UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

ENCLOSURE 1

EXAMINATION REPORT

Facility Licensee: Georgia Power Company
P. O. Box 4545
Atlanta, GA 30302

Facility Name: Vogtle Nuclear Station

Facility Docket Nos. 50-424 and 50-425

Chief Examiner: Edward A Cook — 10 Sept 1984
Edward A. Cook — Date Signed

Approved by: Bruce A. Wilson — 9/14/84
Bruce A. Wilson, Section Chief — Date Signed

Summary:

Examinations on July 10-12, 1984

Written, oral and simulator examinations were administered to fifteen instructor candidates. Ten people passed these examinations. All others failed.

REPORT DETAILS

1. Persons Examined

M. J. Ajluni
J. E. Bowles
R. J. Brown, Jr.
W. L. Burmeister
W. R. Dunn
J. D. Hopkins
P. M. Kochery
E. J. Kozinsky
G. S. Lee
R. L. LeGrand
P. D. Rushton
W. H. Russell
D. Scukanec
C. H. Williams, Jr.
R. H. Wyre

2. Examiners:

A. J. Vinnola, Jr. - EG&G
F. S. Jaggar - EG&G
R. L. Sailor - EG&G
P. T. Isaksen - EG&G
O. W. Burke - ORNL

3. Examination Review Meeting

At the conclusion of the written examinations, the examiners and Mr. Edward A. Cook, U.S. NRC Region II, met with K. R. Holmes, P. D. Rushton, H. Butterworth, and T. Antonacci of the Vogtle Plant and General Physics to review the written examination and answer key. As a result of this review, the attached comments were submitted by K. R. Holmes of the training department. Also attached are the examiner's resolutions to those comments. All questions were considered appropriate by the examiners as indicated by their comments.

4. Exit Meeting

At the conclusion of the training center visit, the examiners met with representatives of Georgia Power Company and General Physics to discuss the results of the operating and simulator examinations. Those individuals who clearly passed the operating and simulator examinations were identified in this meeting. The examiners made the following observations concerning the training program:

Generic Weaknesses:

a. Candidates had difficulties operating the simulator because of the lack of specific direction in the form of abnormal procedures.

b. Candidates did not know the specific bistables to be tripped, in accordance with Technical Specifications, when instrument failures were inserted into the simulator as malfunctions.

c. During Anticiptated Transient without a Trip (ATWS) events, the rod control motor generator power supply was de-energized and remained so up to 5 minutes. This action caused the loss of other equipment and indications. Candidates, therefore, were unable to assess the status of the Pressurizer Spray valves. The pressurizer heaters were without power. Candidates were unaware of other equipment lost as a result of these busses being deenergized.

d. Many times candidates took actions without informing the other team members of their actions. This caused the other candidates to be confused as to the plant indications during off-normal conditions.

e. Candidates, when in the SRO position, frequently failed to inform the NRC, in accordance with Technical Specifications, of the simulated events as described in the Emergency Plan.

f. Candidate knowledge was weak in the area of plant response to a loss of non-Engineering Safety Features (ESF) dc busses.

5. The cooperation give to the examiners and the effort to ensure an atmosphere conductive the examinations was noted and appreciated.

Attachments:
1. Memo fm Georgia Power to TVinolla dtd 7/12/84
2. Resolution of Facility Comments

Interoffice Correspondence ATTACHMENT 1 Georgia Power

DATE: July 12, 1984

RE: Plant Vogtle - Units 1 & 2
NRC Certification Examination

FROM: K. R. Holmes

TO: Mr. Tony Vinolla
Mr. Pete Isacson

A post-exam review was held on July 10, 1984 with EG & G representatives, Mr. Ed Cook of the NRC, and Georgia Power representatives. The content and depth of the answers to several questions were discussed. This letter and Attachments 1 through 12 are provided as requested to provide references to those answers in question.

Question 6.01

Part 4 of the question related to change in SGWL, and part 5 related to feed flow change. As feed flow is affected by level, part 5 of this question required a correct response to part 4. This correlation could cause double jeopardy

Question 6.04

(See attachment 1, pages 1-3)
The load rejection controller has a 5°F temperature deadband.
The atmospheric setpoint is 1120 psig.

Question 6.05

(See attachment 2, pages 1-3)
In addition the Tave signal effects the following:
C-16 (Stop turbine loading)
P-12
Feedwater isolation (Low Tavg interlock)
Load rejection controller
Plant trip controller

Question 6.06 (a)

(See attachment 3, pages 1-5)
The following are also immediate actions on 2/3 Hi-Hi S/G level:
Rx trip
Close Feedwater bypass valves
Close Main Feedwater valve
Close blowdown isolation
Close sample line valves
Close main and auxiliary feedwater isolation valves

Question 6.08

(See attachment 4, page 1)
Some 120V AC vital busses have 3 sources as identified, 125VDC or 480VAC to inverter and regulated 480V. Other busses do not have non-regulated 480V to the inverters.

Drawing and elementaries cannot support trip due to loss of single 120V AC pannel. The simulator produces a trip for pannel A and B due to Rx trip breakers opening. No trip occurs with loss of pannel C or D on the simulator.

Question 7.01

(See attachment 5, pages 1-2)
Part C Either the Operations Supervisor or Plant Manager can authorize return to criticality depending on plant status.
Part E Action Statement, sample for I is a 2 hours requirement. Only 1 hour limits are required for technical specifications and the 1 hour limits should also be applicable for procedure time limits.

Question 7.02 b.

(See attachment 6, page 1)
The accumulator can be drained to the following:
Reactor Coolant Drain Tank
BRS and Waste Holdup Tank
RWST

The procedure was written specifically for operation of the simulator and does not include all possibilities.

Question 7.03

(See attachment 7, pages 1-4)
Part A Activated water (N^{16}) is a major source of radiation in the RCS. Fission products (i.e. their release due to fuel integrity) can be controlled by chemistry.

Part B Conductivity control is for both scale formation and corrosion (all types).

Question 7.04

(See attachment 8, pages 1-10)
Part A -Accept the following as additional reasons for stopping refueling operation.
-Loss of boron injection flowpath (3/4 1.2.1)
-Loss of charging pump in flowpath (3/4 1.2.3)
-Loss of borated water sources (3/4 1.2.5)
-Loss of shutdown AC sources (3/4 8.1.2)
-Loss of shutdown DC sources (3/4 8.2.2)
-Loss of onsite power distribution (3/4 8.3.2)

Part C Direction from the Fuel handling Foreman could be from:
-the SRO in containment, assuming the foreman is not an SRO
-The Shift Supervisor via performance of the Balance of Plant Operator.

Question 7.05

(See attachment 9, page 1)
Part A Required operator to remember a contingency for a non-immediate action step in a procedure.

Part C ACCW supplies the RCP.

Question 7.07

(See attachment 10, pages 1-4)
Simulator training included generic ECA-1 (ATWS) actions on failure of automatic reactor trip.

Question 8.02 c.

(See attachment 11, pages 1-3)
Include as answers to part c either
-reduce QPTR to within limit
-reduce thermal power at least 3% from rated thermal power for each 1% of indicated QPTR in excess of 1.0

Question 8.07 a.

(See attachment 12, pages 1-3)
Different Versions of the Emergency Plan have different values for the plume exposure pathway (either 5 or 10 miles acceptable)

K R Holmes

KRH/kss

ATTACHMENTS

ATTACHMENT 2

RESOLUTION OF FACILITY COMMENTS

The following are resolutions to the comments provided by Plant Vogtle as a result of the written examination review. Appropriate changes were made to the answer key prior to grading candidates' examinations.

Question 6.01a - Parts 4 & 5

To arrive at the correct answer for part 5, candidates must know that feedwater flow is affected by the position of the regulating valve. This valve position is a function of steam flow AND steam generator level. The part 4 question can be answered with a wrong answer and the part 5 question can be answered with a correct answer, and visa versa. Therefore, the two questions do not cause a double jeopardy situation.

Resolution

Comment acknowledged and rejected.

Answer 6.04 Part 3

The utility material supplied with the comments lists a 5°F deadband and an 1120 psig setpoint.

Resolution

Comment accepted.

Answer 6.05

The utility's comments were in fact on the key, but with a different name, i.e.,

a. C-16 is the control bistable for low EHC Turbine Control
b. P-12 is the designation for Lo-Lo Tave
c. Feedwater isolation is on the key
d. Load rejection controller and plant trip controllers are names of the steam dump controllers.

Resolution

Acknowledge the comment and accept correct answers.

Answer 6.06a

The first four items addressed are on the answer key, the last two items were added to the key.

Resolution

Accept comment.

Answer 6.08a

Resolution

There are four correct answers for inverters A and B, and three correct answers for inverters for C and D. Because the questions did not stipulate which inverter, three of the four possibilities are accepted for full credit.

Answer 6.08b

Resolution

Even though there are no hard-copy references for the utility's comment and because the simulator responds as stated, the utility's comment is accepted. The utility should resolve this discrepancy in their prints.

Answer 7.01c

This answer was left blank on the answer key because the utility supplied material omitted the job title in the procedure 12002.

Resolution

Accept the comment for inclusion to the answer key.

Answer 7.01e

Resolution

The answer key is changed to require 43% credit for stating "a sample must be taken" and 57% credit for stating "isotopic analysis for Iodine".

Answer 7.02b

The question specifically asks to where should the water be drained by procedure. Therefore, only the RWST can be accepted because that is what the procedure states.

Resolution

The answer is not changed, and the other "possibilities" were accepted for partial credit.

Answer 7.03a

Resolution

Accepted utility's comments answer modified.

Answer 7.03b

The reference provided is the reference used by the examiner and it states that by monitoring conductivity increased corrosion is indicated.

Resolution

The utility's comment is acknowledged and the answer on the key was changed.

Answer 7.04a

Resolution

The utility's comments are correct and added to the answer key.

Answer 7.04c

The supporting references do not contradict the answer on key nor provide additional information.

Resolution

Leave answer key as is.

Answer 7.05a

Procedure E-? does not stipulate immediate nor non-immediate action steps. The utility comment is not germane to the procedure as stated.

Resolution

Answer key is not changed.

Answer 7.05c

This comment is pertinent to 7.05b.

Resolution

Answer key correct for 7.05b.

Answer 7.07b

The question specifically states "according to procedure E-0". ECA-1 actions were not asked. (Also, ECA-1 was not provided to the examiner prior to writing the exam).

Resolution

Answer key is correct and not changed.

Answer 8.02c

Resolution:

Answer key modified to accept provided answers.

Answer 8.07.a.1

The utility provided two references, one with 5 miles and the other with 10 miles as the answer. Neither reference is dated. The reference with 10 miles was the reference provided to the examiner prior to writing the exam.

Resolution

Answer key is not changed.

Enclosure 3

U. S. NUCLEAR REGULATORY COMMISSION
INSTRUCTOR CERTIFICATION LICENSE EXAMINATION

FACILITY: _VOGTLE_1_____

REACTOR TYPE: _PWR-WEC4_____

DATE ADMINISTERED: _84/02/10_____

EXAMINER: _ISAKSEN,_R._____

APPLICANT: _____

MASTER COPY

INSTRUCTIONS_TO_APPLICANT:

Use separate paper for the answers. Write answers on one side only. Staple question sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires at least 70% in each category and a final grade of at least 80%. Examination papers will be picked up six (6) hours after the examination starts.

CATEGORY VALUE	% OF TOTAL	APPLICANT'S SCORE	% OF CATEGORY VALUE	CATEGORY
25.00	25.00			5. THEORY OF NUCLEAR POWER PLANT OPERATION, FLUIDS, AND THERMODYNAMICS
25.00	25.00			6. PLANT SYSTEMS DESIGN, CONTROL, AND INSTRUMENTATION
25.00	25.00			7. PROCEDURES - NORMAL, ABNORMAL, EMERGENCY AND RADIOLOGICAL CONTROL
25.00	25.00			8. ADMINISTRATIVE PROCEDURES, CONDITIONS, AND LIMITATIONS
100.00	100.00			TOTALS

FINAL GRADE _____ _____%

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

_____
APPLICANT'S SIGNATURE

QUESTION 5.01 (3.00)

a. Power defect changes over core life. Of the coefficients that contribute to power defect, which contributes most to this change over core life? EXPLAIN (1.0)

b. Explain why power defect is desireable for reactor operation at power. (1.0)

c. Which of the reactivity coefficients that contribute to power defect act first to affect reactivity on a sudden power change due to rod movement? EXPLAIN WHY. (1.0)

QUESTION 5.02 (1.50)

a. Provide TWO reasons for Xenon contributing more negative reactivity at full power than Samarium. (1.0)

b. Explain why you agree or disagree with the following statement: 'Equilibrium Samarium concentration at 50% power is approximately half its concentration at 100% power.' (0.5)

QUESTION 5.03 (3.00)

a. How do each of the following parameters change (increase, decrease or no change) if one main steam isolation valve closes with the plant at 50% load. Assume all controls are in automatic and that no trip occurs.

1. Affected loop steam generator level (INITIAL change only)
2. Affected loop steam generator pressure
3. Affected loop cold leg temperature
4. Unaffected loop steam generator level (INITIAL change only)
5. Unaffected loop steam generator pressure
6. Unaffected loop cold leg temperature (2.4)

b. Which of the reactor protection system signals could be expected to cause a reactor trip? (If more than one, list the one that would reach the trip point first.) (0.6)

QUESTION 5.04 (2.00)

At 100% rated thermal power near end of life (EOL), the extraction steam stop valve to 6A feedwater heater fails closed. The result is an overpower rod stop. EXPLAIN. (Assume no operator action) (2.0)

THERMODYNAMICS

QUESTION 5.05 (3.00)

Unit 1 calculated Shutdown Margin is 10% delta k/k assuming the most reactive control rod worth is 1000 PCM. The Source Range count rate is 50 cps. Show all work and state any assumptions made for the following;

a. Determine the final count rate after the shutdown banks are fully withdrawn, assume the shutdown bank rod worth is 5600 PCM. (1.5)

b. Determine the final count rate after 100 ppm dilution of the RCS FOLLOWING a, above. (1.5)

QUESTION 5.06 (2.50)

Compare the CALCULATED Estimated Critical Position (ECP) for a startup to be performed 4 hours after a trip from 100% power, to the ACTUAL control rod position if the following events/conditions occurred. Consider each independently. Limit your answer to HIGHER than, LOWER than, or SAME as the ECP.

a. One reactor coolant pump is stopped two minutes prior to criticality. (0.5)

b. The startup is delayed until 8 hours after the trip. (0.5)

c. The steam dump pressure setpoint is increased to a value just below the Steam Generator PORV setpoint. (0.5)

d. Condenser vacuum is reduced by 4 inches of Mercury. (0.5)

e. All Steam Generator levels are being raised by 5% as the ECP is reached. (0.5)

QUESTION 5.07 (2.50)

a. If steam goes through a throttling process, specifically as in a leak from the main steam high pressure header to atmosphere, will the following parameters Increase, Decrease OR Remain the same? (No explanation is required) (2.0)

1. Enthalpy (h)
2. Pressure
3. Entropy (s)
4. Specific volume (v)
5. Temperature

b. State whether the steam will be subcooled, saturated or superheated as it leaks out? (0.5)

QUESTION 5.08 (1.50)

A variable speed centrifugal pump is operating at 1/4 rated speed in a closed system with the following parameters:

Power = 300 Kw
Pump delta P = 50 psid
Flow = 880 gpm

What are the new values for these parameters when the pump speed is increased to full rated speed? (1.5)

QUESTION 5.09 (2.50)

a. What is the advantage of condensate depression? (0.75)

b. What is the disadvantage of condensate depression? (0.75)

c. Determine the condensate depression if the condenser is operating at 4" Hg absolute and the condensate temperature is 115-F. (1.0)

THERMODYNAMICS

QUESTION 5.10 (1.50)

a. At what axial location in a PWR core is the critical heat flux at the MAXIMUM? (0.5)

b. How does the MINIMUM critical heat flux change (increase, decrease not change) as the following parameters are INCREASED? Consider each separately.

1. Tave
2. RCS pressure
3. RCS flow
4. Reactor power (Tave constant) (1.0)

QUESTION 5.11 (2.00)

a. Why is the limit for the overtemperature Delta T trip based on not reaching saturation conditions in the hot legs? (1.0)

b. Refer to figure 5-1 attached.

Operation within the limits of the 2000 psia curve from ~98% power- ~607-F Tave to ~120% power- 575-F Tave will prevent exceeding what specific minimum plant thermal criteria? (1.0)

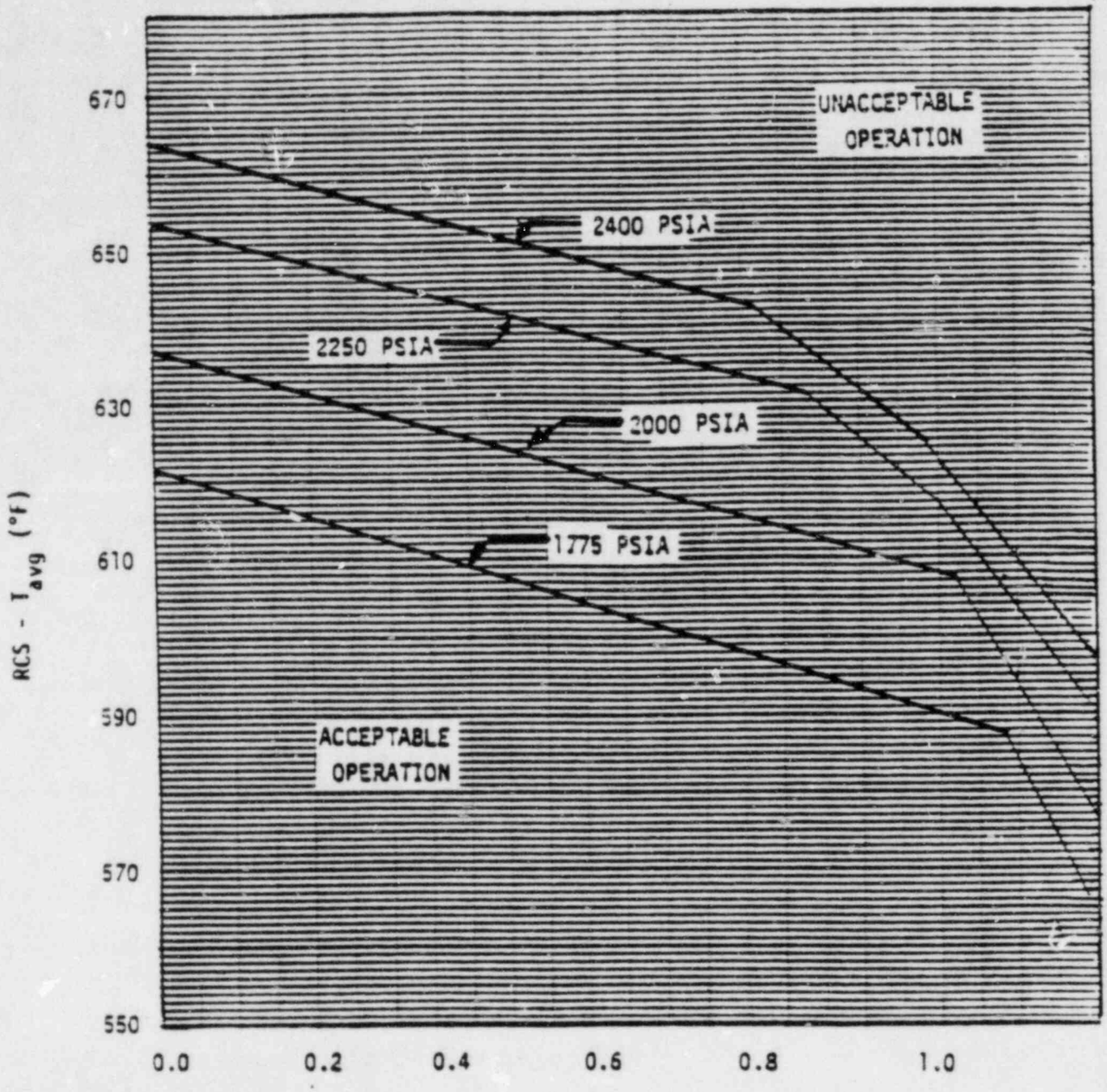

FIGURE 5-1

REACTOR CORE SAFETY LIMITS

QUESTION 6.01 (3.00)

a. Assume one RCP trips at 25% power, without a reactor protection system actuation or change in turbine load. State whether the following instrument indications will Increase, Decrease, or Remain the Same. (Affected is the loop with the tripped RCP)

1. Affected loop Tave. (0.4)

2. Unaffected loop delta T. (0.4)

3. Unaffected steam generator pressure. (0.4)

4. Affected S/G level (Initially). (0.4)

5. Affected feedwater flow (Initially). (0.4)

b. Initially, will the control rods automatically insert OR withdraw AND why? (1.0)

QUESTION 6.02 (3.00)

a. What conditions must be met to enable (enstate) reactor trip permissive interlock P-7 on increasing power? Be specific. (1.0)

b. State the reactor trips which are interlocked with P-7. (2.0)
(SETPOINTS AND COINCIDENCE NOT REQUIRED)

QUESTION 6.03 (3.00)

The letdown pressure transmitter PT-131 fails downscale during normal power operation. Assuming NO operator action, describe the sequence of events which occur in the first 2 minutes AND indicate the changes, if any, in PZR, PRT and VCT levels that you would expect as a result of this failure (Increase, Decrease or No change). (3.0)

QUESTION 6.04 (3.00)

For each of the following cases explain the method of reactor coolant system temperature control AND indicate the approximate resulting final RCS Tave. Assume all systems normal except as stated, AND consider each case separately.

1. Steam pressure setpoint is reduced by 85 psi while at stable plant conditions awaiting reactor startup. (1.0)

2. The train A steam dump selector switch is placed in "off" while at 5% reactor power awaiting turbine startup. (1.0)

3. Train B reactor trip breaker fails to open upon a trip from 78% power. (1.0)

QUESTION 6.05 (3.00)

Hot and cold leg RTD's in the bypass loops provide an input to the OT Delta T and OP Delta T(trip, runback and rod stop) circuits. List FIVE other plant control OR protection circuits that receive an input generated from these RTD's. (3.0)

QUESTION 6.06 (3.00)

a. List ~~all the~~ FIVE IMMEDIATE Automatic actions that occur upon receipt of 2/3 Hi-Hi S/G water level signals for #1 S/G, assume initially at 100% rated thermal power, NO OPERATOR ACTION - DO NOT INCLUDE ALARMS. (2.5)

b. State the Technical Specification bases for the Lo-Lo S/G water level trip. (0.5)

QUESTION 6.07 (2.00)

a. How is the operation of the Containment Cooler FANS affected by an SI signal? (1.0)

b. Why is this action necessary? (1.0)

QUESTION 6.08 (2.00)

a. Describe THREE ways the ESF 120 VAC Vital Instruments are supplied power from the 480 VAC ESF busses AND indicate which is the normal (preferred) supply. (1.5)

b. With the plant operating at 100% power a Vital Instrument panel supply feeder breaker trips open, would you expect a reactor trip? Briefly explain. STATE YOUR ASSUMPTIONS. (0.5)

QUESTION 6.09 (3.00)

State FIVE of the rod stops associated with the Rod Control System. Include Setpoints, Coincidence AND state whether Manual, Auto OR Both. (3.0)

QUESTION 7.01 (3.50)

Answer the following concerning "Unit Startup Following Reactor Trip From Power", procedure 12002.

a. How is the difference in boron concentration between the PZR and reactor coolant loops maintained <50 ppm during boron concentration changes? (0.7)

b. What specific Source Range indication would require suspension of a boron dilution operation in progress? (0.7)

c. Who's permission (by job title/position) is required to return the reactor to critical operation? (0.7)

d. At what intervals during control rod withdrawal shall the operator stop rod motion and ensure that count rate levels off? (0.7)

e. What additional action is required if the reactor tripped from >15% of rated thermal power? INCLUDE applicable time limits. (0.7)

QUESTION 7.02 (3.00)

a. What are the TWO precautions and limitations for draining water from the accumulators in the "Draining Water From The Accumulators" procedure? (1.5)

b. Where is the water drained to by procedure? (0.75)

c. What is the Technical Specification limit for accumulator boron concentration? (0.75)

QUESTION 7.03 (3.00)

a. What are the THREE sources of radioactivity in the RCS AND which sources can be controlled by maintaing proper RCS chemistry? (1.5)

b. 1. What are the reasons for controlling Conductivity and Flouride levels in the RCS? (1.0)

2. What method of RCS chemistry control is used for each? (0.5)

QUESTION 7.04 (3.50)

a. List FIVE Technical Specification Limiting Conditions for Operation that require immediate suspension of refueling operations INSIDE containment (2.0)

b. What are the license requirements for the Fuel Handling Foreman supervising refueling operations inside containment? (1.0)

c. Who (by Job title/position) gives direction to the Fuel Handling Foreman? (0.5)

QUESTION 7.05 (3.00)

Answer the following questions concerning the 'Steam Generator Tube Rupture Coolant' procedure E-3.

a. What action must be taken, if during the isolation of the affected S/G the MSIV's fail to close? (1.0)

b. What are the criteria for stopping the RCP's? (1.0)

c. What is the SI reinitiation criteria following a S/G tube rupture. (1.0)

QUESTION 7.06 (2.00)

Fill in the blanks for the following statements concerning the 'Daily Heat Balance' procedure.

a. Changes in generator load, reactivity changes or delta flux is more than +/- _____% of target during performance of this procedure will invalidate results. (0.4)

b. The enthalpy of the S/G feedwater is estimated with adequate accuracy by using _____. (0.4)

c. Tave and Tref should agree within ___ degree F. (0.4)

d. If any Power Range detector meter deviates more than___% from calculated reactor power levels <___% or deviate more than ___% at calculated power levels > or = to___% perform the GAIN potentiometer adjustment. (0.4)

e. Primary and Secondary plant conditions must be steady state for ___ minutes prior to starting this procedure. (0.4)

QUESTION 7.07 (4.00)

a. According to 'Reactor Trip or Safety Injection' procedure E-0, what FOUR verifications are performed to ensure the reactor tripped? (2.0)

b. What specific action(s) is/are required if the reactor failed to trip? (according to procedure E-0) (1.0)

c. After determining that the reactor trip/SI was due to a loss of secondary coolant(procedure E-2), what would be the indications/ symptoms that inadequate core cooling exists? (1.0)

QUESTION 7.08 (3.00)

Answer the following questions concerning 'Startup of Unit From Hot Standby to Minimum Load' procedure 12001.

a. What is the minimum operability (number of channels) of the Nuclear Instrumentation System required for reactor startup? (0.9)

b. What is the SUR limit when approaching the point of adding heat? (0.5)

c. Why is the SUR limited in b., above? (0.6)

d. Why must caution be exercised when stopping this procedure at ANY particular point? (1.0)

QUESTION 8.01 (3.00)

List the THREE reasons/bases for the Technical Specification Control Rod Insertion limits. Explain your answers. (3.0)

QUESTION 8.02 (3.50)

a. What is the minimum Technical Specification (TS) quadrant power tilt ratio (QPTR) which requires corrective action;

1. At 80% rated thermal power? (0.5)

2. At 40% rated thermal power? (0.5)

b. What protection does this limit provide? (0.75)

c. The two hour time provision for continued power operation with QPTR above the limit in a, above, allows time for the operator to perform what action(s)? (1.0)

d. How is the QPTR determined (data obtained) if one Power Range NI channel is inoperable at 100% power operation? (0.75)

QUESTION 8.03 (3.50)

a. What is the shutdown margin (SDM) required by TS (% delta k/k) for Mode 1 AND Mode 5? (1.0)

b. What is the reason/bases for the difference in SDM requirements in a, above? (1.0)

c. List the THREE factors/parameters that cause the SDM requirements to vary over core life, according to TS.(No explanation required) (1.5)

QUESTION 8.04 (3.00)

What action(s) must be taken if the RCS-PRESSURE-Safety Limit is exceeded, in accordance with TS? Consider ALL Modes AND include applicable time limits in your answer. (BOTH OPERATIONAL AND ADMINISTRATIVE ACTION) (3.0)

QUESTION 8.05 (2.50)

a. What is the minimum water level in the Spent Fuel Pool required by TS? (assume spent fuel in SFP) (0.5)

b. What is the TS bases for the requirement in a, above? (1.0)

c. What design features insure proper water level maintained in the SFP if the SFP cooling pump suction or discharge piping were ruptured? (1.0)

QUESTION 8.06 (2.00)

a. What is the minimum shift crew manning required by TS with Unit 1 in Mode 3 and Unit 2 defueled? (1.5)

b. What are the minimum qualifications/requirements of the individual assuming the "Control Room Command" function during the absence of the Operations Supervisor (from the control room) in Mode 5? (0.5)

QUESTION 8.07 (2.50)

a. What is the extent (size/distance) of the following Emergency Planning Zones (EPZ). (INDICATE OLD OR NEW DEFINITION)

1. Plume exposure pathway. (0.5)

2. Ingestion exposure pathway. (0.5)

b. Who assumes the role of Emergency Director if the ON Shift OPERATING Supervisor is incapacitated immediately after the declaration of an emergency? (0.5)

c. What is the only task which the Emergency Director may NOT delegate? (0.5)

d. Where does the Emergency Director "operate" from during an Alert? (0.5)

QUESTION 8.08 (2.00)

a. What is the basis for maximum of one operable CCP and SI pump TS requirement whenever the temperature of the RCS cold legs is less than 275-F? (1.0)

b. How are the required inoperable CCP's and SI pumps verified inoperable according to TS? (1.0)

QUESTION 8.09 (3.00)

The concentration of the boric acid solution in the Boron Injection Tank (BIT) shall be verified once per 7 days in accordance with Technical Specification 3.5.4.1. The chemist sampled the BIT on the following schedule. (All samples taken at 1200 hours).

May 1 --- May 8 --- May 16 --- May 24 --- May 31

a. EXPLAIN why or why not surveillance time interval requirements were exceeded on May 16. (1.5)

b. EXPLAIN why or why not surveillance time interval requirements were exceeded on May 24. (1.5)

EQUATION SHEET

$f = ma$

$w = mg$

$E = mc^2$

$KE = 1/2\ mv^2$

$PE = mgh$

$V_f = V_o + at$

$W = v\ \Delta P$

$\Delta E = 931\ \Delta m$

$\dot{Q} = \dot{m} C_p \Delta t$

$\dot{Q} = UA\Delta T$

$Pwr = W_f \Delta h$

$P = P_o 10^{SUR(t)}$

$P = P_o e^{t/T}$

$SUR = 26.06/T$

$SUR = 26\rho/\ell^* + (\beta - \rho)T$

$T = (\ell^*/\rho) + [(\beta - \rho)/\bar{\lambda}\rho]$

$T = \ell/(\rho - \beta)$

$T = (\beta - \rho)/(\bar{\lambda}\rho)$

$\rho = (K_{eff} - 1)/K_{eff} = \Delta K_{eff}/K_{eff}$

$\rho = [(\ell^*/(T K_{eff})] + [\bar{\beta}_{eff}/(1 + \bar{\lambda}T)]$

$P = (\ell\sigma V)/(3 \times 10^{10})$

$\Sigma = \sigma N$

$v = s/t$

$s = V_o t + 1/2\ at^2$

$a = (V_f - V_o)/t$

$w = \theta/t$

$A = \frac{\pi D^2}{4}$

$\dot{m} = V_{av} A \rho$

Cycle efficiency = (Net work out)/(Energy in)

$A = \lambda N \qquad A = A_o e^{-\lambda t}$

$\lambda = \ln 2/t_{1/2} = 0.693/t_{1/2}$

$t_{1/2}^{eff} = \frac{[(t_{1/2})(t_b)]}{[(t_{1/2}) + (t_b)]}$

$I = I_o e^{-\Sigma x}$

$I = I_o e^{-\mu x}$

$I = I_o\ 10^{-x/TVL}$

$TVL = 1.3/\mu$

$HVL = -0.693/\mu$

$SCR = S/(1 - K_{eff})$

$CR_x = S/(1 - K_{effx})$

$CR_1(1 - K_{eff1}) = CR_2(1 - K_{eff2})$

$M = 1/(1 - K_{eff}) = CR_1/CR_o$

$M = (1 - K_{effo})/(1 - K_{eff1})$

$SDM = (1 - K_{eff})/K_{eff}$

$\ell^* = 10^{-4}$ seconds

$\bar{\lambda} = 0.1$ seconds^{-1}

$I_1 d_1 = I_2 d_2$

$I_1 d_1^{\ 2} = I_2 d_2^{\ 2}$

$R/hr = (0.5\ CE)/d^2 (meters)$

$R/hr = 6\ CE/d^2$ (feet)

Water Parameters

1 gal. = 8.345 lbm.
1 gal. = 3.78 liters
1 ft^3 = 7.48 gal.
Density = 62.4 lbm/ft^3
Density = 1 gm/cm^3
Heat of vaporization = 970 Btu/lbm
Heat of fusion = 144 Btu/lbm
1 Atm = 14.7 psi = 29.9 in. Hg.
1 ft. H_2O = 0.4335 lbf/in.

Miscellaneous Conversions

1 curie = 3.7×10^{10} dps
1 kg = 2.21 lbm
1 hp = 2.54×10^3 Btu/hr
1 mw = 3.41×10^6 Btu/hr
1 in = 2.54 cm
°F = 9/5°C + 32
°C = 5/9 (°F-32)
1 BTU = 778 ft-lbf

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

MASTER COPY

ANSWER 5.01 (3.00)

a. Moderator Temperature Coefficient (MTC) [0.5] due to an increase (more negative) in MTC as boron concentration is reduced over core life [0.5]. (-0.1 FOR INCORRECT UNITS ON MTC) (1.0)

b. Power defect has a stabilizing influence on reactor operation because it resists power changes. (As power increases, power defect adds negative reactivity and as power decreases, power defect adds positive reactivity). (1.0)

c. Doppler [0.5]. Fuel temperature changes first [0.5]. (1.0)
(FUEL TEMP. COEFF.)

REFERENCE
Georgia Power Nuclear Training, Vol.II, Ch.4, Sect. D, p. 4-125-143; Ch. 5, Sect E p. 5-65. PT 83

ANSWER 5.02 (1.50)

a. 1. Higher fission yield.
2. Larger (thermal) absorbtion cross section (1.0)

b. Disagree [0.1] Equilibrium Sm concentration is not power dependent.[0.4] (0.5)

REFERENCE
GPNT, Vol. II, Ch. 4, Sect D, p. 4-144 to 4-150. PT 84

ANSWER 5.03 (3.00)

a. 1. Decrease
2. Increase
3. Increase
4. Increase
5. Decrease
6. Decrease [0.4 each] (2.4)

b. Lo-Lo S/G Level ~~CAFe~~ (0.6)

REFERENCE
~~CAFe~~ Simulator Malfunction #179 PT 85

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 5.04 (2.00)

By losing half of the heat input from the 6th point heaters the feedwater temperature was decreased [0.5] The lower feedwater temperature lowered Tave [0.5] and added positive reactivity due to MTC [0.5] a power increase (to 103% (OR high Delta-T) results in a rod stop [0.5]. (2.0)

REFERENCE
Vogtle Simulator Malfunction book No 097. PT 86

ANSWER 5.05 (3.00)

a. CR(f) = CR(i) [(1 - Ki)/ (1 - Kf)]

Reactivity in core (i)= -10,000 pcm + (-1000 pcm) = -11,000 pcm
Reactivity in core (f)= -11,000 pcm + 5600 pcm = -5400 pcm

SDM = (1 - Keff)/Keff OR ρ = (Keff - 1)/Keff ; Keff =1/(1 - ρ)

Ki = 1/(1 + 0.11) Ki = 0.9009

Kf = 1/(1 + 0.054) Kf = 0.9488

$$CR(f) = 50 \text{ cps} \frac{(1-0.9009)}{(1-0.9488)} = 96.7 \text{ cps}$$ (1.5)

b. Assume Boron worth = 10 pcm/ppm

K(i) = 0.9488 CR(i) = 96.7 cps

Reactivity in core (i) = -5400 pcm + (100 ppm x 10 pcm/ppm)

= -5400 pcm + 1000 pcm = -4400 pcm

K(f) = 1/(1 + 0.44) = 0.9579

$$CR(f) = 96.7 \times \frac{(1-0.9488)}{(1-0.9579)} = 96.7 \times 1.216 = 117.6 \text{ cps}$$ (1.5)

REFERENCE
GPNT Vol. II, Ch. 5, Sect. A, p. 5-8&9. PT 87

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 5.06 (2.50)

a. SAME

b. HIGHER

c. HIGHER

d. SAME

e. LOWER [0.5 each] (2.5)

REFERENCE
GPNT Vol. II, Ch. 5, Sect. A; ECP Procedure. PT 88

ANSWER 5.07 (2.50)

a. 1. Same
2. Decrease
3. Increase
4. Increase
5. Decrease [0.4 each] (2.0)

b. Superheated (0.5)

REFERENCE
GPNT Vol. III, Ch. 2, Sect. A&B; Steam Tables. PT 90

ANSWER 5.08 (1.50)

Power(2) = Power(1)(N2/N1)cubed = $300 \times (4)^3$ = 19.2 Mw (0.5)

Delta P(2) = Delta P(1) $(N2/N1)^2$ = $50 \times (4)^2$ = 800 psig (0.5)

-> Flow(2) = Flow(1) (N2/N1) = $880 \times (4)$ = ~~3200~~ 3520 gpm (0.5)

REFERENCE
GPNT Vol. III, Ch. 2, Sect. H, p. 2-234. PT 91

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 5.09 (2.50)

a. Increases NPSH (cavitation) (0.75)

b. Reduced efficiency (0.75)

c. 4° Hs = 1.9632 psia [0.25] Tsat = 125-F [0.5] (0.25 if used Table 2 vs Table)

125-115 = 10-F condensate depression (1.0)
[0.25]

REFERENCE
GP HT&FF Sect II, Part B, p. 155-159; Sect. III Part B, p. 319-320. PT 92

ANSWER 5.10 (1.50)

a. Bottom of the core (0.5)

b. 1. Decrease
2. Increase
3. Increase
4. Decrease [0.25 each] (1.0)

REFERENCE
GPNT Vol III, Ch. 2, Sect E, p. 2-164 thru 167. PT 93

ANSWER 5.11 (2.00)

a. OT Delta T uses Thot and Tcold inputs to measure the delta T (Tave) across the core. Once the core exit reaches saturation the enthalpy rise can no longer be equated to the delta T across the core and therefore the OT Delta T trip no longer provides adequate protection. (Partial credit for discussion of deadtimes of sat. cond.) [0.75] (1.0)

b. Prevents exceeding the DNBR limit of 1.3. [0.25] (1.0)

REFERENCE
Technical Specifications p. 2-8 & 9; and Bases B 2-1. PT 94

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 6.01 (3.00)

a. 1. Decrease
2. Increase
3. Decrease
4. Decrease
5. Increase [0.4 each] (2.0)

b. Insert [0.5] since Tave(auct) increases and Tref(Pimp) remains the same [0.5]. (1.0)

REFERENCE
Vogtle Simulator Malfunction Book No. 046*. PT 95

ANSWER 6.02 (3.00)

a. P-7 enabled when P-10 exists--2/4 PR NIS above 10% [0.5] OR when P-13 exists--1/2 turbine impulse pressure above 10% [0.5] (1.0)

b. 1. RCP undervoltage
2. RCP underfrequency
3. Two loop low flow
4. PZR low pressure
5. PZR high level [0.4 each] (2.0)

REFERENCE
Vogtle Tech. Specs. B 2-9. PT 96

ANSWER 6.03 (3.00)

1. PV-131 closes
2. Letdown relief to PRT opens (high disch temp alarm)
3. PZR level increases
4. PRT level increases
5. VCT level decreases [0.5 each] (3.0)

REFERENCE
Vogtle Training Text, Vol. 6, Ch. 5a. PT 97

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 6.04 (3.00)

1. The normal steam pressure setpoint 1085 psig maintains Tave at ~557-F, a decrease in the setpoint to 1000 psig would cause the dumps to open and cool Tave to ~550-F where the P-12 interlock would close all steam dumps. (1.0)

2. Secondary pressure would rise to the setpoint of the secondary atmospheric relief valves [0.5] which would maintain pressure at ~~1135~~ 1120 psig [0.25] and primary temperature ~ 560-F. [0.25] (1.0)

3. The steam dumps would open from a signal by the load rejection controller (when C7A&B were set) and primary temperature would be controlled at the limit of the ~~4~~ 1 degree deadband on the controller ~~565~~ [562] F. [5] (1.0)

REFERENCE
Vogtle Training Text, Vol. 7, p. 12b p. 13-19; Vol. 9, p. 20-4,5. PT 98

ANSWER 6.05 (3.00)

Auct Tave to;
1. [steam dump logic] a. Load Rejection Controller b. Plant Trip
2. PZR level control
3. rod control
4. (low) EHC turbine control [C-16]

5. (Lo Tave to) feed isolation logic ~~[P-12]~~
6. (Lo-Lo Tave) block to steam dump logic [P-12]

7. (Auct high Delta-T) to rod insertion computer. [any five, 0.6 each] (3.0)

REFERENCE
Vogtle Training Text, Vol. 5, p. 1a-27,28. PT 99

ANSWER 6.06 (3.00)

[Five Required]

a. (1) Turbine trip (2) (reactor trip)
(3) SGFPT's trip
Feedwater isolation (4) (FRV's, (5) bypasses, (6) FW isol. vlv's)
(7) Motor driven AFW pumps start
(8) S/G blowdown isolation [0.5 each] (2.5)
(9) S/g Sample isolation

b. Protects the reactor from loss of heat sink (resulting from a loss of normal feedwater making allowances for starting delays of the AFW system). (0.5)

REFERENCE
Vogtle Training Text, Vol. 7, p. 13b-10; TS Bases p. B 2-7. PT 100

ANSWER 6.07 (2.00)

a. The fans are shifted/started to low speed by an SI signal. (1.0)

b. Prevents overloading fan motors (burnout) due to higher mass flowrates from higher density (increased moisture content) (1.0)

REFERENCE
TS p. 3/4 6-22 and basis. PT 101

ANSWER 6.08 (2.00) 3 of the 4 required

a. 1. Directly from the 480 VAC bus thru a step down Transformer.

2. Battery chargers. (battery bus) a. Charger A
b. Charger B

3. Inverter from 480 VAC input*[normal] [0.4 each, 0.3 normal] (1.5)

b. No [0.2], the loss of one protection system channel [A or B] will not result in a reactor protection system actuation since 2/4 logic, (assuming no other channels are in a tripped condi'ion) [0.3] (0.5)
[CA? - yes, [0.2] ~~P-4 P-8 and 1/4 low flow trips~~ if panel A or B due to Rx trip breakers opening [0.3]

REFERENCE
Vogtle Training Text, Vol. 5, p. 16a-10; Simulator Malfunction book No. 138. PT 102

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 6.09 (3.00)

C-1	1/2	IRNI's > 20% equivalent power	Both
C-2	1/4	PRNI's > 103% power	Both
C-3	2/4	OT Delta-T 3% below trip setpoint	Both
C-4	2/4	OP Delta-T 3% below trip setpoint	Both
C-5	1/1	Less than 15% turbine power	Auto
C-11		Control bank D at 220 steps	Auto

[5 required, 0.6 each] (3.0)

REFERENCE
Vogtle Training Text, Vol. 9, p. 20-2,3. PT 103

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 7.01 (3.50)

a. By operation of sprays and heaters. (0.7)

b. Increase by a factor of 2. (0.7)

c. CAF Operations Supervison (Cond I & II) or Plant mgr. (Cond III) (0.7)

d. Banks A&B--every 100 steps, C&D--every 50 steps (0.7)

e. Perform an isotopic (sample [0.3]) analysis of the RCS for IODINE [0.4] within ~~2-6 hours AFTER the reactor trip [0.3]~~ (0.7)

REFERENCE
Vogtle procedure 12002. PT 104

ANSWER 7.02 (3.00)

a. 1. Do not drain below min. TS level.
2. Do not allow acc. press. to fall below min TS press. (1.5)

b. RWST (0.25 credit for correct possibilities; RCDT, BRS and waste holding tank) (0.75)

c. Between 1900 and 2100 PPM. (0.75)

REFERENCE
Vogtle SIS ACC Water Fill, Drain and N2 Fill and Vent procedure P. 3&4;
TS 3/4 5.1 PT 105

ANSWER 7.03 (3.00)

a. (3 required, 0.33 each)
1. Activated impurities in the water. ~~[0.33]~~
2. Activated corrosion and wear products. ~~[0.33]~~
3. Fission products. ~~[0.33]~~
H. N16

(Chemistry controls for 1, 2 & 3 [0.5] (1.5)

b. 1. Conductivity--minimize scale formation [0.5] [indicate increased corrosion]
Flouride--preclude corrosion (.25) of Zr cladding (.25) [0.5] (1.0)
corrosion accepted

2. Control--Ion Exchange (for both) (0.5)

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

REFERENCE
Vogtle GNPT Vol. 4, Ch. 1, Sect. B, P. 1-51; Sect C, P. 1-65. PT 106

ANSWER 7.04 (3.50)

a. -Either a Keff of >0.95 Or a boron concentration < 2000 PPM.
-Less than 2 SR (with visual indication in CR and one with audible indication in containment and CR)
-Subcritical <100 hours
-Containment integrity
-Loss of direct communications between CR and cont.
-Inoperable refueling machine or aux. hoist
-Containment ventilation isolation system inoperable (rad. monitors)
-Less than 23 feet of water over the top of the rx. press. vessel flange
-Loss of boron injection flow path (charging pump, boric acid transfer pump, BAST, RWST operable and in specification)
- Loss of 3 Hot Shutdown AC - DC sources
- Loss of onsite Power Distribution - RHR
[five required, 0.4 each] (2.0)

b. SRO or SRO limited to fuel handling ~~[0.75]~~ [1.0] ~~who has no other concurrent responsibilities during refueling operations [0.25]~~ (1.0)

c. Operating Engineer. (0.5)

REFERENCE
Vogtle Training Text Vol. 8, P. 18a-30; TS P. 3/4 9-1 to 11; 6-1; 3/4 1-7. PT 107

ANSWER 7.05 (3.00)

a. Close unaffected S/G MSIV's [0.7] and bypass valves [0.1]. Use unaffected S/G atmospheric steam dumps. [0.2] (1.0)

b. 1. Loss of ACCW to RCP motor >2 min. [0.25] or if upper/lower bearing temp reaches 195-F. [0.25]
2. If SI is actuated AND RCS press <or=to 1330 psig. [0.5] (1.0)

c. <30-F subcooling OR
PZR level <10% (1.0)

REFERENCE
Vogtle SGTR procedure E-3. PT 108

ANSWERS -- VOGTLE 1 -84/07/1?-ISAKSEN, P.

ANSWER 7.06 (2.00)

a. 2 (0.4)

b. (h(f) for saturated water at) feedwater temperature. (0.4)

c. 1 (0.4)

d. +/- 2[0.15]; 98[0.05]; +2 -0[0.15]; 98 [0.05]. (0.4)

e. 30 (0.4)

REFERENCE
Vogtle Daily Heat Balance procedure. PT 109

ANSWER 7.07 (4.00)

a. 1. Rod bottom lights lit.
2. Reactor trip and bypass breakers open.
3. NR-45 recorder flux decreasing.
4. NIS indications. [0.5 each] (2.0)

b. Manually trip the reactor AND initate emergency boration. (1.0)

c. TC's greater than or equal to 1200-F [0.5] or 700-F with abnormal containent conditions and RCP's off [0.5]. (1.0)

REFERENCE
Vogtle procedures E-0 and E-2. PT 110

ANSWER 7.08 (3.00)

a. Both SR, one IR, three PR. (0.9)

b. +0.1 DPM. (0.5)

c. To limit power overshoot. (0.6)

d. To avoid leaving the plant in an unstable or unsafe condition, (by carring each step to conclusion). (1.0)

RADIOLOGICAL CONTROL

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

REFERENCE
Vogtle 'S/U of Unit From HSB to Min Load' procedure 12001; TS 3.3.1. PT 111

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 8.01 (3.00)

1. Ensure adequate SDM [0.75]. Rods above RIL ensure that sufficient negative reactivity insertion is available to offset the positive reactivity inserted from the power defect[0.25]. (1.0)

2. Minimize the consequences of a rod ejection accident[0.75]. With rods above the RIL limit the amount of reactivity inserted (and subsequent power excursion) during a rod ejection accident is limited[0.25]. (1.0)

3. Ensure a more even flux distribution[0.75]. With rods above the RIL there is little/no flux distortion from rod position [0.25]. (1.0)

REFERENCE
Vogtle TS p. B 3/4 1-3. PT 112

ANSWER 8.02 (3.50)

a. 1. 1.02 (0.5)
   2. Not applicable (0.5)

b. DNB and linear heat generation rate [F(Q)] protection. (0.75)
(also assure radial power distribution sat. design values in analysis)

c. ①To identify AND correct a dropped or misaligned control rod. (1.0)
②REDUCE ΔFIR TO WITHIN LIMIT ③REDUCE THERMAL POWER AT LEAST 3% FOR EACH 1% OF INDICATED ΔFIR IN EXCESS OF 1.0 -[ANY ACCEPTABLE OF THREE]

d. By using movable incore detectors. (0.75)

REFERENCE
Vogtle TS p. B 3/4 2-4 and 3/4 2-14. PT 113

ANSWER 8.03 (3.50)

a. 1.3, 1.0 (1.0)

b. The reactivity transients resulting from a(postulated steam line break)cooldown are minimal (more restrictive) in mode 5 (mode 1). (1.0)
[0.25]

c. Fuel depletion, boron concentration, Tave. [0.5 each] (1.5)

REFERENCE
Vogtle TS p. B 3/4 1-1. PT 114

ANSWER 8.04 (3.00)

Modes 1&2-- Be in HSB with pressure within limits in one hour (1.0)

Modes 3,4,5-- Reduce pressure to within limit in 5 min. (1.5)

ALL Modes -- Notify the NRC Operations Center immediately (within one hour) (0.5)

REFERENCE
Vogtle TS p. 2-1, 6-13. PT 115

ANSWER 8.05 (2.50)

a. At least 23 feet above the top of the spent fuel assemblies. (0.5)

b. That sufficient depth is available to remove 99% of the assumed 10% iodine gap activity released from a ruptured irradiated fuel assembly. (1.0)

c. All penetrations into the SFP are at a level above the min. level required, or have siphon breakers(which are included on pipes above the min. level) [volume of transfer canal accepted but not required for full credit]. (1.0)

REFERENCE
Vogtle TS p. 3/4 9-12, B 3/4 9-3. PT 116

ANSWER 8.06 (2.00)

a. OS 1
SRO 1
RO 2
NLO 2
STA 1--(not required if OS STA qualified) [0.3 each] (1.5)

b. Must have a valid RO license. (0.5)

REFERENCE
Vogtle TS p. 6-4&5. PT 117

ANSWERS -- VOGTLE 1 -84/07/10-ISAKSEN, P.

ANSWER 8.07 (2.50)

a. 1. Areas within 10 miles of the plant, (with some exceptions). (0.5)

2. All areas within 50 miles of the plant. (0.5)

b. Highest ranking licensed person on site. (0.5)

c. The decision to recommend protective actions to the authorities responsible for offsite emergency measures. (0.5)

d. TSC. (0.5)

REFERENCE
Vogtle Emergency Plan p. i,6,7. PT 118

ANSWER 8.08 (2.00)

a. So that a mass addition pressure transient can be relieved by the operation of ONE PORV. (1.0)

b. The motor circuit breakers removed from their respective electrical supply circuits. (1.0)

REFERENCE
Vogtle TS p. 3/4 5-7,8; B 3/4 5-2. PT 119

ANSWER 8.09 (3.00)

a. Interval requirement not exceeded [0.5]. Eight days does not exceed 1.25 times the specified interval [1.0]. (1.5)

b. Interval requirement exceeded [0.5]. The last 3 consecutive intervals exceed 3.25 times the specified interval [1.0]. (1.5)

REFERENCE
Vogtle TS p. 3/4 0-2, 5-10. PT 120

QUESTION	VALUE	REFERENCE
05.01	3.00	PTI0000083
05.02	1.50	PTI0000084
05.03	3.00	PTI0000085
05.04	2.00	PTI0000086
05.05	3.00	PTI0000087
05.06	2.50	PTI0000088
05.07	2.50	PTI0000090
05.08	1.50	PTI0000091
05.09	2.50	PTI0000092
05.10	1.50	PTI0000093
05.11	2.00	PTI0000094
	25.00	
06.01	3.00	PTI0000095
06.02	3.00	PTI0000096
06.03	3.00	PTI0000097
06.04	3.00	PTI0000098
06.05	3.00	PTI0000099
06.06	3.00	PTI0000100
06.07	2.00	PTI0000101
06.08	2.00	PTI0000102
06.09	3.00	PTI0000103
	25.00	
07.01	3.50	PTI0000104
07.02	3.00	PTI0000105
07.03	3.00	PTI0000106
07.04	3.50	PTI0000107
07.05	3.00	PTI0000108
07.06	2.00	PTI0000109
07.07	4.00	PTI0000110
07.08	3.00	PTI0000111
	25.00	
08.01	3.00	PTI0000112
08.02	3.50	PTI0000113
08.03	3.50	PTI0000114
08.04	3.00	PTI0000115
08.05	2.50	PTI0000116
08.06	2.00	PTI0000117
08.07	2.50	PTI0000118
08.08	2.00	PTI0000119
08.09	3.00	PTI0000120
	25.00	
	100.00	