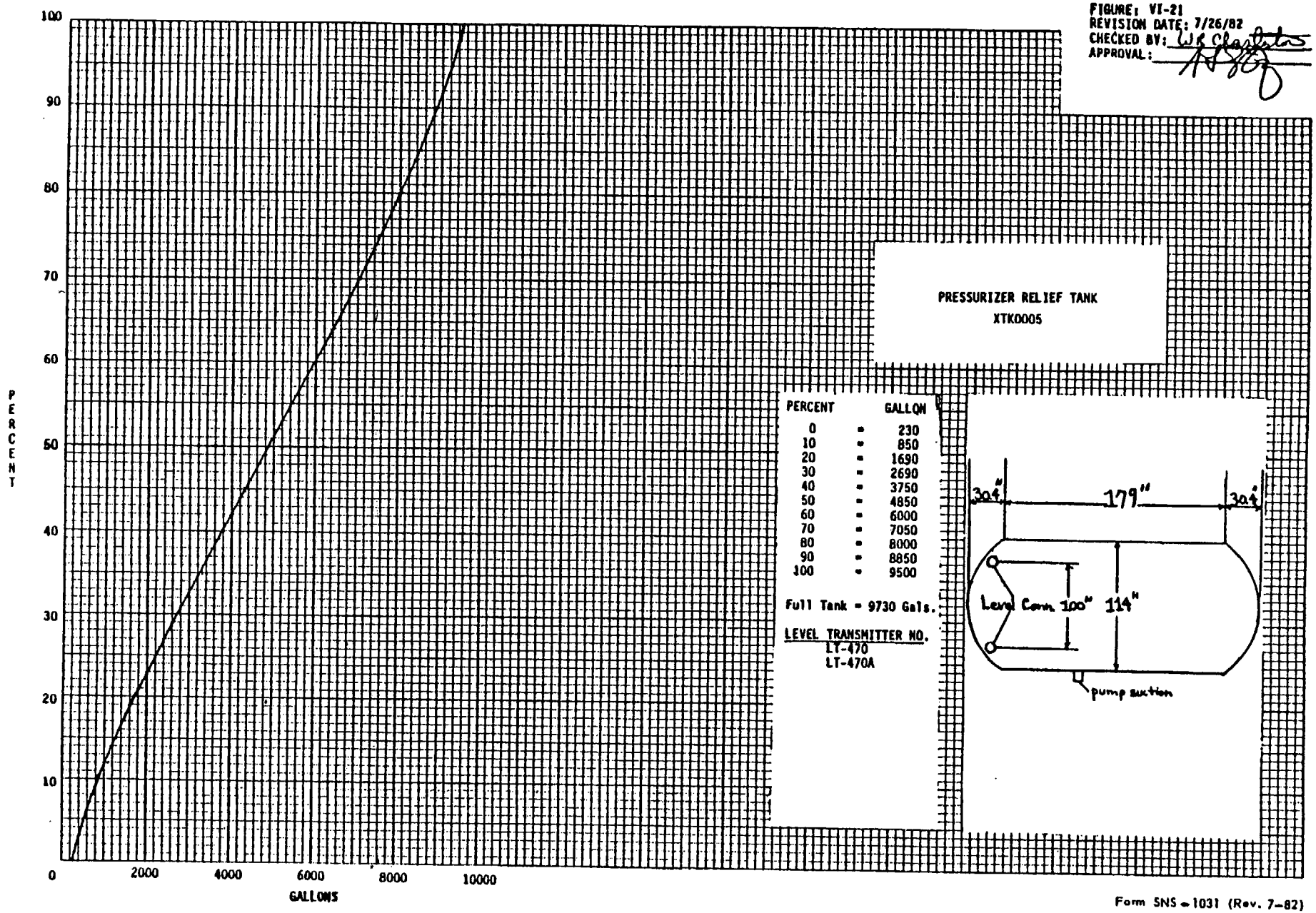
VCT Level: Factor of –14.00 given – No tolerance.

PRT Level: Accept deviation of **150-200 gallons**. Minimum value based on getting 7050 gallons from table for 70% level and reading 7200 gallons from the curve. Maximum level is based on reading the curve and applying the same "parallax" i.e. if student reads 70% as 7000 gal., they should read 72% as 7200. If student reads 70% as 7050 gal., they should read 72% as 7250, etc. This gives a difference of 200.

RCDT Level: Accept deviation of **21.0-24.0 gallons** based on readability of curve VI-22 – Minimum/maximum value for 60% is 215/218 gallons, minimum/ maximum value for 66% is 236/239 gallons for a minimum difference of 21.0 and maximum difference of 24.0.

If student obtains/calculates values within this range and performs Part 2 calculation correctly, and gives proper recommendation based on their calculated values of identified and unidentified leakage, they should receive full credit. Any values outside of the proposed grading for Part 1 or miscalculation or incorrect recommendation should result in less than full credit.

FIGURE: VI-21
REVISION DATE: 7/26/82
CHECKED BY: W R Chapman
APPROVAL:



PRESSURIZER RELIEF TANK
XTK0005

PERCENT		GALLON
0	=	230
10	=	850
20	=	1690
30	=	2690
40	=	3750
50	=	4850
60	=	6000
70	=	7050
80	=	8000
90	=	8850
100	=	9500

Full Tank = 9730 Gals.

LEVEL TRANSMITTER NO.
LT-470
LT-470A

Form SNS-1031 (Rev. 7-82)

JPM A.1.b, Review Tagout for B Charging Pump

This JPM required the examinees to "review the tagout component log for accuracy under SAP-201."

Identifying the correct sequence of tag restoration should not be a critical step since this action is not performed when installing the tags, but clearing the tags. SAP-201, Danger Tagging, (page 16 of 24) requires the repositioning sequence to be identified only when clearing the tagout. Since the JPM implied that the candidates were to review the tagout for *installation*, restoration steps should not be critical.

Tagging out the DC control power breakers is not critical since tagging them is no longer required by SAP-201. This requirement was deleted by Revision 8 of SAP-201. The breakers may be *opened*, but they would not have to be tagged.

Tagging out the auxiliary oil pump is also not critical since there are instances where this pump would not be tagged out when doing maintenance on the pump. Although the "Assigned Task" stated that "major maintenance" was planned, the definition of "major" is not clear. If the planned maintenance was for work on the seal collar, the auxiliary oil pump would not be tagged.

NOTE 6.2.14

If additional work documents are added to the tagout, the Responsible Supervisor must complete all sections of Step 6.1.12.

6.2.14 The Responsible Supervisor will review the amended tagout per Steps 6.1.12.A and 6.1.12.B.

NOTE 6.2.15

If the additional tags are generated by amending the tagout using the computer generated tagout program, an original yellow copy will be available.

6.2.15 The Control Room Danger Tagger will issue updated yellow copies of the attachment pages affected by this amendment. The amended white copy can be reproduced and the copy conspicuously marked as yellow copy.

6.2.16 The white copy, including the amended pages, of the Danger Tag Log, Attachment IA, Component Realignment and Verification Log, Attachment IB, and the Component Log, Attachment IC, will be returned to the Active Danger Tag Book or file.

6.3 Tagout Clearance Instructions.

6.3.1 The Responsible Supervisor(s) or an Alternate for Clearance will:

A. Return all yellow copies of the Danger Tag Log, Attachment IA, and the Component Log, Attachment IC, to the Control Room.

B. On the white copy of the Danger Tag Log, Attachment IA, enter the date in the COMPLETE DATE block for each work document that is complete.

C. On the white copy of the Danger Tag Log, Attachment IA, sign the CLEARANCE AUTHORIZATION block for each work document that is complete.

6.3.2 When all work documents listed on the Danger Tag Log, Attachment IA, have Clearance Authorization signed, the Control Room Danger Tagger will deliver the tagout, both the white and yellow copy(s), to the Duty Shift Supervisor.

6.3.3 The Duty Shift Supervisor will:

A. Review the tagout and ensure that all required signatures are entered and correct.

NOTE 6.3.3.B through 6.3.3.D

1. The Duty Shift Supervisor may add, at his discretion, additional components to be positioned or verified by the Component Realignment and Verification Log, Attachment IB.

2. During outages, when applicable portions of the SOP Lineup(s) are to be performed as part of the system restoration, the Component Realignment and Verification Log, Attachment IB, may be marked N/A.

B. Evaluate system status and assign or concur the REQ'D OPERABLE POSITION on the Component Realignment and Verification Log, Attachment IB, and the REQ'D OPER POSIT on the Component Log, Attachment IC.

C. Indicate the repositioning sequence on the Component Realignment and Verification Log, Attachment IB.

NOTE 6.3.3.D

If only a few tags require sequential removal, these tags should be numbered starting with 1 and ending with tags not needing sequential removal having the same number, for example 1,2,3,4,4,4.

D. Indicate the tag removal and repositioning sequence on the Component Log, Attachment IC.

E. Sign the COMPLETE line under SHIFT SUPERVISOR CLEARANCE AUTHORIZATION on the Danger Tag Log, Attachment IA.

6.3.4 The Duty Shift Supervisor will then direct a Qualified Danger Tagger to clear the tagout.

8.0 RECORDS

8.1 Permanent records generated by this procedure are Danger Tag Audit Sheets.

8.2 Complete white copies of the Danger Tag Log, Attachment IA, Component Realignment and Verification Log, Attachment IB, Component Log, Attachment IC, and Request for Electrical Component Operation, Attachment VI, are retained in the appropriate system file until the next complete system alignment is complete and are then discarded.

9.0 EXCEPTIONS

9.1 None.

10.0 REVISION SUMMARY

10.1 Deleted NOMS Tagging Program.

10.2 Incorporated Change A.

10.3 Deleted the requirement to Danger Tag DC control power breakers when Danger Tagging 480v and 7.2kv breakers per Attachment IX.

10.4 Replaced references to DANTAG with Computer Generated Tagging.

10.5 Reworded the instructions for the use of the COMPONENT REALIGNMENT AND VERIFICATION LOG to facilitate it's use after a Tagout is cleared.

GENERAL TAGGING INSTRUCTIONS

1. Sequence of installing and removing danger tags on pumps.

   A. The following sequence should be adhered to when tagging out a pump:

      1. Electrical or Steam supply
      2. Discharge valve
      3. Recirculation valve
      4. Suction valve
      5. Drains and vents

   B. The following sequence should be adhered to when clearing a pump tagout:

      1. Drains and vents
      2. Suction valve
      3. Discharge valve
      4. Recirculation valve
      5. Electrical or Steam supply

2. Instructions for electrical tagouts.

   A. An air gap or physical separation must be maintained between an electrical source and load to prevent violating the intent of a tagout.

   B. When tagging 7.2KV and 480V breakers in the OPEN/RACKED OUT POSITION, the DC Control ~~Power~~ Breakers shall also be opened per SOP-313, LOCAL SWITCHGEAR BREAKER OPERATION, except for the ~~HVAC~~ Chiller C oil heaters per Item #4 of this attachment.

NOTE 2.C
Operating breakers in the TEST POSITION should not be performed when work is being performed on the load side unless the bus is de-energized.

   C. Breakers can be racked in to the TEST POSITION for testing without violating the requirements of the tagout specifying the breaker to be racked out.

   D. Grounding straps or devices should be reflected for use on all electrical work tagouts in the Safety Reminder section.

C01→ E. When remotely operated breakers are tagged, it's associated DC Control power breakers shall be included on the COMPONENT REALIGNMENT AND VERIFICATION LOG or the applicable SOP Attachment completed, prior to being returned to service.

this is the normal method for restoring control power breakers

JPM A.2, Review R&R

This JPM required the examinees to "identify that the inoperable valve places the unit in T.S. 3.0.3, as two independent ECCS trains are required... full credit is given to the identification of 3.0.3." The examinee was provided an incomplete R&R for XVG08811A and an incomplete index from the R&R Log. The "Assigned Task" was "You have been assigned by the CRS to perform a review of an R&R checksheet prior to his approval."

The "Assigned Task" and inconsistency of administration made it difficult for the candidates to understand how they were expected to complete the JPM. A lack of amplifying information or follow-up questions prevented at least one candidate from determining that T.S. 3.0.3 applied.

One examiner structured the administration of this JPM by providing direction to review the R&R for adequacy, then asking the candidate to assess the impact of the R&R by reviewing the index of existing R&Rs. Another examiner simply gave his candidates the "Directions to Operator" and read the "Assigned Task", which did not include direction to assess the impact of the R&R against the index.

Feedback from the examinees indicated that the absence of "Date/Time Removed From Service" and "Date/Time Returned To Service" made it impossible to tell if the R&Rs in the index were still active. Since this information was not available, the examinees may not have understood the reason they were being given the index.

At least one candidate read the "Assigned Task" and did exactly what was directed, doing nothing more than evaluate the R&R for adequacy and making the appropriate entry into the index. This candidate believed the only reason he was given the index was to make the entry for the new R&R. Given no other amplifying directions, this candidate performed the JPM correctly.