

LICENSING EXAM REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/OL-94-01(DRS)

Docket No. 50-255

License No. DPR-20

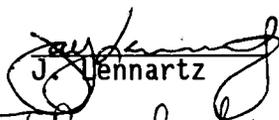
Licensee: Consumers Power Company
27780 Blue Star Memorial Highway
Covert MI 49043-9530

Facility Name: Palisades Nuclear Generating Plant

Examination Administered At: Palisades Nuclear Generating Plant

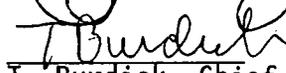
Examination Conducted: Week of March 28, 1994

Chief Examiner:


J. Hennartz

4/25/94
Date

Approved By:


T. Burdick, Chief
Operator Licensing Section 2

4/25/94
Date

Examination Summary

Initial licensing examinations were administered on the week of March 28, 1994 (Report No. 50-255/OL-94-01(DRS)) to five Senior Reactor Operator (SRO) candidates and two Reactor Operator (RO) candidates.

Results:

Both the operating and written parts of the examination must be completed satisfactorily to pass. Both RO candidates and four SRO candidates passed the examinations. One SRO candidate passed the operating examination but failed the written examination.

Examination Summary

The following is a summary of strengths and weaknesses noted during administration of this examination.

Strengths

- Candidates' teamwork and use of pre-job briefs during dynamics (Section 3).
- Candidates' review of plant general requirements and limitations prior to using procedures (Section 3).
- Plant housekeeping (Section 4).

Weaknesses

- Candidates' ability to diagnose events and system malfunctions (Section 3).
- Training staff's post examination review of the written examination (Section 4).
- Simulator fidelity (Section 4).

REPORT DETAILS

1. Examiners

J. Lennartz, NRC, Chief Examiner
A. Lopez, PNL
R. Pugh, PNL

2. Persons Contacted

Licensee Representatives

+ T. Palmisano, Plant General Manager
+ D. Rogers, Safety and Licensing Director
+ S. Wawro, Operations Manager, Acting
+ B. Roberts, Licensing
+*D. Hice, Training Administrator
+*R. Heimsath, Operations Training Supervisor
+*R. Scudder, Simulator Support
+*R. Frigo, Supervisory Instructor
+*P. Schmidt, Supervisory Instructor
D. Hughes, Simulator Instructor
T. Anderson, Operations
F. Ruel, Operations
T. Watson, Training

U. S. Nuclear Regulatory Commission (NRC)

+*T. Burdick, Chief Operator Licensing Section 2, Region III
D. Passehl, Resident Inspector

+ Present at the management exit meeting on April 1, 1994.

* Present at the training exit meeting on April 1, 1994.

3. Initial License Program Observations

The following information is provided for evaluation by the licensee via their SAT based training program. No response is required.

a. Written Examination

Weaknesses

- The post examination review by the NRC identified the following deficiencies in the candidates' knowledge. A majority of the candidates failed to provide the correct response for each particular knowledge area examined.
 1. Manual actions taken that would result in borated spray flow to containment. (This question was based on a recent licensee event report). (SRO question 001; RO question 008)

2. Conditions that would result in an automatic rod withdrawal prohibit signal. (SRO question 003; RO question 002)
3. Inputs that are used by the Subcooled Margin Monitor to calculate subcooling. (SRO question 023; RO question 029)
4. Indications that would be seen if Primary Coolant Pump P-50A control power fuses are installed properly. (SRO question 033)
5. Expected PORV tailpipe temperature if a pressurizer PORV was leaking by. (SRO question 048)
6. Maximum containment pressure at which containment spray can be manually secured. (SRO question 051)
7. Actions that should be taken with the operating pressurizer level controller if Tave fails low on both Tave/Tref controllers. (SRO question 061; RO question 070)
8. Amount of time a fire watch is required to remain in the area following completion of the "hot work." (SRO question 096)
9. Circumstances that would require the Shift Engineer to notify the Duty and Call Superintendent. (SRO question 099)

b. Job Performance Measures (JPMs)

Strengths

- The candidates' use and review of procedural plant general requirements and limitations prior to performing tasks was excellent. Additionally, the candidates demonstrated a "self checking" attitude during task performance.

Weaknesses

- Three out of seven candidates provided an incorrect response to a JPM question that required them to predict the effects on the Thermal Margin Monitor if a T-cold input to Channel "D" failed high.
- Three out of seven candidates provided an incorrect response to a JPM question that required them to diagnose that a half trip had occurred based on given indications on Channel "A" of the reactor protection system.

c. Dynamic Simulator Scenario

Strengths

- The candidates' use and review of procedural plant requirements and limitations prior to performing any required evolutions was excellent. Additionally, the Shift Supervisor conducted a pre-job briefing with the crew prior to performing any load changes.
- The candidates' ability to operate as a team was good. The candidates demonstrated good crew interaction during off normal evolutions and transient events.

Weaknesses

- The candidates' ability to diagnose events and equipment malfunctions was considered weak. The following are examples of the identified weakness:
 - 1) One crew took 30 minutes to diagnose a Steam Generator Tube Rupture (SGTR). The crew did not have normal radiation monitors available due to the scenario conditions. The off-gas monitor was out of service as part of the initial setup, the steam generator blowdown monitor failed as a scenario malfunction, and the steam line radiation monitors were isolated by required crew actions to close the main steam isolation valves. However, the following indications of a SGTR were available to the crew:
 - Pressurizer level and pressure had decreased and all containment parameters (temperature, humidity, sump level, radiation level) remained normal which indicated a LOCA inside containment had not occurred;
 - Quench Tank parameters (level, pressure) remained normal which indicated a pressurizer PORV or safety was not leaking;
 - Steam Generator (SG) pressures were not decreasing uncontrollably and there was no indicated steam flow which indicated a steam break had not occurred;
 - Both SG levels were rising at approximately the same rate even though the ruptured SG had 100 gpm less feed flow.

The crew continued to suspect that a LOCA had occurred even with the above indications of a SGTR present from event initiation. The crew continued to investigate a LOCA until SG samples indicated higher activity in one SG than the other. The crew then took appropriate mitigation actions for the SGTR. This demonstrated a weakness to refer to and use all available information to base a diagnosis on. The delay in diagnosing the SGTR increased the magnitude of the release to atmosphere from the ruptured SG.

2) A load rejection event resulted in an increase in Tave, pressurizer level, pressurizer pressure, and a decrease in turbine first stage impulse pressure, and main generator load as expected. The crew suspected a steam break event had occurred and monitored containment parameters and dispatched personnel in an attempt to identify the location of the steam break.

The crew entered the appropriate off normal procedure for a loss of load event and took appropriate mitigation actions yet continued to look for a non-existent steam break. The next scenario event was initiated 10 minutes later. At this point the crew had not confirmed that a load rejection had occurred.

The crew demonstrated difficulties in diagnosing the event and misinterpreted indications of a load rejection. Difficulties with or incorrect diagnosis of events could delay implementation of appropriate mitigation actions and result in unnecessary plant degradation.

4. Training, Operations, Security, Radiation Protection, Other

Strengths

- Training staff support during validation and administration of the operating examination (dynamic simulator scenarios and Job Performance Measures (JPM)) was good. In many instances the simulator operators had to work around the simulator deficiencies identified in Enclosure 2 to create the requested malfunctions/events for the examinations. In most instances, the simulator operators' ability to work around the deficiencies and/or provide alternatives ensured that the operating examinations could be administered as designed.
- Plant housekeeping was very good. All areas entered during examination administration were very clean and free of unnecessary debris.
- The examiners received complete cooperation from security and health physics personnel to expedite entrance to the

plant. This precluded any unnecessary delays in examination administration.

Weaknesses

- The post examination review conducted by the licensee was considered weak. The licensee was provided a copy of the RO and SRO examinations following administration for review. The post examination review is to ensure a plant specific, valid examination was administered and that the candidates' scores were an accurate indication of their knowledge.

The licensee was asked during the training exit meeting if there were any post examination comments. The licensee stated they had no formal post examination review comments and confirmed their position with submitted correspondence. The post examination review conducted by the NRC resulted in the following examination changes:

1. Two choices for SRO question 008 (RO 009) were considered correct. The answer key was changed to accept the original choice and the additional choice as correct.
2. Two choices for SRO question 028 (RO 037) were considered correct. The answer key was then changed to accept the original choice and the additional choice as correct. Subsequently, discussions with the licensee determined that there was not enough information in the stem of the question to establish plant status to base an answer on. Therefore, depending on assumptions made, three choices could be considered correct. The question was then considered invalid and deleted from the examination.
3. None of the choices for SRO question 078 (RO 084) were considered correct due to the use of the word "must" in the stem. The question was considered invalid and deleted from the examination.

Additionally, further discussions with the licensee training staff regarding the written examination identified the following deficiencies that also resulted in post-examination changes:

1. The answer key was incorrect for SRO question 001 (RO 008). The answer key was changed to reflect the correct choice.
2. None of the choices for SRO question 052 (RO 062) could be considered correct due to non-plant specific terminology used in the choices. The question was considered invalid and deleted from the examination.

Five post-examination changes is abnormally high when no formal post examination review comments were submitted by the licensee. This is indicative of a weakness in the licensee's post examination review.

- Simulator modeling of events/malfunctions was considered poor. The modeling of some malfunctions was not as described in the simulator "Cause and Effects Manual" or did not work at all. Some events could not be run (large main steamline break inside of containment) or could not be run for any duration (once thru cooling) due to modeling uncertainties. Additionally, a reactor startup scenario was developed and validated to reach criticality. However, when that scenario was administered during the examination reactor criticality could not be achieved for unknown reasons.

All of the identified simulator deficiencies are contained in Enclosure 2, "Simulation Facility Report."

5. Exit Meeting

Exit meetings with the Palisades Nuclear Generating Plant management and training staff were held on April 1, 1994 to discuss the strengths and weaknesses noted in Sections 3 and 4. Those attending the meetings are listed in Section 2.

ENCLOSURE 2

SIMULATION FACILITY REPORT

Facility Licensee: Palisades Nuclear Generating Plant

Facility Licensee Docket No. 50-255

Operating Tests Administered On: March 29 - 31/April 1, 1994

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required in response to these observations.

While conducting the simulator portion of the operating tests, the following items were observed:

ITEM

DESCRIPTION

- | | |
|-------------------------|---|
| 1. Criticality Modeling | A reactor startup scenario was developed and validated for the reactor to go critical at about 41 inches on group 4. However, when that exact scenario was administered for the examination (one day after validation) the reactor did not go critical due to unknown reasons. |
| 2. Steamline Break | Could not simulate a steamline break greater than 50% capacity without getting erratic indications on SG levels and pressures. (This had been previously identified and the licensee is working on this modeling) |
| 3. Turbine Controls | Could not simulate a test of main turbine stop and governor control valves. When the test was attempted the generator would either shed load or pick up additional load as the selected valve was cycled due to the other control valves failing to respond. (A simulator deficiency report (SDR) has been written) |
| 4. Radiation Monitor | Off gas radiation monitor (RIA-0631) would incorrectly indicate high radiation during a SGTR event with the MSIVs closed. (This had been previously identified by the licensee) |

5. Feedwater Modeling

Malfunction (MALF) FW06 did not respond as described in the simulator Cause and Effects Manual. The MALF failed the feedwater regulating valve (FRV) positioner in either direction which should have caused SG level to raise or lower. However, SG levels did not change regardless of the direction or the severity of the malfunction.

6. Letdown Malfunction

MALF CV05 did not respond as described in the simulator Cause and Effects Manual. The MALF failed the letdown pressure control valve open which should have caused flow and pressure oscillations. However, letdown flow and pressure did not change when the MALF was activated.

7. SG Modeling

A loss of "F" bus and loss of "R" bus (offsite power) could not be run with power greater than 90%. SG levels would lower excessively (complete blowdown) in a very short amount of time (2-3 minutes) when the events were initiated greater than 90% power.

8. Boric Acid

The manual bypass valve for boric acid makeup control valve CV-2153 is not modeled. Therefore, failure of CV-2153 MALF cannot be run for any duration due to the inability to simulate boric acid control using the bypass valve.

9. Once Thru Cooling Modeling

One scenario required the operators to establish once thru cooling. The scenario had to be terminated 2 minutes following initiation of once thru cooling due to modeling uncertainties (pressurizer pressure and safety injection flows).

10. VCT Low Level

The VCT low level alarm did not energize at alarm setpoint and had to be manually energized by the simulator operator. This occurred during examination administration but not during scenario validation.

12. SG Blowdown Monitor

The SG blowdown radiation monitor inadvertently failed off scale high during examination administration. This deficiency did not occur during scenario validation.

13. ECCS Valve Test
Flow indicator FI-0404 (recirculation flow to SIRWT) did not indicate properly during performance of technical specification test procedure QO-19, "HPSI Pumps and ESS Check Valve Operability Test." QO-19 was performed as a JPM and indicated flow on FI-0404 did not change as expected when the HPSI hot leg injection mode select valve (MO-3082) was opened and closed. Indicated flow incorrectly remained the same regardless of the position of MO-3082.
14. Simulator Phones
There is only one incoming line from the simulator floor to the simulator instructors in the booth. This prevents the operators from communicating with more than one person outside the control room (simulator floor) at a time (i.e. auxiliary operator, shift supervisor, maintenance). (This has been identified and the licensee is investigating ways to revise this with their current phone system)
15. Instructor Consoles
The simulator instructor consoles in the booth inadvertently froze and had to be reset a few times. This did not affect any malfunctions that were active at the time but the instructors were unable to insert any additional malfunctions until the consoles were reset. (This had occurred previously)
16. Simulator Computer
The simulator inadvertently froze during examination administration and had to be reset. This delayed the examination administration about 45 minutes.

U. S. NUCLEAR REGULATORY COMMISSION
 SITE SPECIFIC EXAMINATION
 REACTOR OPERATOR LICENSE
 REGION 3

CANDIDATE'S NAME: _____
 FACILITY: Palisades
 REACTOR TYPE: PWR-CE
 DATE ADMINISTERED: 94/03/28

INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

<u>TEST VALUE</u>	<u>CANDIDATE'S SCORE</u>	<u>%</u>	
97.00			
100.00			
	<u>FINAL GRADE</u>	<u>%</u>	TOTALS

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

Candidate's Signature

MASTER COPY

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

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

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

- | | | | | | | | | | | | |
|-----|---|---|---|---|-------|-----|---|---|---|---|-------|
| 046 | a | b | c | d | _____ | 069 | a | b | c | d | _____ |
| 047 | a | b | c | d | _____ | 070 | a | b | c | d | _____ |
| 048 | a | b | c | d | _____ | 071 | a | b | c | d | _____ |
| 049 | a | b | c | d | _____ | 072 | a | b | c | d | _____ |
| 050 | a | b | c | d | _____ | 073 | a | b | c | d | _____ |
| 051 | a | b | c | d | _____ | 074 | a | b | c | d | _____ |
| 052 | a | b | c | d | _____ | 075 | a | b | c | d | _____ |
| 053 | a | b | c | d | _____ | 076 | a | b | c | d | _____ |
| 054 | a | b | c | d | _____ | 077 | a | b | c | d | _____ |
| 055 | a | b | c | d | _____ | 078 | a | b | c | d | _____ |
| 056 | a | b | c | d | _____ | 079 | a | b | c | d | _____ |
| 057 | a | b | c | d | _____ | 080 | a | b | c | d | _____ |
| 058 | a | b | c | d | _____ | 081 | a | b | c | d | _____ |
| 059 | a | b | c | d | _____ | 082 | a | b | c | d | _____ |
| 060 | a | b | c | d | _____ | 083 | a | b | c | d | _____ |
| 061 | a | b | c | d | _____ | 084 | a | b | c | d | _____ |
| 062 | a | b | c | d | _____ | 085 | a | b | c | d | _____ |
| 063 | a | b | c | d | _____ | 086 | a | b | c | d | _____ |
| 064 | a | b | c | d | _____ | 087 | a | b | c | d | _____ |
| 065 | a | b | c | d | _____ | 088 | a | b | c | d | _____ |
| 066 | a | b | c | d | _____ | 089 | a | b | c | d | _____ |
| 067 | a | b | c | d | _____ | 090 | a | b | c | d | _____ |
| 068 | a | b | c | d | _____ | 091 | a | b | c | d | _____ |

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

- 092 a b c d _____
- 093 a b c d _____
- 094 a b c d _____
- 095 a b c d _____
- 096 a b c d _____
- 097 a b c d _____
- 098 a b c d _____
- 099 a b c d _____
- 100 a b c d _____

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

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.
2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.
3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.
4. Use black ink or dark pencil ONLY to facilitate legible reproductions.
5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.
6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.
7. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.
8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.
9. The point value for each question is indicated in parentheses after the question.
10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.
11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.
12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.
13. If the intent of a question is unclear, ask questions of the examiner only.

14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.
15. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.
16. To pass the examination, you must achieve a grade of 80% or greater.
17. There is a time limit of four (4) hours for completion of the examination.
18. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

WHICH ONE (1) of the following sensors provides the rod position signal to the Secondary Position Indication?

- a. Reed switches
- b. Limit switches
- c. Micro switches
- d. Synchro Transmitters

QUESTION: 002 (1.00)

Given the following:

- Reactor startup in progress.
- Power is less than $10E-4$.
- Regulating rods are being withdrawn in MANUAL SEQUENTIAL.

WHICH ONE (1) of the following will automatically prevent further control rod withdrawal?

- a. Low pressurizer pressure pre-trip.
- b. Dropped shutdown rod.
- c. Startup rate of 1.5 dpm on 1 of 2 channels.
- d. Loop 1 to Loop 2 Tav_g deviation of +5 degrees F.

QUESTION: 003 (1.00)

WHICH ONE (1) of the following is the purpose of Power Distribution Insertion Limits?

- a. To provide proper control bank overlap.
- b. To ensure radial flux profile is within thermal limits.
- c. To provide axial flux shaping at full power.
- d. To ensure adequate shutdown margin for reactor trip.

QUESTION: 004 (1.00)

Given the following:

- During a plant cooldown PCS temperature decreased from 500 deg. F to 495 deg. F from 9:00 am to 9:10 am.
- The SS has directed you to establish a cooldown rate that will result in the MAXIMUM allowable rate per Technical Specifications between 9:00 am and 10:00 am.

WHICH ONE (1) of the following actions will result in reaching the Technical Specification MAXIMUM allowable PCS cooldown limit?

- a. Increase cooldown to 3.9 deg. F/min.
- b. Increase cooldown to 1.9 deg. F/min.
- c. Increase cooldown to 1.1 deg. F/min.
- d. Increase cooldown to 0.7 deg. F/min.

QUESTION: 005 (1.00)

Given the following:

-The Subcooled Margin Monitor is in the "PRESS" mode and indicates 20 psia.

WHICH ONE (1) of the following does this indicate?

- a. Pressure must rise 20 psia to reach subcooling.
- b. Pressure must fall 20 psia to reach subcooling.
- c. Pressure must rise 20 psia to reach saturation.
- d. Pressure must fall 20 psia to reach saturation.

QUESTION: 006 (1.00)

WHICH ONE (1) of the following is the basis for limiting the operation of PCS pumps to a MAXIMUM of three (3) pumps when PCS temperature is less than 450 degrees F.?

- a. To limit PCS heat input.
- b. To ensure an adequate NPSH.
- c. To limit Steam Generator tube stresses.
- d. To prevent core uplift.

QUESTION: 007 (1.00)

Given the following:

- PCS pressure is 2060 psia.
- The following conditions have just been noted on PCP "B":

Vapor seal is at 100 psia.
Upper seal is at 1025 psia.
Middle seal is at 2060 psia.

WHICH ONE (1) of the following PCP "B" seals is degraded?

- a. Vapor seal.
- b. Upper seal.
- c. Middle seal.
- d. Lower seal.

QUESTION: 008 (1.00)

Which ONE (1) of the following would result in borated spray flow into containment using CS pump P-54B if a manual pump start was required following a SIAS?

- a. Open CS control valve CV-3001 and then start pump at breaker on Bus 1C.
- b. Open both CS control valves CV-3001 and CV-3002 and then depress illuminated white standby light on control board.
- c. Open both CS control valves CV-3001 and CV-3002 and then place pump control switch to start on C-33 panel.
- d. Open CS control valve CV-3002 and then start pump locally by depressing pushbutton in west engineered safeguards room.

QUESTION: 009 (1.00)

WHICH ONE (1) of the following is the reason why flashing can occur in the CVCS letdown line?

- a. Letdown flow is too LOW and CV-2012 (letdown backpressure control valve) is OPEN too far.
- b. Letdown flow is too LOW and CV-2012 (letdown backpressure control valve) is CLOSED too far.
- c. Letdown flow is too HIGH and CV-2012 (letdown backpressure control valve) is OPEN too far.
- d. Letdown flow is too HIGH and CV-2012 (letdown backpressure control valve) is CLOSED too far.

QUESTION: 010 (1.00)

Given the following:

- Alternate charging path has been established.
- Charging into the PCS is via the HPSI system.

WHICH ONE (1) of the following is the reason a different Cold Leg Loop is used each time charging is restarted?

- a. To equalize the boron concentration in the lines.
- b. To minimize "pulse" damage/effects on safeguards components.
- c. To maintain PCS chemistry within specifications.
- d. To distribute the thermal cycles on the SI nozzles.

QUESTION: 011 (1.00)

All interlocks and permissives for charging pump P-55B will be defeated if it is powered from WHICH ONE (1) of the following buses?

- a. MCC-11
- b. MCC-12
- c. MCC-13
- d. MCC-14

QUESTION: 012 (1.00)

WHICH ONE (1) of the following pressures is the MAXIMUM at which BOTH of the SDC loop suction valves MO-3015 and MO-3016 can be opened?

- a. 200 psia
- b. 245 psia
- c. 260 psia
- d. 280 psia

QUESTION: 013 (1.00)

Given the following:

- The plant is on Shutdown Cooling using LPSI pump P-67B.
- A loss of offsite power has occurred.
- The 1-1 EDG has started and loaded its Safety Bus.

WHICH ONE (1) of the following describes the restarting of LPSI pump P-67B?

- a. The pump will automatically restart immediately after the Safety Bus is re-energized.
- b. The pump will restart automatically with a 13 second time delay after the Safety Bus is re-energized.
- c. The pump will restart automatically after the Sequencer is manually reset.
- d. The pump must be manually restarted.

QUESTION: 014 (1.00)

WHICH ONE (1) of the following is the reason for the interlock between SI Hot Leg Injection valve MOV-3082 and SI Cold Leg Injection valve MOV-3080?

- a. Prevent runout/motor overloading on HPSI pump.
- b. Prevent simultaneous hot and cold leg injection.
- c. Prevent inadvertent early hot leg injection.
- d. Prevent overpressurization of the LPSI system.

QUESTION: 015 (1.00)

Given the following:

-An SIAS has occurred due to a cold leg break.

WHICH ONE (1) of the following indicates an SI System MISALIGNMENT?

- a. VCT outlet valve CLOSED.
- b. SIT pressure control valves CLOSED.
- c. HPSI hot leg injection test valves CLOSED.
- d. SDC heat exchanger CCW cooling inlet valves CLOSED.

QUESTION: 016 (1.00)

WHICH ONE (1) of the following is the MAXIMUM PCS pressure at which a safety injection tank (SIT) level would be noted to be lowering following a large break LOCA?

- a. 450 psia
- b. 350 psia
- c. 250 psia
- d. 150 psia

QUESTION: 017 (1.00)

WHICH ONE (1) of the following is a possible source of inventory for the Quench Tank?

- a. Reactor vessel flange leak detector drains.
- b. SI tank drain relief.
- c. Primary Drain Tank discharge.
- d. PCP Controlled Bleedoff.

QUESTION: 018 (1.00)

WHICH ONE (1) of the following describes the operation of the Component Cooling Water (CCW) pumps on a SIAS?

- a. Concurrent with a loss of offsite power the running pumps stop and are restarted by the NSD sequencer.
- b. Concurrent with a loss of offsite power the running pump(s) stop and will restart on a low header pressure of 80 psig.
- c. The running pump(s) continue(s) operation and the standby pump will only start on a low pressure condition.
- d. The running pump(s) continue(s) operation and the standby pump(s) auto start.

QUESTION: 019 (1.00)

Given the following:

- Steady state operation at 100% power.
- PCS pressure is 2061 psia.
- The PZR pressure Selected CONTROLLER SETPOINT is inadvertently changed to 2240 psia (step change).
- Pressurizer pressure control is in automatic.

WHICH ONE (1) of the following will be the IMMEDIATE response of the system?

- a. Pressurizer spray valves close.
- b. Pressurizer Safety valve(s) open.
- c. Proportional heaters go to minimum output.
- d. PCS pressure starts to decrease.

QUESTION: 020 (1.00)

Given the following:

- Reactor power is at 100%.
- A transient has caused pressurizer level to decrease 6% below the programmed level.

WHICH ONE (1) of the following is the response of the Pressurizer Level Control System?

- a. Letdown flow will be isolated with P55A, P55B, and P55C running.
- b. Letdown flow will be minimum with only P55A running.
- c. P55A, P55B, and P55C will be running with minimum letdown.
- d. Only P55A and P55B will be running with minimum letdown.

QUESTION: 021 (1.00)

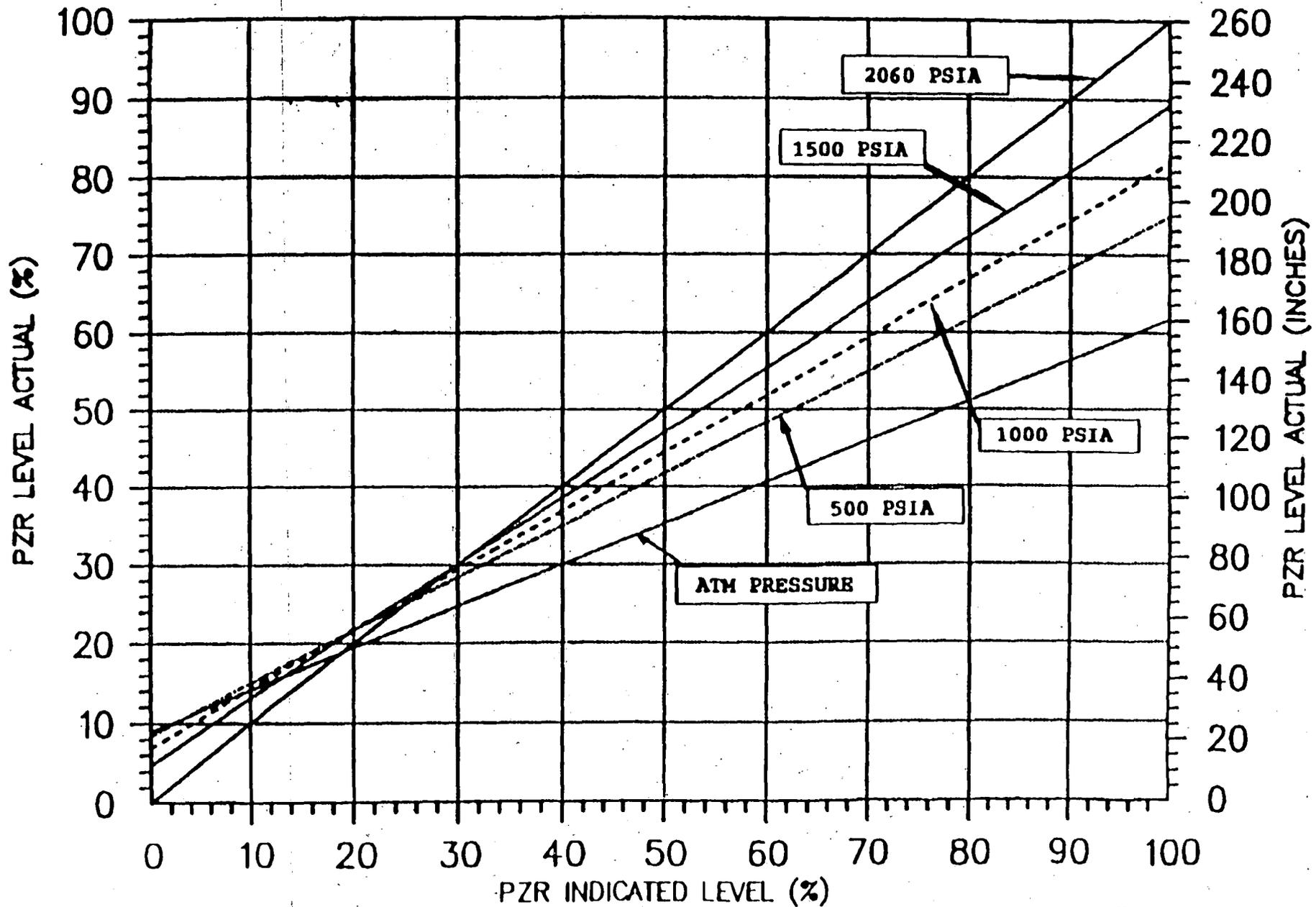
Given the following:

- Plant heatup in progress.
- Loop Tcolds are indicating 440 degrees F.
- Pressurizer pressure is 1500 psia.
- Pressurizer level transmitters LT-0101A and B indicate 58%.

WHICH ONE (1) of the following is the indicated level that would be seen on pressurizer level transmitter LT-0103A? (SOP 1, "Primary Coolant System", Attachment 5 is attached.)

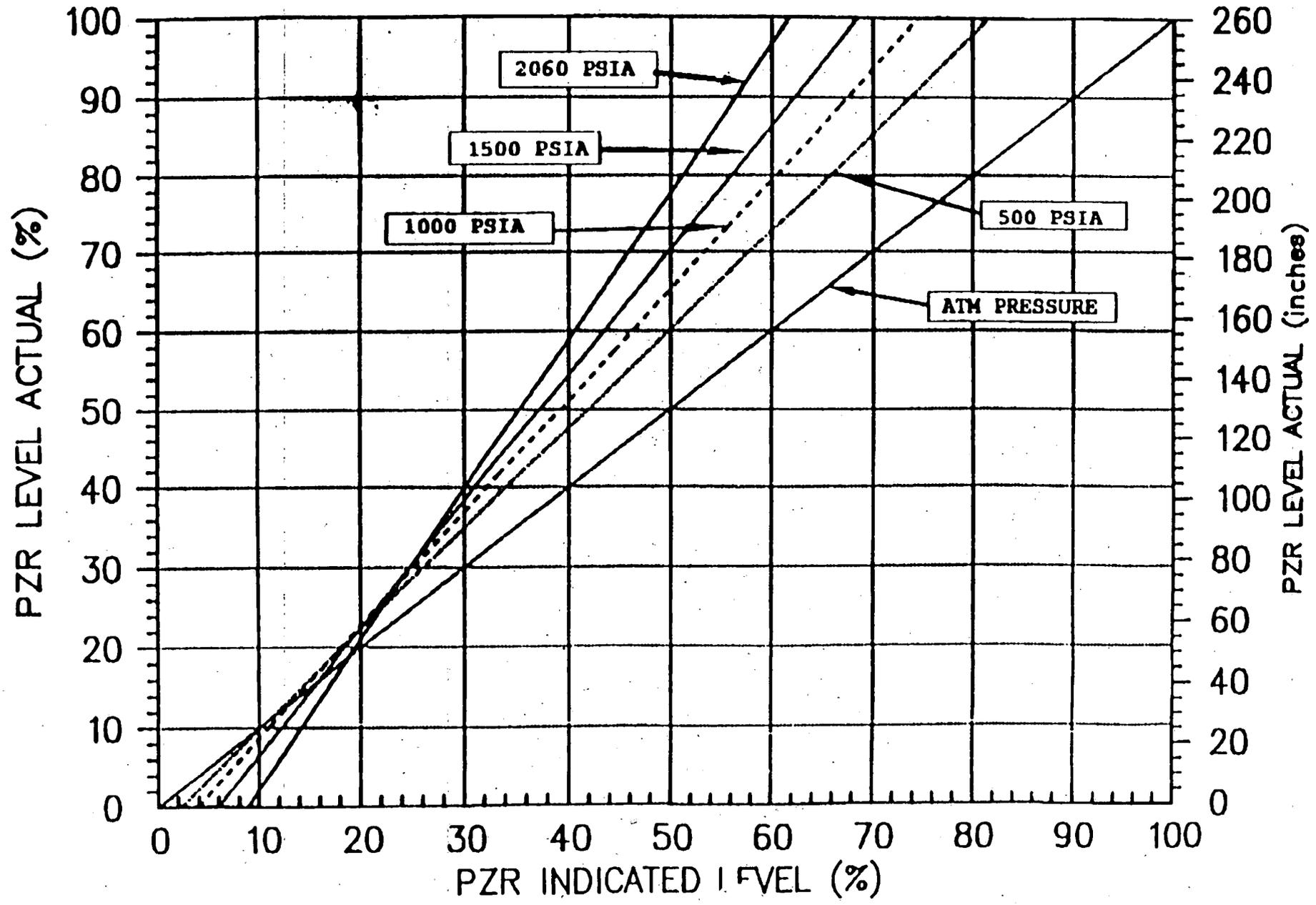
- a. 39%
- b. 54%
- c. 58%
- d. 83%

PRESSURIZER LEVEL
Indicated vs Actual
LIC-0101A and LIC-0101B (Hot Calibrated)



INDICATED LEVEL VS ACTUAL LEVEL
 FOR VARIOUS PCS PRESSURES

PRESSURIZER LEVEL
Indicated vs Actual
LIA-0102A AND LI-0103A (Cold Calibrated)



INDICATED LEVEL VS ACTUAL LEVEL
 FOR VARIOUS PCS PRESSURES

QUESTION: 022 (1.00)

Given the following:

- Delta T power indicates 43%.
- Nuclear power indicates 41.8%.
- Variable High Power Trip (VHPT) setpoint is 46.7%.
- Variable High Power (VHP) pre-trip setpoint is 45.2%.

WHICH ONE (1) of the following is the new VHPT trip and VHP pre-trip setpoint after you depress the VHPT RESET button with the current plant conditions?

- a. VHPT = 58.00%, VHP pre-trip = 56.5%.
- b. VHPT = 56.8%, VHP pre-trip = 55.3%.
- c. VHPT = 60.2%, VHP pre-trip = 58.7%.
- d. VHPT = 61.7%, VHP pre-trip = 60.2%.

QUESTION: 023 (1.00)

Given the following:

- One failed High Pressurizer Pressure trip channel has been BYPASSED.
- A second High Pressurizer Pressure trip channel has failed HIGH but NO action has been taken.

WHICH ONE (1) of the following is the current trip logic?

- a. 2 out of 4
- b. 1 out of 3
- c. 2 out of 3
- d. 1 out of 2

QUESTION: 024 (1.00)

WHICH ONE (1) of the following describes the logic required to provide a RAS? (Logic Diagram E-17, Sheet 5 is attached.)

- a. LS-0327 or LS-0329 AND LS-0328 or LS-0330 have to indicate LOW.
- b. LS-0327 and LS-0329 OR LS-0328 and LS-0330 have to indicate HIGH.
- c. LS-0327 and LS-0329 OR LS-0328 and LS-0330 have to indicate LOW.
- d. LS-0327 or LS-0329 AND LS-0328 or LS-0330 have to indicate HIGH.

QUESTION: 025 (1.00)

WHICH ONE (1) of the following radiation levels is the MINIMUM value that will result in generation of an automatic Containment High Radiation (CHR) Isolation Signal during a LOCA?

- a. 25 mR/hr
- b. 1000 mR/hr
- c. 5,000 mR/hr
- d. 10,000 mR/hr

QUESTION: 026 (1.00)

Given the following:

- Reactor startup in progress.
- Shutdown groups have been withdrawn.
- The reactor has just gone critical.

WHICH ONE (1) of the following is the MINIMUM number of Source and Wide Range channels required to be OPERABLE in this condition?

	Source Range	Wide Range
a.	2	2
b.	1	2
c.	2	1
d.	1	1

QUESTION: 027 (1.00)

WHICH ONE (1) of the following is an output from a Power Range Safety Channel?

- a. Enables a high power trip at greater than 15%.
- b. Enables a high rate trip at greater than 15% power.
- c. Actuates a dropped rod alarm due to power reduction greater than 8% in 8 seconds.
- d. Actuates a loss of load trip signal.

QUESTION: 028 (1.00)

Given the following:

- BOL, 100% power has just been reached.
- All rods out.
- Tavg is 558 degrees F.
- PCS pressure is 2060 psia.

WHICH ONE (1) of the following actions will cause ASI to become more positive? Consider each action separately.

- a. A reactor power reduction to 50% using boration ONLY to control PCS temperature.
- b. A 10 degree reduction in Tavg using control rods ONLY and maintaining 100% power.
- c. A 10 degree reduction in Tavg using boration ONLY and maintaining 100% power.
- d. Maintaining power constant 20 hours after a 50% power reduction with Xenon concentration lowering.

QUESTION: 029 (1.00)

WHICH ONE (1) of the following inputs is used by the Subcooled Margin Monitor to calculate subcooling?

- a. Maximum Hot and Cold Leg temperatures.
- b. Average Hot Leg temperature.
- c. Minimum Cold Leg temperature.
- d. Representative Hot and Cold Leg temperatures.

QUESTION: 030 (1.00)

WHICH ONE (1) of the following describes the Containment Air Cooling Fan configuration for a post-LOCA DBA condition?

- a. "A" fans running, "B" fans tripped and Service Water discharge valve from coolers V-1, V-2 and V-3 CLOSED.
- b. "A" fans tripped, "B" fans running and Service Water discharge valve from coolers V-1, V-2, and V-3 OPEN.
- c. "A" fans running, "B" fans tripped and Service Water discharge valve from cooler V-4 CLOSED.
- d. "A" fans tripped, "B" fans running and Service Water discharge valve from cooler V-4 OPEN.

QUESTION: 031 (1.00)

WHICH ONE (1) of the following is the reason Sodium Hydroxide (NaOH) is added to the Containment Spray System?

- a. To lower pH and limit the generation of fission products.
- b. To lower pH and reduce level of post accident fission products.
- c. To raise pH and limit the generation of fission products.
- d. To raise pH and reduce level of post accident fission products.

QUESTION: 032 (1.00)

WHICH ONE (1) of the following describes the interlock associated with the Containment Spray pump discharge valves CV-3001 and CV-3002?

- a. One minute time delay before opening on a Containment High Pressure (CHP) signal.
- b. Interlocked closed if greater than 50 psig on CS pump discharge header pressure in the "Test" position.
- c. Valves will not respond to a CHP signal in the "TEST" position.
- d. Interlocked closed until greater than 50 psig on CS pump discharge header pressure.

QUESTION: 033 (1.00)

WHICH ONE (1) of the following is the LAST RESORT backup emergency water supply to the Spent Fuel Pool?

- a. Primary Makeup Water (T-90)
- b. Utility Water (T-91)
- c. Fire Water
- d. SIRWT Water

QUESTION: 034 (1.00)

Given the following:

- 100% reactor power.
- Steam Generator Level control is in AUTOMATIC.

WHICH ONE (1) of the following will cause the "B" Steam Generator Feed Flow Demand Signal to DECREASE?

- a. Feedwater Flow transmitter fails HIGH.
- b. Level transmitter fails LOW.
- c. Steam Flow transmitter fails HIGH.
- d. Pressure transmitter fails LOW.

QUESTION: 035 (1.00)

Given the following:

- Reactor power was at 100%.
- The reactor subsequently tripped.

WHICH ONE (1) of the following is the status of the atmospheric dump valves and turbine bypass valve after 10 minutes? ASSUME controllers are left in AUTOMATIC.

- a. Atmospheric dump valves OPEN
Turbine bypass valve CLOSED
- b. Atmospheric dump valves OPEN
Turbine bypass valve OPEN
- c. Atmospheric dump valves CLOSED
Turbine bypass valve CLOSED
- d. Atmospheric dump valves CLOSED
Turbine bypass valve OPEN

QUESTION: 036 (1.00)

WHICH ONE (1) of the following describes Main Feedwater Pump automatic speed control?

- a. A high signal selector chooses the signal from the steam generator requiring the greater feedwater flow.
- b. Steam generator downcomer level error signal provides input to the speed control processor.
- c. Preset process controller determines pump speed based on reactor power level.
- d. Steam flow is compared to feedwater flow to determine the pump required delta-P.

~~QUESTION: 037 (1.00)~~

Question deleted. Not enough info in stem. Could be three right answers. JH 4/12/94

~~Given the following:~~

- ~~-The reactor is at 15% power.~~
- ~~-Steam Generator "A" N.R. level is 89%.~~
- ~~-Steam Generator "B" N.R. level is 40%.~~
- ~~-Assume no operator action is taken.~~

~~WHICH ONE (1) of the following is the expected status of the Main Feedwater Control System?~~

- ~~a. Feedwater is isolated to Steam Generator "A" and feedwater to Steam Generator "B" is via the bypass valve.~~
- ~~b. Feedwater is isolated to BOTH Steam Generators "A" and "B".~~
- ~~c. Feedwater is via the bypass valve to BOTH Steam Generators "A" and "B".~~
- ~~d. Feedwater is via the bypass to Steam Generator "A" and via the main feed reg. valve to Steam Generator "B".~~

QUESTION: 038 (1.00)

WHICH ONE (1) of the following will cause the main feed regulating and bypass valves to close?

- a. Loss of control power to feedwater controllers.
- b. The Main Generator exciter field breaker trips.
- c. BOTH Main Feedwater pumps trip and the reactor fails to trip.
- d. A pressure transmitter for each SG fails LOW.

QUESTION: 039 (1.00)

Given the following:

- The plant is at 100% power.
- The AFW Control System is in a normal at-power lineup.
- The level in "A" Steam Generator decreases to 20% on all four safety channels.

WHICH ONE (1) of the following is the control mode of the AFW flow controller (FIC-0737A)?

- a. Automatic
- b. Cascade
- c. Manual
- d. Program function

QUESTION: 040 (1.00)

Given the following:

- Plant is at 70% power.
- "A" SG level is 26.5%
- "B" SG level is 65%
- "A" AFW pump breaker is racked out.
- C-33 panel AFW controllers from "C" AFW pump to "A" and "B" SGs are in manual closed.
- All other controls are in their NORMAL lineup.

WHICH ONE (1) of the following is the current status of the Auxiliary Feedwater System (AFW)?

- a. AFW is being supplied to ONLY steam generator "A".
- b. AFW is being supplied to ONLY steam generator "B".
- c. AFW is being supplied to BOTH steam generators.
- d. AFW is BLOCKED to BOTH steam generators.

QUESTION: 041 (1.00)

WHICH ONE (1) of the following conditions will DISABLE the low suction pressure trip for AFW pump P-8B?

- a. Loss of power supply Y-10.
- b. Loss of power supply Y-30.
- c. Control established from the Hot Shutdown Panel C-150.
- d. Control established from the Cold Shutdown Panel C-33.

QUESTION: 042 (1.00)

Given the following:

-The "WHITE" light associated with 4160V AC Bus 1B breaker 252-205 is LIT.

WHICH ONE (1) of the following is indicated by this condition?

- a. Breaker closing springs are charged.
- b. Undervoltage relays are reset.
- c. Breaker is racked to the TEST position.
- d. DC control power is available to the breaker.

QUESTION: 043 (1.00)

Given the following:

-Power is being transferred from station power to startup power.
-One of the startup transformer auxiliary undervoltage relays is NOT reset.

WHICH ONE (1) of the following describes the effect of the above condition?

- a. The station power bus feeder breaker will OPEN.
- b. The startup transformer bus feeder breaker will not CLOSE.
- c. The bus undervoltage alarm capabilities are DISABLED.
- d. The station power feeder breaker will LOCK-OUT due to actuation of the breaker anti-pump device.

QUESTION: 044 (1.00)

WHICH ONE (1) of the following will be lost if the red "SHUNT TRIP" button on 125V DC panel D-11A is pushed?

- a. Battery charger supply
- b. DG 1-1 field flashing
- c. 2400V switchgear feeder breaker power
- d. Load centers LCC-13 and LCC-14 control power

QUESTION: 045 (1.00)

WHICH ONE (1) of the following will trip ONLY the Diesel Generator output breaker and NOT the diesel?

- a. Overcrank.
- b. Loss of excitation.
- c. Generator overcurrent.
- d. Generator differential current.

QUESTION: 046 (1.00)

WHICH ONE (1) of the following radiation monitors provides isolation of discharge from the Main Stack upon a HIGH alarm?

- a. RIA-5712, Fuel Handling Area Ventilation Monitor.
- b. RIA-2313, Spent Fuel Pool Room Area Monitor.
- c. RIA-0202, Failed Fuel Monitor.
- d. RIA-1805, Containment Area Monitor.

QUESTION: 047 (1.00)

WHICH ONE (1) of the following indications is displayed on a process radiation digital monitor bargraph display when the dose rate is between the "WARN" and "HIGH" setpoints?

- a. ONLY an Amber bar.
- b. ONLY a Red bar.
- c. ONLY a Green bar.
- d. An Amber and Red bar.

QUESTION: 048 (1.00)

WHICH ONE (1) of the following is the reason for ensuring that the CCW system and Service Water system are not cross-connected when supplying cooling water to the ES pumps from the Service Water System?

- a. Increased water pressure condition would cause deformation of the pump seals.
- b. Reduced water pressure condition would cause insufficient cooling flow to the pump seals.
- c. Component cooling water chemicals would be rapidly diluted by the service water.
- d. Component cooling water would pump sodium nitrites into the lake.

QUESTION: 049 (1.00)

WHICH ONE (1) of the following is a non-critical load supplied by the Service Water System?

- a. Main feed pump lube oil coolers
- b. Control room HVAC VC-10
- c. Plant air compressor
- d. Containment fire hose stations

QUESTION: 050 (1.00)

WHICH ONE (1) of the following valves will fail OPEN on a loss of instrument air?

- a. Turbine Bypass Valve (CV-0511).
- b. AFW Pump P-8C Control Valve (CV-0736A).
- c. Letdown Orifice Valve (CV-2005).
- d. SW Cooling To ESS Pumps Return Valve (CV-0951).

QUESTION: 051 (1.00)

Given the following:

-Fire header pressure is at 82 psig with all system controls in AUTOMATIC.

WHICH ONE (1) of the following describes the Fire Protection System pump(s) expected to be running at this pressure?

- a. ONLY the jockey pump P-13.
- b. ONLY the motor-driven pump P-9A.
- c. BOTH the jockey pump P-13 and diesel-driven pump P-41.
- d. BOTH the motor-driven pump P-9A and diesel-driven pump P-9B.

QUESTION: 052 (1.00)

Given the following:

- Reactor power is at 65%.
- A 30-second continuous rod withdrawal occurs until the operator places the Rod Drive Control Mode Selector switch to the EM (Emergency Off) position.
- Assume NO other operator action is taken and NO reactor trip occurs.

WHICH ONE (1) of the following parameters will return to essentially the same value that it was before the event?

- a. Tave
- b. Reactor power
- c. Pressurizer level
- d. Steam Generator pressure

QUESTION: 053 (1.00)

WHICH ONE (1) of the following actions should be taken IMMEDIATELY if two regulating control rods have dropped into the core while at 85% power?

- a. Notify Reactor Engineering.
- b. Manually trip the reactor and enter EOP 1.0, "Standard Post Trip Actions".
- c. Take actions to reduce power to less than 75%.
- d. Stabilize power by adjusting turbine load to reactor power.

QUESTION: 054 (1.00)

Given the following:

- A power reduction from 80% to 60% has just been completed.
- Two (2) Group 4 control rods have failed to insert with the rest of Group 4.

WHICH ONE (1) of the following rod position differences is the MINIMUM that would require the rods to be considered misaligned per Technical Specifications?

- a. 4 inches
- b. 7 inches
- c. 10 inches
- d. 13 inches

QUESTION: 055 (1.00)

WHICH ONE (1) of the following is the basis for manually tripping one Main Feed pump as an immediate action of EOP 1.0, "Standard Post Trip Actions"?

- a. To prevent excessive depressurization of the PCS.
- b. To prevent overpressurizing the SGs.
- c. To reduce thermal and hydraulic stresses on the SG tubes.
- d. To reduce feedwater flow to match post trip steam flow.

QUESTION: 056 (1.00)

Given the following:

- Reactor tripped from 100% power.
- EOP 1.0, "Standard Post Trip Actions", has been entered.
- The Main Turbine did NOT trip as expected.

WHICH ONE (1) of the following actions should be IMMEDIATELY performed per EOP 1.0, "Standard Post Trip Actions", to trip/stop the turbine?

- a. Manually close MSIVs.
- b. Manually close turbine stop and governor valves.
- c. Manually trip the generator exciter field breaker.
- d. Manually trip the turbine locally at the turbine pedestal.

QUESTION: 057 (1.00)

WHICH ONE (1) of the following is the priority order for restoring the plant safety functions?

- a. PCS Pressure Control
Vital Auxiliaries - Electrical
Containment Isolation
PCS Inventory Control
- b. Containment Isolation
PCS Inventory Control
Vital Auxiliaries - Electrical
PCS Pressure Control
- c. Vital Auxiliaries - Electrical
PCS Inventory Control
PCS Pressure Control
Containment Isolation
- d. PCS Inventory Control
PCS Pressure Control
Containment Isolation
Vital Auxiliaries - Electrical

QUESTION: 058 (1.00)

WHICH ONE (1) of the following small break LOCA trends would be expected for a hot leg break but NOT for a Pressurizer vapor space break?

- a. Tavg constant.
- b. Pressurizer level decreasing.
- c. Containment pressure increasing.
- d. Pressurizer pressure decreasing.

QUESTION: 059 (1.00)

Given the following:

- Operators have entered EOP 4.0, "Loss of Coolant Accident Recovery", and are performing recovery actions.
- A plant cooldown is in progress.

WHICH ONE (1) of the following indicates that PCS voiding is occurring?

- a. Pressurizer level is increasing slower than expected for existing HPSI and charging flow.
- b. Reactor vessel level monitoring recorder indicates a decreasing level.
- c. Pressurizer level decreases greater than expected while using auxiliary spray.
- d. CET indicated temperatures are lower than saturation temperature for the current PCS pressure.

QUESTION: 060 (1.00)

WHICH ONE (1) of the following is the required MAXIMUM interval between performing safety function status checks per EOP 9.0, "Functional Recovery"?

- a. Perform Continuously.
- b. Perform every 5 minutes.
- c. Perform every 10 minutes.
- d. Perform every 15 minutes.

QUESTION: 061 (1.00)

WHICH ONE (1) of the following is the MAXIMUM containment pressure at which containment spray may be secured according to EOP 4.0, "Loss of Coolant Accident Recovery"?

- a. 8 psig
- b. 4 psig
- c. 2 psig
- d. 1 psig

~~QUESTION: 062 (1.00)~~

*Question deleted. No right answer.
J 4/18/94*

~~WHICH ONE (1) of the following describes the reason that hot leg injection is established 5.5 hours following a LOCA?~~

- ~~a. To quench steam in the hot legs and to ensure balanced cooling of the core.~~
- ~~b. To quench steam in the hot legs and to prevent boron precipitation.~~
- ~~c. To quench steam in the core and to ensure balanced cooling of the core.~~
- ~~d. To quench steam in the core and to prevent boron precipitation.~~

QUESTION: 063 (1.00)

WHICH ONE (1) of the following is NOT monitored by the Critical Functions Monitoring System (CFMS)?

- a. Containment atmosphere
- b. Containment isolation
- c. Vital Auxiliary - Electrical
- d. Reactivity

QUESTION: 064 (1.00)

Given the following:

- A loss of offsite power and a reactor trip has occurred.
- EOP 8.0, "Loss of Forced Circulation Recovery", has been implemented.

WHICH ONE (1) of the following sets of parameters indicates that adequate natural circulation has been established?

	T-HOT	T-COLD	CET AVERAGE
a.	534 F	523 F	550 F
b.	543 F	513 F	556 F
c.	556 F	521 F	572 F
d.	559 F	534 F	574 F

QUESTION: 065 (1.00)

WHICH ONE (1) of the following PCP controlled bleedoff temperatures is the MAXIMUM allowed without being required to trip the PCP?

- a. 164 degrees F.
- b. 174 degrees F.
- c. 184 degrees F.
- d. 194 degrees F.

QUESTION: 066 (1.00)

WHICH ONE (1) of the following flowrates would satisfy the "MINIMUM" Charging flow required for Emergency Boration according to SOP 2A, "Chemical And Volume Control System Charging and Letdown; Concentrated Boric Acid"?

- a. 20 gpm
- b. 30 gpm
- c. 40 gpm
- d. 50 gpm

QUESTION: 067 (1.00)

WHICH ONE (1) of the following off-normal events requires IMMEDIATELY commencing emergency boration and tripping the Reactor?

- a. Steam Line Break.
- b. Breach of Containment Integrity.
- c. Excessive Feedwater Increase.
- d. Two Reg. Group 4 control rods insert uncontrollably 60 inches.

QUESTION: 068 (1.00)

Per ONP 6.2, "Loss of Component Cooling", the reactor must be tripped if CCW flow to Containment has been lost for a MINIMUM of WHICH ONE (1) of the following?

- a. 3 minutes
- b. 5 minutes
- c. 11 minutes
- d. 16 minutes

QUESTION: 069 (1.00)

Given the following:

- PCS operating with the Pressurizer solid and all systems are configured correctly.
- Charging pump P-55B suction supply is from the SIRWT.
- A malfunction has caused Pressurizer pressure to increase.

WHICH ONE (1) of the following is cause of the pressure increase?

- a. Charging line stop valve CLOSING.
- b. Charging pump suction inadvertently switched to the VCT.
- c. Letdown backpressure regulating valve CLOSING.
- d. Pressurizer Pressure transmitter (Protection channel) failing HIGH.

QUESTION: 070 (1.00)

Given the following:

- Power is at 80%.
- BOTH Tave/Tref controllers have just failed Tave LOW.
- Pressurizer level controller is in "CASCADE".

WHICH ONE (1) of the following describes the actions that should be taken with the operating pressurizer level controller?

- a. Push the AUTO button (bumpless transfer) to place controller in the "AUTO" mode.
- b. Push the Manual button (bumpless transfer) to place controller in the "MANUAL" mode.
- c. Slowly adjust setpoint, allow system response, then place controller in "AUTO".
- d. Match setpoint, then place controller in "MANUAL".

QUESTION: 071 (1.00)

Given the following:

- Plant is currently REFUELING.
- Source Range channel "NI-2" is in service with its associated audible indication in containment OPERABLE.
- Source Range channel "NI-1" has just failed offscale LOW.
- Core alterations are in progress.

WHICH ONE (1) of the following actions should be implemented?

- a. Initiate emergency boration to ensure an adequate shutdown margin is maintained.
- b. Suspend all operations involving positive reactivity changes.
- c. Initiate 1/M plots and continue with core alterations.
- d. Establish continuous monitoring of the operable Source range channel and continue core alterations.

QUESTION: 072 (1.00)

Given the following:

-During Refueling Operations, a fuel bundle is dropped in the Spent Fuel Pool resulting in high radiation levels in the Spent Fuel Pool area.

WHICH ONE (1) of the following fans must be aligned manually in response to this event? ASSUME all automatic actions have occurred.

- a. V-70A
- b. V-69
- c. V-7
- d. V-8B

QUESTION: 073 (1.00)

WHICH ONE (1) of the following indications would confirm that a Steam Generator Tube Rupture was occurring?

- a. Pressurizer pressure DECREASE with affected SG steam flow LESS than feed flow.
- b. Pressurizer level DECREASE with affected SG steam flow EQUAL to feed flow.
- c. Pressurizer pressure DECREASE with affected SG steam flow GREATER than feed flow.
- d. Pressurizer level DECREASE with affected SG steam flow DECREASING as feed flow DECREASES.

QUESTION: 074 (1.00)

Given the following:

-Per EOP 5.0, "Steam Generator Tube Rupture", Step 11, PCS temperature is reduced to below 525 degrees F (515 to 500 degrees F preferred) prior to isolating a ruptured Steam Generator.

WHICH ONE (1) of the following is the reason for the PCS temperature reduction?

- a. To prevent pressurizer PORVs from opening.
- b. To prevent SG safeties from opening.
- c. To assure natural circulation in the unaffected loop.
- d. To assure PCS subcooling is maintained at a minimum of 25 degrees F.

QUESTION: 075 (1.00)

Given the following:

-During an Excess Steam Demand event, both steam generators are suspected of being affected.

WHICH ONE (1) of the following steam generators should be isolated?

- a. EITHER steam generator.
- b. BOTH steam generators, returning them to service one at a time.
- c. ONLY the steam generator with the highest associated Tc.
- d. ONLY the steam generator with the lowest pressure.

QUESTION: 076 (1.00)

Given the following:

- Reactor power is at 35% and increasing.
- The AO has just reported that it appears an Atmospheric Steam Dump Valve (ADV) or Safety Valve is OPEN.

WHICH ONE (1) of the following is the IMMEDIATE action that should be taken at this time per ONP 9, "Excessive Load Increase"?

- a. Stop the power increase and prepare for a power reduction as directed by the Shift Supervisor.
- b. Manually trip the reactor and enter EOP 1.0, "Standard Post Trip Actions".
- c. Adjust Turbine load as necessary to match Reactor power.
- d. Check ADVs, place ADV control to "MANUAL", and attempt to close ADV, if OPEN.

QUESTION: 077 (1.00)

WHICH ONE (1) of the following condenser pressures is the MINIMUM at which an automatic turbine/reactor trip will occur?

- a. 15" Hg.
- b. 19" Hg.
- c. 21" Hg.
- d. 25" Hg.

QUESTION: 078 (1.00)

Given the following:

- The reactor has been manually tripped due to a loss of ALL Feedwater.
- Operators are initiating Step 6 of EOP 7.0, "Loss of All Feedwater", and are tripping all PCPs.

WHICH ONE (1) of the following is the reason for tripping all Primary Coolant Pumps per this step in the procedure?

- a. To reduce heat input into the Primary Coolant System.
- b. To reduce Primary Coolant System pressure.
- c. To save SG inventory while restoring feedwater flow.
- d. To minimize the possibility of a tube rupture as AFW is restored to the SG.

QUESTION: 079 (1.00)

WHICH ONE (1) of the following is the MAXIMUM time following a loss of all AC power actions to minimize hydraulic/thermal shock to Service Water/CCW cooled components MUST be performed?

- a. 1 minute
- b. 10 minutes
- c. 30 minutes
- d. 60 minutes

QUESTION: 080 (1.00)

WHICH ONE (1) of the following is the reason for tripping an Emergency Diesel Generator (EDG) that started, when its respective vital bus did not energize?

- a. Minimize potential of overloading the EDG output breaker.
- b. Conserve fuel oil in case offsite power is not restored.
- c. Minimize potential of EDG damage due to running unloaded.
- d. Prevent overheating due to a loss of cooling water flow.

QUESTION: 081 (1.00)

Given the following:

- Reactor at 100% power.
- NI-06 has been lost.
- Charging has increased to 133 gpm.
- Letdown remains at 40 gpm.
- AFW Flow control valves CV-0736A and CV-0737A have failed open.

WHICH ONE (1) of the following AC instrument buses has been lost?

- a. Y-10
- b. Y-20
- c. Y-30
- d. Y-40

QUESTION: 082 (1.00)

WHICH ONE (1) of the following describes 4160V breaker operation if DC control power is lost?

- a. Breakers will remain in their "as is" condition and operation would only be possible by manual means.
- b. Automatic breaker trips would remain operational but remote operation of breakers would not be possible.
- c. Breakers would remain remotely operable but automatic trip functions would become inoperable.
- d. Breakers would trip open and operation would only be possible by manual means.

QUESTION: 083 (1.00)

Given the following:

- Reactor trip due to LOCA condition.
- Instrument bus Y-10 has been lost.
- EOP 1.0, "Standard Post Trip Actions", has been entered and immediate actions are being performed.

WHICH ONE (1) of the following Radiation Monitors will be out of service and therefore not available for use in diagnostics based on the above conditions?

- a. Blowdown Monitor (RIA-0707)
- b. Containment Area Monitors (RIA-1805, 1806, 1807, and 1808)
- c. Condenser Off Gas Monitor (RIA-0631)
- d. Main Steam Line Monitors (RIA-2323 and 2324)

QUESTION: ~~084 (1.00)~~

Question deleted. No right answer.
4/6/94 J

Given the following:

- Control Room is being evacuated due to a fire.
- ONP 25.2, "Alternate Safe Shutdown Procedure", has been entered.

WHICH ONE (1) of the following is an IMMEDIATE action that must be performed per ONP 25.2, "Alternate Safe Shutdown Procedure"?

- a. Commence emergency boration to cold shutdown.
- b. Trip two (2) PCPS.
- c. Place the AVG TEMP DISPLAY SELECT SWITCH to "Loop 1".
- d. Verify Buses 1C and 1D energized.

QUESTION: 085 (1.00)

WHICH ONE (1) of the following is controlled from the Cold Shutdown Panel C-33?

- a. Atmospheric steam dump valves
- b. Pressurizer heaters
- c. Main steam isolation valves
- d. Charging and Letdown flow

QUESTION: 086 (1.00)

Given the following:

- A normal plant shutdown is in progress.
- Pressurizer pressure is 415 psig and decreasing slowly.
- Pressurizer level is 30% and decreasing slowly.
- Quench Tank (T-73) pressure is 3 psig.

Assume pressurizer steam quality is 100%.

WHICH ONE (1) of the following is the expected PORV tailpipe temperature if a pressurizer PORV is leaking by?

- a. 212 degrees F.
- b. 330 degrees F.
- c. 450 degrees F.
- d. 652 degrees F.

QUESTION: 087 (1.00)

WHICH ONE (1) of the following conditions represents a LOSS of Containment Integrity when the unit is in REFUELING?

- a. Equipment Hatch is closed with only four (4) bolts.
- b. One (1) Air Lock door is OPEN.
- c. Containment Purge is in progress.
- d. An electrical penetration is removed for repair.

QUESTION: 088 (1.00)

Given the following:

-During Refueling an Auxiliary Operator (AO) had to reposition a locked valve which does NOT have any administrative signoffs.

The repositioning and verification is required to be documented in WHICH ONE (1) of the following logbooks per Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct"?

- a. Primary Side AO Logbook
- b. Reactor Logbook
- c. Control Room Logbook
- d. Fuel Handling Logbook

QUESTION: 089 (1.00)

If a situation arises for which "NO" operating procedure exists, the task may be performed "WITHOUT" a procedure provided the situation is deemed by the Shift Supervisor as WHICH ONE (1) of the following?

- a. Requiring prompt action.
- b. To be a one time situation.
- c. To be within the skills of the operator.
- d. Does not impact the health and safety of the public.

QUESTION: 090 (1.00)

WHICH ONE (1) of the following is the required frequency for ensuring Control Room recorders are operating properly (marking is visible and time is correct)?

- a. Hourly during logs.
- b. Once each shift.
- c. Daily during "A" shift.
- d. Twice a shift.

QUESTION: 091 (1.00)

WHICH ONE (1) of the following actions should be taken if the "original" copy of a procedure, which has documentation of completion, has several pages which have become contaminated?

- a. Make copies of the contaminated pages and mark copies "Original Contaminated".
- b. Telephone the Control Room to have ALL data transposed to another "Original" copy and then dispose of the contaminated procedure.
- c. Document performance on a "Working Copy" and substitute those pages which are contaminated.
- d. Make an entry in the "comment" section of the "Original" procedure which pages are contaminated and note they are available at the HP Office.

QUESTION: 092 (1.00)

WHICH ONE (1) of the following is the proper location for placing Red Workmans Protection tags associated with PULLED fuses per Administrative Procedure 4.10, "Personnel Protective Tagging"?

- a. On the fuses.
- b. On the fuse receptacle.
- c. On the supply breaker for the fused equipment.
- d. On the control switch for the fused equipment.

QUESTION: 093 (1.00)

WHICH ONE (1) of the following is the proper method for verifying the position of a "LOCKED OPEN" valve?

- a. Without removing the locking device, verify the operator is in the OPEN position as indicated by valve stem.
- b. Remove the locking device and attempt to move the valve operator in the CLOSED direction a small amount; then, return valve to original position.
- c. Without removing the locking device, move the valve operator slightly in the CLOSED direction and then return it to its full OPEN position.
- d. Remove the locking device and attempt to move the valve operator in the OPEN direction; if the operator does not move, the valve is fully OPEN.

QUESTION: 094 (1.00)

WHICH ONE (1) of the following actions should be taken per Palisades "Independent Verification Policy" if a valve that is required to be OPEN is found in the CLOSED position?

- a. Note the valve position in the Comments/Exception column, open the valve, and continue the checklist.
- b. Inform the Shift Supervisor and reposition the valve as directed.
- c. Reposition the valve and have the other individual perform the independent verification.
- d. Leave the valve closed and fill in the "As Left" and "Initials" column on the checklist.

QUESTION: 095 (1.00)

WHICH ONE (1) of the following individuals is NOT permitted to operate reactor controls under the supervision of a licensed operator?

- a. An auxiliary operator enrolled in a current license training course to obtain an operator license.
- b. A licensed reactor operator whose license has become inactive per the requirements of 10CFR55.
- c. A licensed reactor operator who recently failed an NRC administered Senior Reactor Operator Upgrade Examination.
- d. A certified senior reactor operator training department instructor whose certification has become inactive.

QUESTION: 096 (1.00)

WHICH ONE (1) of the following is Palisades annual administrative control TEDE level for persons 18 years old and older with a known previous accumulated occupational dose?

- a. 1,250 mRem
- b. 1,500 mRem
- c. 4,000 mRem
- d. 5,000 mRem

QUESTION: 097 (1.00)

WHICH ONE (1) of the following describes the application of NOTES in Emergency Operating Procedures (EOPs)?

- a. Apply to the entire procedure in which the NOTE is listed.
- b. Apply to the step(s) immediately preceding the NOTE.
- c. Only apply to the immediate action steps of that procedure.
- d. Only apply to the step(s) immediately following the NOTE.

QUESTION: 098 (1.00)

Given the following:

- A "Hot Work" permit has been issued for welding in the Auxiliary Building.
- A fire watch has been established for the area involving the welding.

WHICH ONE (1) of the following is the MINIMUM time the fire watch is required to remain in the area following completion of the "Hot Work"?

- a. 30 minutes
- b. 60 minutes
- c. 2 hours
- d. 4 hours

QUESTION: 099 (1.00)

WHICH ONE (1) of the following methods should you use to extinguish an electrical fire?

- a. Use ONLY a Class B/C fire extinguisher.
- b. Use BOTH a Class A and B/C fire extinguisher.
- c. Use a Class A fire extinguisher FIRST, then the nearest local fire hose station as a last resort.
- d. Use ONLY a Class A fire extinguisher.

QUESTION: 100 (1.00)

WHICH ONE (1) of the following would be considered inappropriate shift conduct per Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct"?

- a. All shift AOs are having lunch outside at the picnic tables.
- b. Control operator (CO-1) is reading "Nuclear News".
- c. An I&C Technician is checking out the DEH controls on C01 panel while drinking a cup of coffee.
- d. Control operator (CO-2) is talking to the Dispatcher while not facing the panels.

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

ANSWER: 001 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASEE, "CRDM and Controls", EO 4.11, p. 19.
2. KA 001010K606 (3.6/3.7)
3. Facility exam bank question #4750 for LP-ASEE.
4. RO only

001010K606 ..(KA's)

ANSWER: 002 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASEE, "CRDM and Controls", EO 4.17, p. 28 and ARP 5, Alarm Window #5, "Shutdown rod Position Abnormal", p. 4.
2. KA 001050K401 (3.4/3.8)
3. Facility exam bank question #4958 for LP-ASEE.
4. Both RO and SRO

001050K401 ..(KA's)

ANSWER: 003 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASEE, "Control Rod Drive Mechanisms and Controls", EO 4.13, p. 21.
2. 001000K508 (3.9/4.4)
3. RO Only

001000K508 ..(KA's)

ANSWER: 004 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: T/S 3.1.2, p. 3-4.
2. KA 002000A103 (3.7/3.8)
3. Both RO and SRO

002000A103 ..(KA's)

ANSWER: 005 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASEA, "Primary Coolant System", EO 4.12, p. 27.
2. KA 002000A408 (3.4/3.7)
3. Facility exam bank question #155 for LP-ASEA.
4. Both RO and SRO

002000A408 ..(KA's)

ANSWER: 006 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASED, "Primary Coolant Pumps and Motors", EO 4.10, p. 24.
2. KA 003000G005 (3.4/3.8)
3. RO Only

003000G005 ..(KA's)

ANSWER: 007 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASED, "Primary Coolant Pumps and Motors", EO 4.16, p. 16.
2. KA 003000A201 (3.5/3.9)
3. Both RO and SRO

003000A201 ..(KA's)

ANSWER: 008 (1.00)

J y. a. [+1.0]

REFERENCE:

1. Palisades LER 94-002, "Inadvertent CS Pump Actuation During Performance of TS Surveillance Testing."
2. KA 013000K105 (4.1/4.4)
3. Both RO and SRO

013000K105 ..(KA's)

ANSWER: 009 (1.00)

a. [+1.0] *also accept C*
J 4/6/94

REFERENCE:

1. Palisades: LP-ISFB, "CVCS", EO 4.3, p. 10.
2. KA 004020A402 (3.7/3.3)
3. Both RO and SRO

004020A402 ..(KA's)

ANSWER: 010 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASFA, "CVCS/Boric Acid Heat Trace", EO 4.9, p. 28 and SOP 2A, "CVCS Charging and Letdown: Concentrated Boric Acid", p. 48.
2. KA 004000K511 (3.6/3.9)
3. Facility exam bank question #533 for LP-ASFA.
4. Both RO and SRO

004000K511 ..(KA's)

ANSWER: 011 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASFA, "CVCS/Boric Acid Heat Trace", EO 4.12, pp. 31-32.
2. Palisades: SOP 2A, "CVCS Charging and Letdown: Concentrated Boric Acid", p. 5.
3. KA 004000K203 (3.3/3.5)
4. Both RO and SRO

004000K203 ..(KA's)

ANSWER: 012 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASCC, "Shutdown Cooling System", EO 4.7 and SOP 3, "Safety Injection and Shutdown Cooling System", Plant Requirements, p. 2.
2. KA 005000K407 (3.2/3.5)
3. Both RO and SRO

005000K407 ..(KA's)

ANSWER: 013 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASAC, "DGs and SD/DBA Sequencers", EO 4.10, and Logic Diagram E-17, Sheet 4.
2. KA 005000A401 (3.6/3.4)
3. Both RO and SRO

005000A401 ..(KA's)

ANSWER: 014 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASHA, "Safety Injection System", EO 4.12, p. 18.
2. KA 006000K409 (3.8/4.1)
3. 1991/03/25 SRO exam question
4. RO Only

006000K409 ..(KA's)

ANSWER: 015 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASHA, "Safety Injection System", EO 4.16, p. 26.
2. KA 006000A303 (4.1/4.1)
3. Both RO and SRO

006000A303 .. (KA's)

ANSWER: 016 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ISGD, "Safety Injection System", EO 4.2, p. 8.
2. KA 006000A301 (4.0/3.9)
3. RO Only

006000A301 .. (KA's)

ANSWER: 017 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASEA, "Primary Coolant System", EO 4.1, p. 16 and P&ID M201, Sheet 1.
2. KA 007000A301 (2.7/2.9)
3. RO Only

007000A301 .. (KA's)

ANSWER: 018 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASCA, "CCW System", EO 4.16 & 4.18, pp. 22-23.
2. KA 008000K401 (3.1/3.3)
3. RO Only

008000K401 ..(KA's)

ANSWER: 019 (1.00)

- a. [+1.0]

REFERENCE:

1. Palisades: LP-ASFE, "Pressurizer Pressure Control", EO 4.2.5, pp. 29-31.
2. KA 010000K603 (3.2/3.6)
3. RO Only

010000K603 ..(KA's)

ANSWER: 020 (1.00)

- c. [+1.0]

REFERENCE:

1. Palisades: LP-ASFD, "PZR Level Control", EO 4.7, p. 10 & 12.
2. Palisades: SOP 2A, "CVCS Charging and Letdown: Concentrated Boric Acid", Attachment 3, p. 1.
3. KA 011000K101 (3.6/3.9)
4. Both RO and SRO

011000K101 ..(KA's)

ANSWER: 021 (1.00)

- a. [+1.0]

REFERENCE:

1. Palisades: LP-ASFD, "PZR Level Control", EO 4.17 and SOP 1, "Primary Coolant System", Attachment 5, pp. 1 & 2.
2. KA 011000K407 (2.9/3.2)
3. RO Only

011000^{K407}A101 .. (KA's)

ANSWER: 022 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASGD, "Thermal Margin Monitor", EO 4.5 & 4.6, p. 35.
2. KA 012000A101 (2.9/3.4)
3. RO Only

012000A101 .. (KA's)

ANSWER: 023 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASGC, "Reactor Protection System", EO 4.2.33, p. 22.
2. KA 012000K603 (3.1/3.5)
3. RO Only

012000K603 .. (KA's)

ANSWER: 024 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASHA, "Safety Injection System", EO 4.9 and Logic Diagram E-17, Sheet 5.
2. KA 013000A301 (3.7/3.9)
3. 1990/08/06 RO exam question
4. Both RO and SRO

013000A301 .. (KA's)

ANSWER: 025 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASHB, "Containment Building", EO 4.6, p. 18.
2. KA 013000A107 (3.6/3.9)
3. RO Only

013000A107 .. (KA's)

ANSWER: 026 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASGA, "Nuclear Instrumentation", EO 4.2M and T/S 3.17, Table 3.17., p. 3-78, and Table 3.17.4, p. 3-81.
2. Palisades: GOP 3, "Hot Shutdown To Critical In Hot Standby", Caution, p. 4.
3. KA 015000G005 (3.3/3.8)
4. Both RO and SRO

015000G005 .. (KA's)

ANSWER: 027 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASGA, "Nuclear Instrumentation", EO 4.2g, p. 23.
2. KA 015000K103 (3.1/3.1)
3. Both RO and SRO

015000K103 ..(KA's)

ANSWER: 028 (1.00)

- b. [+1.0]

REFERENCE:

1. Palisades: LP-ASGD, "Thermal Margin Monitor", EO 4.3, pp. 16-17.
2. KA 015000A105 (3.7/3.9)
3. Facility exam bank questions #6231 for LP-ASGD
4. RO Only

015000A105 ..(KA's)

ANSWER: 029 (1.00)

- a. [+1.0]

REFERENCE:

1. Palisades: LP-ASEA, "Primary Coolant System", EO 4.12, pp. 26-28.
2. KA 017020K401 (3.4/3.7)
3. Both RO and SRO

017020K401 ..(KA's)

ANSWER: 030 (1.00)

- c. [+1.0]

REFERENCE:

1. Palisades: LP-ASHD, "Containment Air Cooling System", EO 4.5, p. 11.
2. KA 022000K402 (3.1/3.4)
3. Both RO and SRO

022000K402 ..(KA's)

ANSWER: 031 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASHC, "Containment Spray System", EO 4.11 & 4.12, pp. 10-11.
2. KA 026000K402 (3.1/3.6)
3. Both RO and SRO

026000K402 ..(KA's)

ANSWER: 032 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASHC, "Containment Spray System", EO 4.14, p. 14.
2. KA 026000A301 (4.3/4.5)
3. RO Only

026000A301 ..(KA's)

ANSWER: 033 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ISHB, "Spent Fuel Cooling System", EO 4.11 & 4.13, p. 12.
2. KA 033000A203 (3.1/3.5)
3. RO Only

033000A203 ..(KA's)

ANSWER: 034 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASLC, "SGWLC", EO 4.3 and Simulator Malfunctions RX10, RX14 and RX15, pp. 200, 204 & 205.
2. KA 035010A203 (3.4/3.6)
3. Both RO and SRO

035010A203 ..(KA's)

ANSWER: 035 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASJB, "Main Steam", EO 4.15, Student Handout, p. 10 and Main Steam System Description, p. 25.
2. Palisades: LP-ASEA, "Primary System", TP-ASEA-5, 5A and 5B.
3. KA 041020A408 (3.0/3.1)
4. Both RO and SRO

041020A408 ..(KA's)

ANSWER: 036 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASLC, "SGWLC", EO 4.3, pp. 15 & 25 and SH-ASLC, p. 7.
2. KA 059000K104 (3.4/3.4)
3. 1990/08/06 SRO exam question
4. RO Only

059000K104 .. (KA's)

~~ANSWER: 037 (1.00)~~

*Question deleted. Could be three right answers.
J 4/18/94*

~~d. [+1.0] *Also accept C*~~
~~*J 4/18/94*~~

REFERENCE:

1. Palisades: LP-ASLC, "SGWLC", EO 4.4, pp. 33, 34 and SH-ASLC, "SGWLC", pp. 13-14 & 22.
2. KA 059000A306 (3.2/3.3)
3. Both RO and SRO

059000A306 .. (KA's)

ANSWER: 038 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASLC, "SGWLC", EO 4.10, pp. 39-41.
2. KA 059000A412 (3.4/3.5)
3. Both RO and SRO

059000A412 .. (KA's)

ANSWER: 039 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASLD, "Auxiliary Feedwater", EO 4.10, pp. 35-38.
2. KA 061000G007 (3.6/3.7)
3. 1991/03/25 RO exam question
4. RO Only

061000G007 ..(KA's)

ANSWER: 040 (1.00)

c [+1.0]

REFERENCE:

1. Palisades: LP-ASLD, "AFW", EO 4.7 and SOP 12, "Feedwater System", p. 5.
2. Palisades: LP-ISIE, "AFW", p. 17 and Logic E-17, sheets 21, 21A & 22.
3. KA 061000A301 (4.2/4.2)
4. Both RO and SRO

061000A301 ..(KA's)

ANSWER: 041 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASLD, "AFW", EO 4.12, p. 47.
2. KA 061000K407 (3.1/3.3)
3. Facility exam bank question #628 for LP-ASLD
4. Both RO and SRO

061000K407 ..(KA's)

ANSWER: 042 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASAA, "Electrical Distribution", EO 4.11, p. 24.
2. KA 062000A401 (3.3/3.1)
3. 1992/09/21 SRO exam question
4. RO Only

062000A401 ..(KA's)

ANSWER: 043 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASAA, "Electrical Distribution", EO 4.11, and Logic Diagram Circuit Breaker Operation, E-17, Sheet 19.
2. KA 062000G007 (3.0/3.2)
3. RO Only

062000G007 ..(KA's)

ANSWER: 044 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ISBA, "Electrical Distribution", EO 4.11, p. 26 and P&ID E-8, Sheet 2.
2. KA 063000K103 (2.9/3.5)
3. RO Only

063000K103 ..(KA's)

ANSWER: 045 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASAC, "DGs and SD/DBA Sequencers", EO 4.6 and 4.7 and Logic Diagrams E-17, Sheets 12 & 13.
2. KA 064000K402 (3.9/4.2)
3. Both RO and SRO

064000K402 ..(KA's)

ANSWER: 046 (1.00)

- a. [+1.0]

REFERENCE:

1. Palisades: LP-ASDC, "Radiation Monitoring Systems", EO 4.10, p. 45.
2. KA 072000A301 (2.9/3.1)
3. 1992/09/21 RO exam question
4. Both RO and SRO

072000A301 ..(KA's)

ANSWER: 047 (1.00)

- a. [+1.0]

REFERENCE:

1. Palisades: LP-ASDC, "Radiation Monitoring Systems", EO 4.4, and SOP 37, "Process Liquid Monitor System", p. 5.
2. KA 073000A402 (3.7/3.7)
3. RO Only

073000A402 ..(KA's)

ANSWER: 048 (1.00)

- d. [+1.0]

REFERENCE:

1. Palisades: LP-ASCA, "CCW System", EO 4.14 and SOP 16, "CCW", Precautions and Limitations, p. 2.
2. KA 076000K101 (3.4/3.3)
3. 1991/03/25 RO exam question
4. RO Only

076000K101 ..(KA's)

ANSWER: 049 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ISDA, "Service Water System", EO 4.3, pp. 7-9.
2. KA 076000K119 (3.6/3.9)
3. RO Only

076000K119 ..(KA's)

ANSWER: 050 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASBC, "Instrument and Service Air System", EO 4.6 and ONP 7.1, Attachment 2 p. 1.
2. KA 078000K302 (3.4/3.6)
3. Both RO and SRO

078000K302 ..(KA's)

ANSWER: 051 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ISDB, "Fire Protection", EO 4.12, p. 14.
2. KA 086000K402 (3.0/3.4)
3. Both RO and SRO

086000K402 ..(KA's)

ANSWER: 052 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAN, "Control System Transients", EO 4.2, pp. 27-28.
2. KA 000001A204 (4.2/4.3)
3. 1990/08/06 SRO exam question
4. Both RO and SRO

000001A204 ..(KA's)

ANSWER: 053 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAN, "Control Systems Transients", Terminal Objective TBANTOO.02 and ONP 5.1, "Control Rod Drop", p. 1.
2. KA 000003G010 (3.9/3.8)
3. Both RO and SRO

000003G010 ..(KA's)

ANSWER: 054 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASEE, "CRDM and Controls", EO 4.21, and T/S 3.10.4, p. 3-60.
2. KA 000005A105 (3.4/3.4)
3. Both RO and SRO

000005A105 ..(KA's)

ANSWER: 055 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-TBAB, "EOP 1.0 and EOP 2.0", EO 4.5 and Basis Document for EOP 1.0, p. 9.
2. KA 000007K301 (4.0/4.6)
3. Both RO and SRO

000007K301 ..(KA's)

ANSWER: 056 (1.00)

d.

REFERENCE:

1. Palisades: LP-TBAB, "EOP 1.0 and EOP 2.0", EO 4.1 and EOP 1.0, "Standard Post Trip Actions", step 5, p. 3.
2. KA 000007A202 (4.3/4.6)
3. Both RO and SRO

000007A202 ..(KA's)

ANSWER: 057 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAA, "Introduction/Safety Functions", EO 4.7, p. 10.
2. KA 000009G012 (3.8/3.9)
3. Both RO and SRO

000007G012 ..(KA's)

ANSWER: 058 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAG, "EOP 4.0, Loss of Coolant Accident", EO 4.19, pp. 10 & 29 and LP-TBAG, Student Handout, p. 9.
2. KA 000008A212 (3.4/3.7)
3. 1990/08/06 SRO exam question
4. Both RO and SRO

000008A212 ..(KA's)

ANSWER: 059 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAG, "EOP 4.0, "Loss of Coolant Accident", EO 4.31 and EOP 4.0, "Loss of Coolant Accident Recovery", p. 20.
2. KA 000009A238 (3.9/4.3)
3. Both RO and SRO

000009A238 ..(KA's)

ANSWER: 060 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: "EOP 9.0, Functional Recovery", Step 11, p. 3.
2. KA 000009G012 (4.1/4.3)
3. Both RO and SRO

000009G012 ..(KA's)

ANSWER: 061 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASHC, "Containment Spray System", EO 4.15, p. 18 and EOP 4.0, "Loss of Coolant Accident Recovery", p. 6.
2. KA 000011A208 (3.4/3.9)
3. Both RO and SRO

000011A208 ..(KA's)

~~ANSWER: 062 (1.00)~~

*Question deleted. No right answer.
J 4/18/91*

~~d. [+1.0]~~

REFERENCE:

1. Palisades: LP-ASHA, "Safety Injection System", EO 4.19, p. 18.
2. Palisades: LP-ISKC, "Emergency/Off Normal Operations", p. 9.
3. KA 000011K313 (3.8/4.2)
4. Both RO and SRO

000011K313 ..(KA's)

ANSWER: 063 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASHG, "Critical Functions Monitoring System", EO 4.2, p. 11.
2. KA 000011A117 (3.5/4.1)
3. Both RO and SRO

000011A117 ..(KA's)

ANSWER: 064 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAC, "EOP 8.0, Loss of Forced Circulation", EO 4.5 and "EOP 8.0, Loss of Forced Circulation", p. 6.
2. KA 000015K101 (4.4/4.6)
3. Both RO and SRO

000015K101 ..(KA's)

ANSWER: 065 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASED, "Primary Coolant Pumps and Motors", EO 4.23, p. 26 and ONP 6.2, "Loss of Component Cooling", p. 2.
2. KA 000015A210 (3.7/3.7)
3. Both RO and SRO

000015A210 ..(KA's)

ANSWER: 066 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASFA, "CVCS/Boric Acid Heat Trace", EO 4.16 and SOP 2A, "Chemical And Volume Control System Charging and Letdown; Concentrated Boric Acid", p. 26.
2. KA 000024A110 (3.5/3.4)
3. Both RO and SRO

000024A110 ..(KA's)

ANSWER: 067 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAL, "Radioactive Transients", EO 4.3 and ONP 4.2, "Loss of Containment Integrity", Immediate Actions, p. 1.
2. KA 000024K301 (4.1/4.4)
3. Both RO and SRO

000024K301 ..(KA's)

ANSWER: 068 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAI, "Cooling System Transients", EO 4.7 and ONP 6.2, "Loss of Component Cooling", p. 2.
2. Palisades: LP-ASED, "Primary Coolant Pumps and Motors", EO 4.23, p. 26.
3. KA 000026K303 (4.0/4.2)
4. Both RO and SRO

000026K303 ..(KA's)

ANSWER: 069 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAN, "Control System Transients", EO 4.5 and ONP 18, "Pressurizer Pressure Control Malfunctions", p. 2.
2. Palisades: LP-ASFA, "CVCS/Boric Acid Heat Trace", EO 4.4, p. 18.
3. KA 000027A211 (4.0/4.1)
4. Both RO and SRO

000027A211 ..(KA's)

ANSWER: 070 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASFD, "PZR Level Control", EO 4.8, pp. 16-17 and SOP 1, Primary Coolant System", pp. 42-43.
2. Palisades: LP-TBAN, "Control System Transients", Terminal Objective TBANTOO.04 and ONP 13, "Tave/Tref Controller Failure", p. 1.
3. Facility exam bank question #7972 for LP-TBAN.
4. KA 000028K203 (2.6/2.9)
5. Both RO and SRO

000028K203 ..(KA's)

ANSWER: 071 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASGA, "Nuclear Instrumentation", EO 4.2M and T/S 3.8.1, pp. 3-46 & 3-47.
2. KA 000032G010 (2.9/3.1)
3. Both RO and SRO

000032G010 ..(KA's)

ANSWER: 072 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAL, "Radioactive Transients", EO 4.3d and ONP 11.2, "Fuel Handling Accident", Immediate Actions, p. 1.
2. KA 000036G010 (3.7/3.8)
3. 1992/09/21 SRO exam question
4. Both RO and SRO

000036G010 ..(KA's)

ANSWER: 073 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAF, "Steam Generator Tube Leak/Rupture", EO 4.13, p. 12-13.
2. KA 000038A202 (4.5/4.8)
3. Both RO and SRO

000038A202 ..(KA's)

ANSWER: 074 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAF, "Steam Generator Tube Leak/Rupture", EO 4.15, p. 31 and Basis Document for EOP 5.0, p. 5.
2. KA 000038K306 (4.2/4.5)
3. Both RO and SRO

000038K306 ..(KA's)

ANSWER: 075 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-TBAD, "Excess Steam Demand Event", EO 4.5 and EOP 6.0, "Excess Steam Demand Event", NOTE, p. 6.
2. KA 000040K304 (4.5/4.7)
3. Both RO and SRO

000040K304 ..(KA's)

ANSWER: 076 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAK, "Secondary System Transients and Acts of Nature", EO 4.3 and ONP 9, "Excessive Load Increase", Immediate Actions, p. 1.
2. KA 000040G010 (4.1/4.2)
3. Both RO and SRO

000040G010 ..(KA's)

ANSWER: 077 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAK, "Secondary System Transients and Acts of Nature", EO 4.3 and ONP 14, "Loss of Condenser Vacuum", p. 1.
2. KA 000051A202 (3.9/4.1)
3. Both RO and SRO

000051A202 ..(KA's)

ANSWER: 078 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-TBAE, "Feedwater Transients", EO 4.7 and Basis Document for EOP 7.0, p. 4.
2. KA 000054K304 (4.4/4.6)
3. Both RO and SRO

000054K304 ..(KA's)

ANSWER: 079 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAR, "Electrical Emergency Recovery", EO 4.2, p. 22 and EOP 3.0, "Electrical Emergency Recovery", Step 42, p. 11.
2. KA 000055G012 (3.9/4.0)
3. Both RO and SRO

000055G012 ..(KA's)

ANSWER: 080 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ISBB, "Diesel Generators", EO 4.7, p. 31.
2. Palisades: LP-TBAS, "ONP 20 Diesel Generators", EO 4.1 and ONP 20, "Diesel Generator Manual Control", p. 1.
3. KA 000056K302 (4.4/4.7)
4. Both RO and SRO

000056K302 .. (KA's)

ANSWER: 081 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAP, "Electrical ONPs - Preferred and Instrument AC Transients", EO 4.4, and ONP 24.2, "Loss of Preferred AC Bus Y20", p. 1.
2. KA 000057A215 (3.8/4.1)
3. Both RO and SRO

000057A215 .. (KA's)

ANSWER: 082 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASAB, "Preferred DC, Preferred and Instrument AC", EO 4.7, p. 19 and ONP 2.3, "Loss of DC Power", Attachment 2, p. 1.
2. KA 000058A203 (3.5/3.9)
3. Both RO and SRO

000058A203 .. (KA's)

ANSWER: 083 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAB, "Transients, Emergency Prevention And Mitigation", EO 4.1, p. 50.
2. Palisades: LP-TBAP, "Electrical ONPs - Preferred and Instrument AC Transients", EO 4.2.
3. KA 000061A204 (3.1/3.5)
4. 1992/09/21 SRO exam question
5. Both RO and SRO

000061A204 .. (KA's)

ANSWER: ~~084 (1.00)~~

Question deleted. No right answer.
4/6/94 J

~~d. [+1.0]~~

REFERENCE:

1. Palisades: LP-TBAM, "ONP 25.1 and ONP 25.2", EO 4.2 and ONP 25.2, "Alternate Safe Shutdown Procedure", Immediate Actions, p. 1.
2. KA 000068G010 (4.1/4.2)
3. Both RO and SRO

000068G010 .. (KA's)

ANSWER: 085 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-TBAM, "ONP 25.1 and ONP 25.2", Terminal Objective TBAMTOO.02 and ONP 25.2, "Alternate Safe Shutdown Procedure", p. 9.
2. KA 000068K201 (3.9/4.0)
3. Both RO and SRO

000068K201 .. (KA's)

ANSWER: 086 (1.00)

b. [+1.0]

REFERENCE:

1. Steam tables/Mollier Diagram
2. KA 000008K101 (3.2/3.7)
3. Both RO and SRO

000008K101 ..(KA's)

ANSWER: 087 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ISGA, "Containment and Containment Integrity", EO 4.3, T/S 1.4 "Miscellaneous Definitions", p. 1-4 and T/S 3.6.1, p. 3-40.
2. KA 000069A201 (3.7/4.3)
3. RO Only

000069A201 ..(KA's)

ANSWER: 088 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.17 and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", pp. 27-29.
2. KA 194001A106 (3.4/3.4)
3. 1990/08/06 exam question
4. Both RO and SRO

194001A106 ..(KA's)

ANSWER: 089 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ISAA, "Procedures, Documents and Manuals", EO 4.8 and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", p. 34.
2. KA 194001A101 (3.3/3.4)
3. 1990/08/06 SRO exam question
4. RO Only

194001A101 ..(KA's)

ANSWER: 090 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ISAA, "Procedures, Documents and Manuals", EO 4.19 and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", Section 5.2.6, p. 25.
2. KA 194001A103 (2.5/3.4)
3. 1992/09/21 SRO exam question
4. RO Only

194001A103 ..(KA's)

ANSWER: 091 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.11 and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", Section 5.4.2, p. 35.
2. KA 194001A102 (4.1/3.9)
3. 1992/09/21 SRO exam question
4. RO Only

194001A102 ..(KA's)

ANSWER: 092 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: Administrative Procedure 4.10, "Personnel Protective Tagging", section 6.6.5, p. 19.
2. KA 194001K102 (3.7/4.1)
3. Both RO and SRO

194001K102 ..(KA's)

ANSWER: 093 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ISAA, "Procedures, Documents and Manuals", EO 4.10 and Administrative Procedure 4.02, "Control of Equipment", section 7.3.1, pp. 20-21.
2. KA 194001K101 (3.6/3.7)
3. Both RO and SRO

194001K101 ..(KA's)

ANSWER: 094 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.24 and Administrative Procedure 4.02, "Control of Equipment", Attachment 6, Independent Verification, p. 2.
2. KA 194001K101 (3.6/3.7)
3. RO Only

194001K101 ..(KA's)

ANSWER: 095 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.14.
2. 10 CFR 55.13[a] [2]
3. KA 194001A109 (2.7/3.9)
4. Both RO and SRO

194001A109 ..(KA's)

ANSWER: 096 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.38 and Administrative Procedure 7.04, "Radiation Dosimetry", section 6.0, p. 4.
2. KA 194001K103 (2.8/3.4)
3. RO Only

194001K103 .. (KA's)

ANSWER: 097 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ISAA, Procedures, Documents and Manuals", EO 4.6 and Administrative Procedure 10.51, "Writer's Guideline for Procedures", section 7.0, p. 6.
2. Palisades: Administrative Procedure 4.06, "EOP Development and Implementation", p. 10.
3. KA 194001A102 (4.1/3.9)
4. Both RO and SRO

194001A102 .. (KA's)

ANSWER: 098 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: FPIP-7, "Fire Prevention Activities", p. 17.
2. Palisades: Note: No EO for this question, but this procedure FPIP-6, "Fire Suppression Training", section 8.0, p. 8 describes the training requirements for Fire Brigade personnel.
3. KA 194001K116 (3.5/4.2)
4. Both RO and SRO

194001K116 .. (KA's)

ANSWER: 099 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASBA, "Fire Protection System", EO 4.6 and FPIP-7, "Fire Prevention Activities", Attachment 4, p. 1.
2. KA 194001K116 (3.5/4.2)
3. RO Only

194001K116 ..(KA's)

ANSWER: 100 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.70, p. 37 of Exercise Key for LP-ADA and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", Section 5.2.1, p. 19.
2. KA 194001A103 (2.5/3.4)
3. Both RO and SRO

194001A103 ..(KA's)

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

U. S. NUCLEAR REGULATORY COMMISSION
 SITE SPECIFIC EXAMINATION
 SENIOR OPERATOR LICENSE
 REGION 3

CANDIDATE'S NAME: _____
 FACILITY: Palisades
 REACTOR TYPE: PWR-CE
 DATE ADMINISTERED: 94/03/28

INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

<u>TEST VALUE</u>	<u>CANDIDATE'S SCORE</u>	<u>%</u>	
97.00			
100.00			
	<u>FINAL GRADE</u>	<u>%</u>	TOTALS

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

Candidate's Signature

MASTER COPY

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

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

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

- | | | | | | | | | | | | |
|-----|---|---|---|---|-----|-----|---|---|---|---|-----|
| 046 | a | b | c | d | ___ | 069 | a | b | c | d | ___ |
| 047 | a | b | c | d | ___ | 070 | a | b | c | d | ___ |
| 048 | a | b | c | d | ___ | 071 | a | b | c | d | ___ |
| 049 | a | b | c | d | ___ | 072 | a | b | c | d | ___ |
| 050 | a | b | c | d | ___ | 073 | a | b | c | d | ___ |
| 051 | a | b | c | d | ___ | 074 | a | b | c | d | ___ |
| 052 | a | b | c | d | ___ | 075 | a | b | c | d | ___ |
| 053 | a | b | c | d | ___ | 076 | a | b | c | d | ___ |
| 054 | a | b | c | d | ___ | 077 | a | b | c | d | ___ |
| 055 | a | b | c | d | ___ | 078 | a | b | c | d | ___ |
| 056 | a | b | c | d | ___ | 079 | a | b | c | d | ___ |
| 057 | a | b | c | d | ___ | 080 | a | b | c | d | ___ |
| 058 | a | b | c | d | ___ | 081 | a | b | c | d | ___ |
| 059 | a | b | c | d | ___ | 082 | a | b | c | d | ___ |
| 060 | a | b | c | d | ___ | 083 | a | b | c | d | ___ |
| 061 | a | b | c | d | ___ | 084 | a | b | c | d | ___ |
| 062 | a | b | c | d | ___ | 085 | a | b | c | d | ___ |
| 063 | a | b | c | d | ___ | 086 | a | b | c | d | ___ |
| 064 | a | b | c | d | ___ | 087 | a | b | c | d | ___ |
| 065 | a | b | c | d | ___ | 088 | a | b | c | d | ___ |
| 066 | a | b | c | d | ___ | 089 | a | b | c | d | ___ |
| 067 | a | b | c | d | ___ | 090 | a | b | c | d | ___ |
| 068 | a | b | c | d | ___ | 091 | a | b | c | d | ___ |

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

- 092 a b c d ___
- 093 a b c d ___
- 094 a b c d ___
- 095 a b c d ___
- 096 a b c d ___
- 097 a b c d ___
- 098 a b c d ___
- 099 a b c d ___
- 100 a b c d ___

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

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.
2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.
3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.
4. Use black ink or dark pencil ONLY to facilitate legible reproductions.
5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.
6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.
7. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.
8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.
9. The point value for each question is indicated in parentheses after the question.
10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.
11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.
12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of ~~1.00~~ even though you got the four correct answers.
13. If the intent of a question is unclear, ask questions of the examiner only.

14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.
 15. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.
 16. To pass the examination, you must achieve a grade of 80% or greater.
 17. There is a time limit of four (4) hours for completion of the examination.
 18. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.
-

QUESTION: 001 (1.00)

Which ONE (1) of the following would result in borated spray flow into containment using CS pump P-54B if a manual pump start was required following a SIAS?

- a. Open CS control valve CV-3001 and then start pump at breaker on Bus 1C.
- b. Open both CS control valves CV-3001 and CV-3002 and then depress illuminated white standby light on control board.
- c. Open both CS control valves CV-3001 and CV-3002 and then place pump control switch to start on C-33 panel.
- d. Open CS control valve CV-3002 and then start pump locally by depressing pushbutton in west engineered safeguards room.

QUESTION: 002 (1.00)

WHICH ONE (1) of the following regulating group configurations violates Technical Specifications requirements for control rod overlap?

- a. Group 2 at 5 inches
Group 1 at 90 inches
 - b. Group 3 at 45 inches
Group 2 at 110 inches
 - c. Group 4 at 41 inches
Group 3 at 123 inches
 - d. Group 2 at 53 inches
Group 1 at 131 inches
-

QUESTION: 003 (1.00)

Given the following:

- Reactor startup in progress.
- Power is less than $10E-4$.
- Regulating rods are being withdrawn in MANUAL SEQUENTIAL.

WHICH ONE (1) of the following will automatically prevent further control rod withdrawal?

- a. Low pressurizer pressure pre-trip.
- b. Dropped shutdown rod.
- c. Startup rate of 1.5 dpm on 1 of 2 channels.
- d. Loop 1 to Loop 2 Tav_g deviation of +5 degrees F.

QUESTION: 004 (1.00)

Given the following:

- During a plant cooldown PCS temperature decreased from 500 deg. F to 495 deg. F from 9:00 am to 9:10 am.
- The SS has directed you to establish a cooldown rate that will result in the MAXIMUM allowable rate per Technical Specifications between 9:00 am and 10:00 am.

WHICH ONE (1) of the following actions will result in reaching the Technical Specification MAXIMUM allowable PCS cooldown limit?

- a. Increase cooldown to 3.9 deg. F/min.
 - b. Increase cooldown to 1.9 deg. F/min.
 - c. Increase cooldown to 1.1 deg. F/min.
 - d. Increase cooldown to 0.7 deg. F/min.
-

QUESTION: 005 (1.00)

Given the following:

-The Subcooled Margin Monitor is in the "PRESS" mode and indicates 20 psia.

WHICH ONE (1) of the following does this indicate?

- a. Pressure must rise 20 psia to reach subcooling.
- b. Pressure must fall 20 psia to reach subcooling.
- c. Pressure must rise 20 psia to reach saturation.
- d. Pressure must fall 20 psia to reach saturation.

QUESTION: 006 (1.00)

Given the following:

-PCS pressure is 2060 psia.

-The following conditions have just been noted on PCP "B":

Vapor seal is at 100 psia.

Upper seal is at 1025 psia.

Middle seal is at 2060 psia.

WHICH ONE (1) of the following PCP "B" seals is degraded?

- a. Vapor seal.
 - b. Upper seal.
 - c. Middle seal.
 - d. Lower seal.
-

QUESTION: 007 (1.00)

Given the following:

-Technical Specifications 3.1.1, "Primary Coolant System", states that when primary coolant Boron concentration is being changed, at or above Cold shutdown, at least one primary coolant pump or one shutdown cooling pump with a flow rate greater than or equal to 2810 gpm shall be in operation.

WHICH ONE (1) of the following is the basis for this requirement?

- a. To ensure a uniform change in Boron concentration throughout the PCS and prevent stratification of primary coolant at higher Boron concentrations.
- b. To ensure a uniform change in Boron concentration throughout the PCS and prevent precipitation of Boron out of solution.
- c. To ensure sufficient flow to thoroughly mix the Boron within the PCS and equalize the concentration between the PCS and the Pressurizer.
- d. To ensure sufficient flow to prevent stratification of primary coolant at lower Boron concentrations and minimize the chance of a reactivity excursion.

QUESTION: 008 (1.00)

WHICH ONE (1) of the following is the reason why flashing can occur in the CVCS letdown line?

- a. Letdown flow is too LOW and CV-2012 (letdown backpressure control valve) is OPEN too far.
- b. Letdown flow is too LOW and CV-2012 (letdown backpressure control valve) is CLOSED too far.
- c. Letdown flow is too HIGH and CV-2012 (letdown backpressure control valve) is OPEN too far.
- d. Letdown flow is too HIGH and CV-2012 (letdown backpressure control valve) is CLOSED too far.

QUESTION: 009 (1.00)

Given the following:

- Alternate charging path has been established.
- Charging into the PCS is via the HPSI system.

WHICH ONE (1) of the following is the reason a different Cold Leg Loop is used each time charging is restarted?

- a. To equalize the boron concentration in the lines.
- b. To minimize "pulse" damage/effects on safeguards components.
- c. To maintain PCS chemistry within specifications.
- d. To distribute the thermal cycles on the SI nozzles.

QUESTION: 010 (1.00)

All interlocks and permissives for charging pump P-55B will be defeated if it is powered from WHICH ONE (1) of the following buses?

- a. MCC-11
- b. MCC-12
- c. MCC-13
- d. MCC-14

QUESTION: 011 (1.00)

WHICH ONE (1) of the following pressures is the MAXIMUM at which BOTH of the SDC loop suction valves MO-3015 and MO-3016 can be opened?

- a. 200 psia
- b. 245 psia
- c. 260 psia
- d. 280 psia

QUESTION: 012 (1.00)

Given the following:

- The plant is on Shutdown Cooling using LPSI pump P-67B.
- A loss of offsite power has occurred.
- The 1-1 EDG has started and loaded its Safety Bus.

WHICH ONE (1) of the following describes the restarting of LPSI pump P-67B?

- a. The pump will automatically restart immediately after the Safety Bus is re-energized.
- b. The pump will restart automatically with a 13 second time delay after the Safety Bus is re-energized.
- c. The pump will restart automatically after the Sequencer is manually reset.
- d. The pump must be manually restarted.

QUESTION: 013 (1.00)

Given the following:

- An SIAS has occurred due to a cold leg break.

WHICH ONE (1) of the following indicates an SI System MISALIGNMENT?

- a. VCT outlet valve CLOSED.
 - b. SIT pressure control valves CLOSED.
 - c. HPSI hot leg injection test valves CLOSED.
 - d. SDC heat exchanger CCW cooling inlet valves CLOSED.
-

QUESTION: 014 (1.00)

WHICH ONE (1) of the following "T-82B" SIT parameters needs to be corrected prior to declaring "T-82B" SIT OPERABLE while the reactor is operating at 100% power?

- a. Isolation valve is open and the red indicating light is on.
- b. LT-0368 has failed LOW (LIA-0368 indicates LOW).
- c. Boric acid concentration is 2015 ppm.
- d. Pressure is 190 psig.

QUESTION: 015 (1.00)

WHICH ONE (1) of the following is the MINIMUM required Pressurizer heater capacity for operation of the PCS above 325 degrees F per Technical Specifications 3.1, "Primary Coolant System"?

- a. 300 kW from both power supplies.
- b. 300 kW from either power supply.
- c. 375 kW from both power supplies.
- d. 375 kW from either power supply.

QUESTION: 016 (1.00)

Given the following:

- Reactor power is at 100%.
- A transient has caused pressurizer level to decrease 6% below the programmed level.

WHICH ONE (1) of the following is the response of the Pressurizer Level Control System?

- a. Letdown flow will be isolated with P55A, P55B, and P55C running.
- b. Letdown flow will be minimum with only P55A running.
- c. P55A, P55B, and P55C will be running with minimum letdown.
- d. Only P55A and P55B will be running with minimum letdown.

QUESTION: 017 (1.00)

WHICH ONE (1) of the following conditions will result in an INCREASE of the Thermal Margin/Low Pressure (TM/LP) Trip Setpoint? ASSUME The plant is at 100% power.

- a. ASI changes from 0.0 to -0.1.
 - b. Tcold Loop 1 fails LOW.
 - c. RCS pressure increases 25 psia.
 - d. Delta-T PWR bias is reduced via the Calibrate pot.
-

QUESTION: 018 (1.00)

Given the following:

- Plant is at 100% power.
- Alarm EK-0606A, "High Power Rate Channel Pre-Trip/ASI", has just actuated.

WHICH ONE (1) of the following Thermal Margin Monitor screens can be used to verify this alarm?

- a. Primary Screen
- b. ASI Screen
- c. Alarm Screen
- d. Power Density Screen

QUESTION: 019 (1.00)

WHICH ONE (1) of the following RPS trips is rendered inoperable (i.e., will not trip) if its process signal (instrument input signal) fails LOW?

- a. Loss of Load.
 - b. High Pressurizer Pressure.
 - c. Thermal Margin/Low Pressure.
 - d. Low Steam Generator Water Level.
-

QUESTION: 020 (1.00)

WHICH ONE (1) of the following describes the logic required to provide a RAS? (Logic Diagram E-17, Sheet 5 is attached.)

- a. LS-0327 or LS-0329 AND LS-0328 or LS-0330 have to indicate LOW.
- b. LS-0327 and LS-0329 OR LS-0328 and LS-0330 have to indicate HIGH.
- c. LS-0327 and LS-0329 OR LS-0328 and LS-0330 have to indicate LOW.
- d. LS-0327 or LS-0329 AND LS-0328 or LS-0330 have to indicate HIGH.

QUESTION: 021 (1.00)

Given the following:

- Reactor startup in progress.
- Shutdown groups have been withdrawn.
- The reactor has just gone critical.

WHICH ONE (1) of the following is the MINIMUM number of Source and Wide Range channels required to be OPERABLE in this condition?

	Source Range	Wide Range
a.	2	2
b.	1	2
c.	2	1
d.	1	1

QUESTION: 022 (1.00)

WHICH ONE (1) of the following is an output from a Power Range Safety Channel?

- a. Enables a high power trip at greater than 15%.
- b. Enables a high rate trip at greater than 15% power.
- c. Actuates a dropped rod alarm due to power reduction greater than 8% in 8 seconds.
- d. Actuates a loss of load trip signal.

QUESTION: 023 (1.00)

WHICH ONE (1) of the following inputs is used by the Subcooled Margin Monitor to calculate subcooling?

- a. Maximum Hot and Cold Leg temperatures.
- b. Average Hot Leg temperature.
- c. Minimum Cold Leg temperature.
- d. Representative Hot and Cold Leg temperatures.

QUESTION: 024 (1.00)

WHICH ONE (1) of the following describes the Containment Air Cooling Fan configuration for a post-LOCA DBA condition?

- a. "A" fans running, "B" fans tripped and Service Water discharge valve from coolers V-1, V-2 and V-3 CLOSED.
- b. "A" fans tripped, "B" fans running and Service Water discharge valve from coolers V-1, V-2, and V-3 OPEN.
- c. "A" fans running, "B" fans tripped and Service Water discharge valve from cooler V-4 CLOSED.
- d. "A" fans tripped, "B" fans running and Service Water discharge valve from cooler V-4 OPEN.

QUESTION: 025 (1.00)

WHICH ONE (1) of the following is the reason Sodium Hydroxide (NaOH) is added to the Containment Spray System?

- a. To lower pH and limit the generation of fission products.
- b. To lower pH and reduce level of post accident fission products.
- c. To raise pH and limit the generation of fission products.
- d. To raise pH and reduce level of post accident fission products.

QUESTION: 026 (1.00)

Given the following:

- 100% reactor power.
- Steam Generator Level control is in AUTOMATIC.

WHICH ONE (1) of the following will cause the "B" Steam Generator Feed Flow Demand Signal to DECREASE?

- a. Feedwater Flow transmitter fails HIGH.
 - b. Level transmitter fails LOW.
 - c. Steam Flow transmitter fails HIGH.
 - d. Pressure transmitter fails LOW.
-

QUESTION: 027 (1.00)

Given the following:

- Reactor power was at 100%.
- The reactor subsequently tripped.

WHICH ONE (1) of the following is the status of the atmospheric dump valves and turbine bypass valve after 10 minutes? ASSUME controllers are left in AUTOMATIC.

- a. Atmospheric dump valves OPEN
Turbine bypass valve CLOSED
- b. Atmospheric dump valves OPEN
Turbine bypass valve OPEN
- c. Atmospheric dump valves CLOSED
Turbine bypass valve CLOSED
- d. Atmospheric dump valves CLOSED
Turbine bypass valve OPEN

~~QUESTION: 028 (1.00)~~

*Question deleted. Not enough info in stem. Could be three right answers.
4/18/94 J*

~~Given the following:~~

- ~~-The reactor is at 15% power.~~
- ~~-Steam Generator "A" N.R. level is 89%.~~
- ~~-Steam Generator "B" N.R. level is 40%.~~
- ~~-Assume no operator action is taken.~~

~~WHICH ONE (1) of the following is the expected status of the Main Feedwater Control System?~~

- ~~a. Feedwater is isolated to Steam Generator "A" and feedwater to Steam Generator "B" is via the bypass valve.~~
- ~~b. Feedwater is isolated to BOTH Steam Generators "A" and "B".~~
- ~~c. Feedwater is via the bypass valve to BOTH Steam Generators "A" and "B".~~
- ~~d. Feedwater is via the bypass to Steam Generator "A" and via the main feed reg. valve to Steam Generator "B".~~

QUESTION: 029 (1.00)

WHICH ONE (1) of the following will cause the main feed regulating and bypass valves to close?

- a. Loss of control power to feedwater controllers.
- b. The Main Generator exciter field breaker trips.
- c. BOTH Main Feedwater pumps trip and the reactor fails to trip.
- d. A pressure transmitter for each SG fails LOW.

QUESTION: 030 (1.00)

Given the following:

- Plant is at 70% power.
- "A" SG level is 26.5%
- "B" SG level is 65%
- "A" AFW pump breaker is racked out.
- C-33 panel AFW controllers from "C" AFW pump to "A" and "B" SGs are in manual closed.
- All other controls are in their NORMAL lineup.

WHICH ONE (1) of the following is the current status of the Auxiliary Feedwater System (AFW)?

- a. AFW is being supplied to ONLY steam generator "A".
 - b. AFW is being supplied to ONLY steam generator "B".
 - c. AFW is being supplied to BOTH steam generators.
 - d. AFW is BLOCKED to BOTH steam generators.
-

QUESTION: 031 (1.00)

WHICH ONE (1) of the following conditions will DISABLE the low suction pressure trip for AFW pump P-8B?

- a. Loss of power supply Y-10.
- b. Loss of power supply Y-30.
- c. Control established from the Hot Shutdown Panel C-150.
- d. Control established from the Cold Shutdown Panel C-33.

QUESTION: 032 (1.00)

Given the following:

-Bus Y-30 has been de-energized and not yet repowered from the Bypass Regulator.

WHICH ONE (1) of the following describes the response of the Subcooled Margin Monitors (SMM)?

- a. Both SMMs will be blank.
 - b. Both SMMs will be blinking.
 - c. One SMM will be blank and one SMM will be reading normal.
 - d. One SMM will be blinking and one SMM will be reading normal.
-

QUESTION: 033 (1.00)

Given the following:

- The breaker for PCP P-50C has been returned to service and racked in properly.
- The closing coil fuses have been installed improperly and full contact is not being made in the fuse receptacle.

WHICH ONE (1) of the following conditions indicates that the fuses have been installed improperly?

- a. Lights above the handswitch indicate, GREEN ON, WHITE OFF and the local breaker GREEN light is ON.
- b. Lights above the handswitch indicate, GREEN OFF, WHITE ON, and the local breaker GREEN light is OFF.
- c. Lights above the handswitch indicate, GREEN ON, WHITE ON and the local breaker GREEN light is ON.
- d. Lights above the handswitch indicate, GREEN OFF, WHITE OFF and the local breaker GREEN light is OFF.

QUESTION: 034 (1.00)

WHICH ONE (1) of the following will trip ONLY the Diesel Generator output breaker and NOT the diesel?

- a. Overcrank.
 - b. Loss of excitation.
 - c. Generator overcurrent.
 - d. Generator differential current.
-

QUESTION: 035 (1.00)

Given the following:

- Reactor is at 100% power.
- Electrical problems have resulted in the following equipment being declared INOPERABLE at 0800 hours:

- 1-1 Emergency Diesel Generator
- P-66A HPSI Pump
- P-67B LPSI Pump

- ASSUME all other equipment can be demonstrated to be OPERABLE.

Using the attached excerpts from Technical Specifications, WHICH ONE (1) of the following is the MAXIMUM length of time until the reactor has to be in Hot Shutdown from 0800 hours?

- a. 6 hours
- b. 12 hours
- c. 24 hours
- d. 168 hours (7 days)

QUESTION: 036 (1.00)

WHICH ONE (1) of the following radiation monitors provides isolation of discharge from the Main Stack upon a HIGH alarm?

- a. RIA-5712, Fuel Handling Area Ventilation Monitor.
 - b. RIA-2313, Spent Fuel Pool Room Area Monitor.
 - c. RIA-0202, Failed Fuel Monitor.
 - d. RIA-1805, Containment Area Monitor.
-

LIMITING CONDITIONS FOR OPERATION

3.0 APPLICABILITY

LIMITING CONDITIONS FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding Specifications is required during the plant conditions or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated action requirements shall be met.

3.0.2 Noncompliance with a Specification shall exist when the requirements of the Limiting Condition for Operation and associated action requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the action requirements is not required.

3.0.3 When a Limiting Condition for Operation and/or associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, within one hour action shall be initiated to place the unit in a condition in which the Specification does not apply by placing it, as applicable, in:

1. At least HOT STANDBY within the next 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the action requirements, the action may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications.

3.0.4 Entry into a reactor operating condition or other specified condition shall not be made when the conditions for the Limiting Conditions for Operation are not met and the associated action requires a shutdown if they are not met within a specified time interval. Entry into a reactor operating condition or other specified condition may be made in accordance with action requirements when conformance to them permits continued operation of the facility for an unlimited period of time. This provision shall not prevent passage through or to reactor operating conditions as required to comply with action requirements. Exceptions to these requirements are stated in the individual specifications. /
/
/
/
/
/

3.3 EMERGENCY CORE COOLING SYSTEM (Contd)

- 3.3.2 During power operation, the requirements of 3.3.1 may be modified to allow one of the following conditions to be true at any one time. If the system is not restored to meet the requirements of 3.3.1 within the time period specified below, the reactor shall be placed in a hot shutdown condition within 12 hours. If the requirements of 3.3.1 are not met within an additional 48 hours, the reactor shall be placed in a cold shutdown condition within 24 hours.
- a. One safety injection tank may be inoperable for a period of no more than one hour.
 - b. One low-pressure safety injection pump may be inoperable provided the pump is restored to operable status within 24 hours. The other low-pressure safety injection pump shall be tested to demonstrate operability prior to initiating repair of the inoperable pump.
 - c. One high-pressure safety injection pump may be inoperable provided the pump is restored to operable status within 24 hours. The other high-pressure safety injection pump shall be tested to demonstrate operability prior to initiating repair of the inoperable pump.
 - d. One shutdown heat exchanger and one component cooling water heat exchanger may be inoperable for a period of no more than 24 hours.
 - e. Any valves, interlocks or piping directly associated with one of the above components and required to function during accident conditions shall be deemed to be part of that component and shall meet the same requirements as listed for that component.
 - f. Any valve, interlock or pipe associated with the safety injection and shutdown cooling system and which is not covered under 3.3.2e above but, which is required to function during accident conditions, may be inoperable for a period of no more than 24 hours. Prior to initiating repairs, all valves and interlocks in the system that provide the duplicate function shall be tested to demonstrate operability.

3.7 ELECTRICAL SYSTEMS

Applicability

Applies to the availability of electrical power for the operation of plant components.

Objective

To define those conditions of electrical power availability necessary to provide for safe reactor operation and the continuing availability of engineered safety features.

3.7.1 Specifications

The primary coolant system shall not be heated or maintained at temperatures above 325°F if the following electrical systems are not operable:

- a. Station power transformer 1-2 (2400 V).
- b. Start-up transformer 1-2 (2400 V).
- c. 2400 V engineered safeguards buses 1C and 1D.
- d. 480 V distribution buses 11 and 12.
- e. MCC No 1, 2, 7 and 8.
- f. 125 V d-c buses No 1 and 2.
- g. Four preferred a-c buses.
- h. Two station batteries and the d-c systems including at least one battery charger on each bus.
- i. Both diesel generators, with a minimum of 2500 gallons of fuel in each day tank and a minimum of 16,000 gallons of fuel in the underground storage tank.
- j. Switchyard battery and the d-c system with one battery charger.
- k. 240 V a-c power panels No 1 and 2, and their associated ACB breaker distribution systems.
- l. 2400 V bus 1E.

3.7.2 The requirements of Specification 3.7.1 may be modified to the extent that ~~one of the following conditions will be allowed.~~ If any of the provisions of those exceptions are violated, the reactor shall be placed in a hot shutdown condition within 12 hours. If the violation is not corrected within 24 hours, the reactor shall be placed in a cold shutdown condition within 24 hours.

3.7 ELECTRICAL SYSTEMS (Contd)

- a. Station power transformer 1-2 (2400 V) may be inoperable for up to 24 hours provided the operability of both diesel generators is demonstrated immediately.
- b. Start-up transformer 1-2 (2400 V) may be inoperable for up to 24 hours provided the operability of both diesel generators is demonstrated immediately. Continued operation beyond 24 hours is permissible provided that a report is sent to the NRC immediately with an outline of the plans for prompt restoration of the start-up transformer and the additional precautions to be taken while the transformer is out of service, and continue operating until notified differently by the NRC.
- c. 2400 V engineered safeguards bus 1C or 1D may be inoperable for up to 8 hours provided the operability of the diesel generator associated with the operable bus is demonstrated immediately and there are no inoperable engineered safety feature components associated with the operable bus.
- d. 480 V distribution bus 11 or 12 may be inoperable for up to 8 hours provided there are no inoperable safety feature components associated with the operable bus.
- e. MCC No. 1 and 7 or 2 and 8 may be inoperable for up to 8 hours provided there are no inoperable safety feature components associated with the operable pair of MCC.
- f. 125 V d-c bus No. 1 or 2 may be inoperable for up to 8 hours provided there are no inoperable safety feature components associated with the operable bus and adequate portable emergency lighting is available during the inoperability of the No 2 bus.
- g. One of the four preferred a-c buses may be inoperable for 8 hours provided the reactor protection and engineered safety feature systems supplied by the remaining three buses are all operable.
- h. One of the station batteries may be inoperable for 24 hours, providing both battery chargers on the affected bus are in operation.
- i. One of the diesel generators may be inoperable for up to 7 days* (total for both) during any month, provided the other diesel is started to verify operability, shutdown and the controls are left in the automatic mode, and there are no inoperable engineered safety feature components associated with the operable diesel generator.

*10 days one time only, for the month of May 1985.

QUESTION: 037 (1.00)

WHICH ONE (1) of the following actions will confirm that a radiation monitoring instrument is functional from the detector to the meter?

- a. Place the selector switch in "HV" and insure detector voltage is correct.
- b. Place the selector switch in "CAL" and check the high alarm setpoint.
- c. Place the selector switch in "OPERATE", depress the "CS" button, and watch for an increasing meter reading.
- d. Place the selector switch in "OFF" and check for loss of meter reading and circuit failure alarm.

QUESTION: 038 (1.00)

WHICH ONE (1) of the following valves will fail OPEN on a loss of instrument air?

- a. Turbine Bypass Valve (CV-0511).
- b. AFW Pump P-8C Control Valve (CV-0736A).
- c. Letdown Orifice Valve (CV-2005).
- d. SW Cooling To ESS Pumps Return Valve (CV-0951).

QUESTION: 039 (1.00)

Given the following:

-Fire header pressure is at 82 psig with all system controls in AUTOMATIC.

WHICH ONE (1) of the following describes the Fire Protection System pump(s) expected to be running at this pressure?

- a. ONLY the jockey pump P-13.
- b. ONLY the motor-driven pump P-9A.
- c. BOTH the jockey pump P-13 and diesel-driven pump P-41.
- d. BOTH the motor-driven pump P-9A and diesel-driven pump P-9B.

QUESTION: 040 (1.00)

WHICH ONE (1) of the following is the MAXIMUM containment internal pressure allowed while operating at 100% power?

- a. 0.5 psig
 - b. 1.0 psig
 - c. 1.5 psig
 - d. 2.0 psig
-

QUESTION: 041 (1.00)

Given the following:

- Reactor power is at 65%.
- A 30-second continuous rod withdrawal occurs until the operator places the Rod Drive Control Mode Selector switch to the EM (Emergency Off) position.
- Assume NO other operator action is taken and NO reactor trip occurs.

WHICH ONE (1) of the following parameters will return to essentially the same value that it was before the event?

- a. Tave
- b. Reactor power
- c. Pressurizer level
- d. Steam Generator pressure

QUESTION: 042 (1.00)

WHICH ONE (1) of the following actions should be taken IMMEDIATELY if two regulating control rods have dropped into the core while at 85% power?

- a. Notify Reactor Engineering.
 - b. Manually trip the reactor and enter EOP 1.0, "Standard Post Trip Actions".
 - c. Take actions to reduce power to less than 75%.
 - d. Stabilize power by adjusting turbine load to reactor power.
-

QUESTION: 043 (1.00)

Given the following:

- A power reduction from 80% to 60% has just been completed.
- Two (2) Group 4 control rods have failed to insert with the rest of Group 4.

WHICH ONE (1) of the following rod position differences is the MINIMUM that would require the rods to be considered misaligned per Technical Specifications?

- a. 4 inches
- b. 7 inches
- c. 10 inches
- d. 13 inches

QUESTION: 044 (1.00)

WHICH ONE (1) of the following is the basis for manually tripping one Main Feed pump as an immediate action of EOP 1.0, "Standard Post Trip Actions"?

- a. To prevent excessive depressurization of the PCS.
- b. To prevent overpressurizing the SGs.
- c. To reduce thermal and hydraulic stresses on the SG tubes.
- d. To reduce feedwater flow to match post trip steam flow.

QUESTION: 045 (1.00)

Given the following:

- Reactor tripped from 100% power.
- EOP 1.0, "Standard Post Trip Actions", has been entered.
- The Main Turbine did NOT trip as expected.

WHICH ONE (1) of the following actions should be IMMEDIATELY performed per EOP 1.0, "Standard Post Trip Actions", to trip/stop the turbine?

- a. Manually close MSIVs.
- b. Manually close turbine stop and governor valves.
- c. Manually trip the generator exciter field breaker.
- d. Manually trip the turbine locally at the turbine pedestal.

QUESTION: 046 (1.00)

WHICH ONE (1) of the following is the priority order for restoring the plant safety functions?

- a. PCS Pressure Control
Vital Auxiliaries - Electrical
Containment Isolation
PCS Inventory Control
- b. Containment Isolation
PCS Inventory Control
Vital Auxiliaries - Electrical
PCS Pressure Control
- c. Vital Auxiliaries - Electrical
PCS Inventory Control
PCS Pressure Control
Containment Isolation
- d. PCS Inventory Control
PCS Pressure Control
Containment Isolation
Vital Auxiliaries - Electrical

QUESTION: 047 (1.00)

WHICH ONE (1) of the following small break LOCA trends would be expected for a hot leg break but NOT for a Pressurizer vapor space break?

- a. Tavg constant.
- b. Pressurizer level decreasing.
- c. Containment pressure increasing.
- d. Pressurizer pressure decreasing.

QUESTION: 048 (1.00)

Given the following:

- A normal plant shutdown is in progress.
- Pressurizer pressure is 415 psig and decreasing slowly.
- Pressurizer level is 30% and decreasing slowly.
- Quench Tank (T-73) pressure is 3 psig.

Assume pressurizer steam quality is 100%.

WHICH ONE (1) of the following is the expected PORV tailpipe temperature if a pressurizer PORV is leaking by?

- a. 212 degrees F.
 - b. 330 degrees F.
 - c. 450 degrees F.
 - d. 652 degrees F.
-

QUESTION: 049 (1.00)

Given the following:

- Operators have entered EOP 4.0, "Loss of Coolant Accident Recovery", and are performing recovery actions.
- A plant cooldown is in progress.

WHICH ONE (1) of the following indicates that PCS voiding is occurring?

- a. Pressurizer level is increasing slower than expected for existing HPSI and charging flow.
- b. Reactor vessel level monitoring recorder indicates a decreasing level.
- c. Pressurizer level decreases greater than expected while using auxiliary spray.
- d. CET indicated temperatures are lower than saturation temperature for the current PCS pressure.

QUESTION: 050 (1.00)

WHICH ONE (1) of the following is the required MAXIMUM interval between performing safety function status checks per EOP 9.0, "Functional Recovery"?

- a. Perform Continuously.
 - b. Perform every 5 minutes.
 - c. Perform every 10 minutes.
 - d. Perform every 15 minutes.
-

QUESTION: 051 (1.00)

WHICH ONE (1) of the following is the MAXIMUM containment pressure at which containment spray may be secured according to EOP 4.0, "Loss of Coolant Accident Recovery"?

- a. 8 psig
- b. 4 psig
- c. 2 psig
- d. 1 psig

~~QUESTION: 052 (1.00)~~

*Question deleted. No right answer.
4/12/94 J*

~~WHICH ONE (1) of the following describes the reason that hot leg injection is established 5.5 hours following a LOCA?~~

- ~~a. To quench steam in the hot legs and to ensure balanced cooling of the core.~~
- ~~b. To quench steam in the hot legs and to prevent boron precipitation.~~
- ~~c. To quench steam in the core and to ensure balanced cooling of the core.~~
- ~~d. To quench steam in the core and to prevent boron precipitation.~~

QUESTION: 053 (1.00)

WHICH ONE (1) of the following is NOT monitored by the Critical Functions Monitoring System (CFMS)?

- a. Containment atmosphere
- ~~b. Containment isolation~~
- c. Vital Auxiliary - Electrical
- d. Reactivity

QUESTION: 054 (1.00)

Given the following:

- A loss of offsite power and a reactor trip has occurred.
- EOP 8.0, "Loss of Forced Circulation Recovery", has been implemented.

WHICH ONE (1) of the following sets of parameters indicates that adequate natural circulation has been established?

	<u>T-HOT</u>	<u>T-COLD</u>	<u>CET AVERAGE</u>
a.	534 F	523 F	550 F
b.	543 F	513 F	556 F
c.	556 F	521 F	572 F
d.	559 F	534 F	574 F

QUESTION: 055 (1.00)

WHICH ONE (1) of the following PCP controlled bleedoff temperatures is the MAXIMUM allowed without being required to trip the PCP?

- a. 164 degrees F.
 - b. 174 degrees F.
 - c. 184 degrees F.
 - d. 194 degrees F.
-

QUESTION: 056 (1.00)

WHICH ONE (1) of the following flowrates would satisfy the "MINIMUM" Charging flow required for Emergency Boration according to SOP 2A, "Chemical And Volume Control System Charging and Letdown; Concentrated Boric Acid"?

- a. 20 gpm
- b. 30 gpm
- c. 40 gpm
- d. 50 gpm

QUESTION: 057 (1.00)

WHICH ONE (1) of the following off-normal events requires IMMEDIATELY commencing emergency boration and tripping the Reactor?

- a. Steam Line Break.
- b. Breach of Containment Integrity.
- c. Excessive Feedwater Increase.
- d. Two Reg. Group 4 control rods insert uncontrollably 60 inches.

QUESTION: 058 (1.00)

Given the following:

- Unit had been operating for 100 days and was shutdown on 03-4-94 at 1800 hours.
- At 0900 hours on 03-9-94 a total loss of SDC cooling occurs.
- The following plant conditions existed at 0900 hours:

PCS Temp	...	123 deg F
PZR Temp	...	140 deg F
SFP level	...	Normal
PCS level	...	619' 6"

WHICH ONE (1) of the following indicates how long it will take the PCS to reach 200 degrees F.? (Attachment 1 of ONP 17, "Loss of Shutdown Cooling" is attached.)

- a. 11 minutes
- b. 15 minutes
- c. 18 minutes
- d. 25 minutes

QUESTION: 059 (1.00)

Per ONP 6.2, "Loss of Component Cooling", the reactor must be tripped if CCW flow to Containment has been lost for a MINIMUM of WHICH ONE (1) of the following?

- a. 3 minutes
 - b. 5 minutes
 - c. 11 minutes
 - d. 16 minutes
-

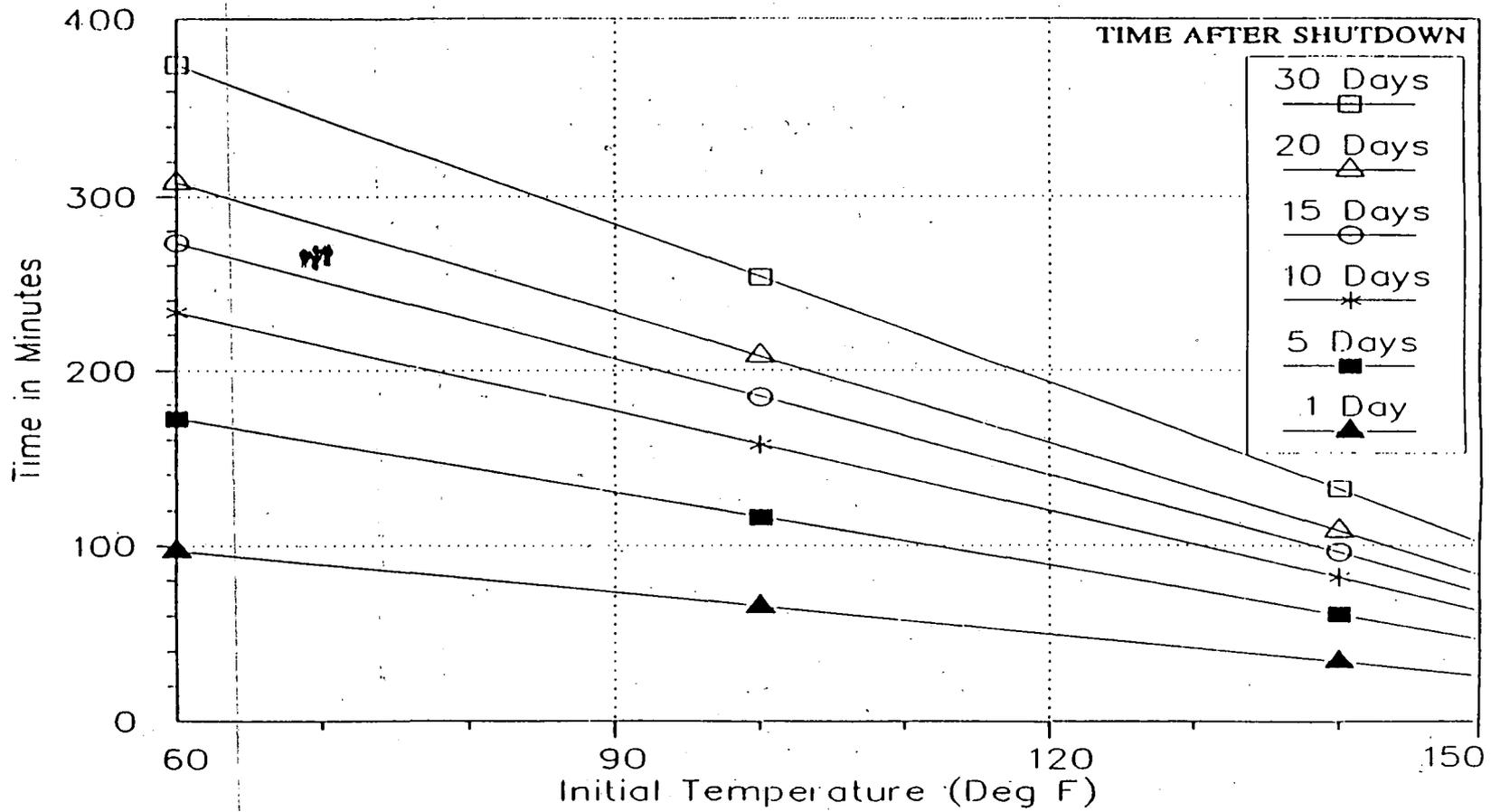
APPROXIMATE TIME TO 200°F CURVES

1. Determine PCS level using all available indications.
2. IF the following conditions exist, THEN the PCS is considered "FILLED AND INTACT":
 - a. PCS was NOT drained below 0% on LI-0103A/LIA-0102A.
AND
 - b. PCS is capable of being pressurized.
3. IF criteria of Step 2 are NOT met, THEN PCS is considered "NOT FILLED/INTACT."
4. Refer to appropriate curve in this attachment for existing PCS conditions:

<u>CURVE TITLE</u>	<u>ATTACHMENT 1 PAGE NUMBER</u>
PCS Filled And Intact, One or Both S/G's With Tubes Covered	2
PCS <u>NOT</u> Filled/Intact, PCS Level at 628'5"	3
PCS <u>NOT</u> Filled/Intact, PCS Level at 623'	4
PCS <u>NOT</u> Filled/Intact, PCS Level at 617'6"	5
Refueling Cavity Flooded to 647'	6
Refueling Cavity Flooded to 632'	7

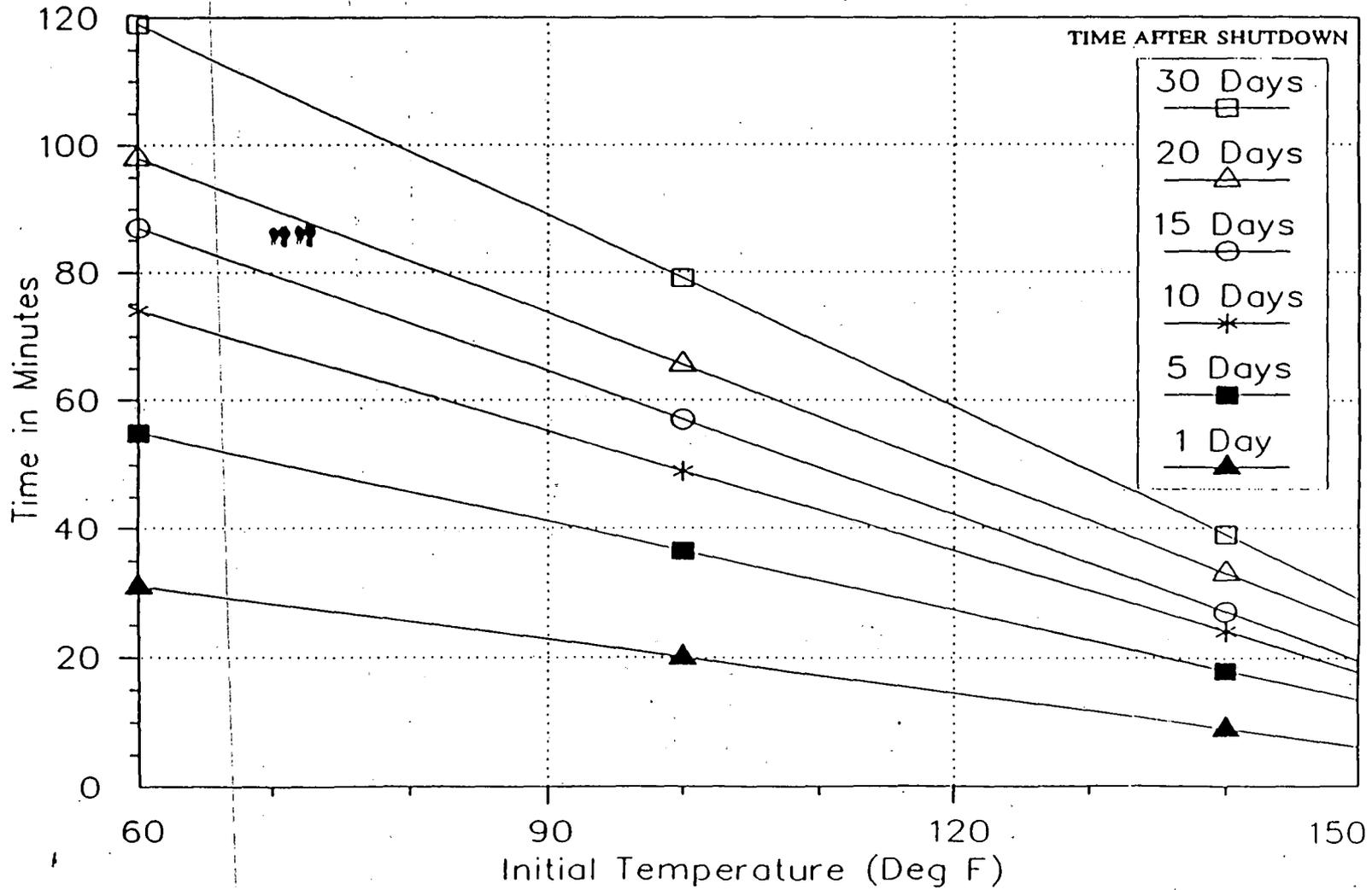
APPROXIMATE TIME TO 200°F CURVES

PCS FILLED AND INTACT, ONE OR BOTH S/G'S WITH TUBES COVERED



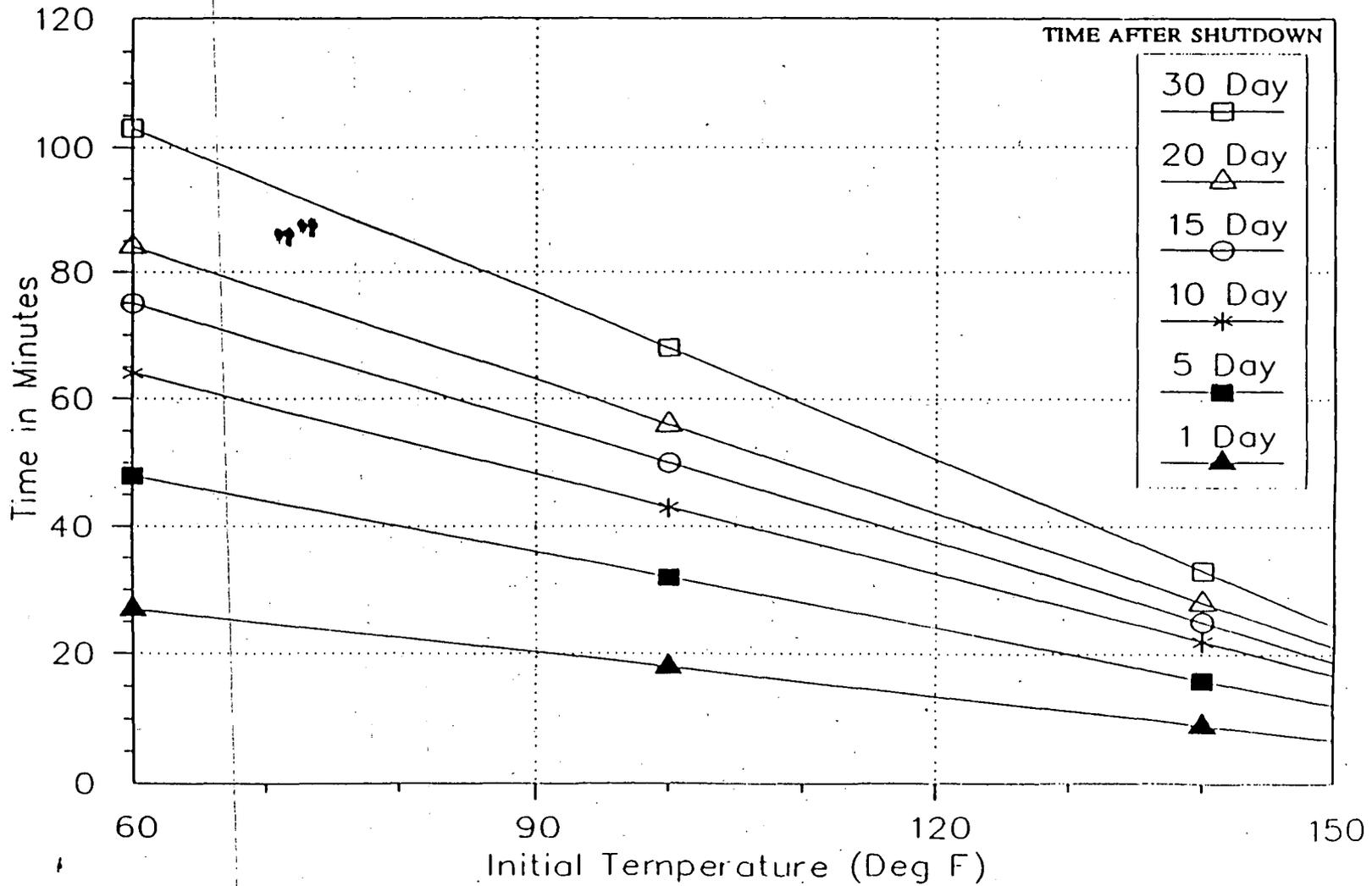
APPROXIMATE TIME TO 200°F CURVES

PCS NOT FILLED/INTACT, PCS LEVEL AT 628'5"



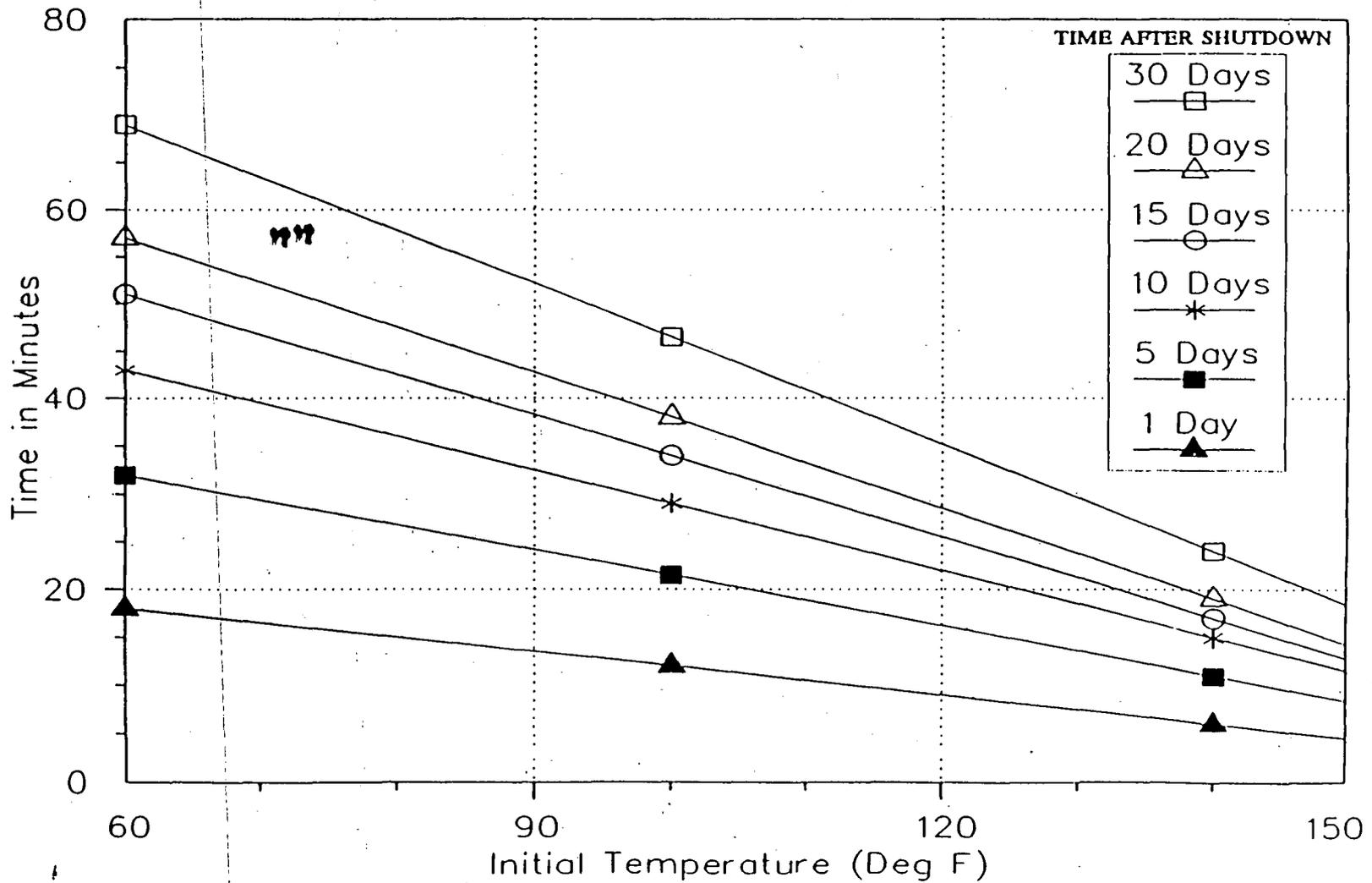
APPROXIMATE TIME TO 200°F CURVES

PCS NOT FILLED/INTACT, PCS LEVEL AT 623'



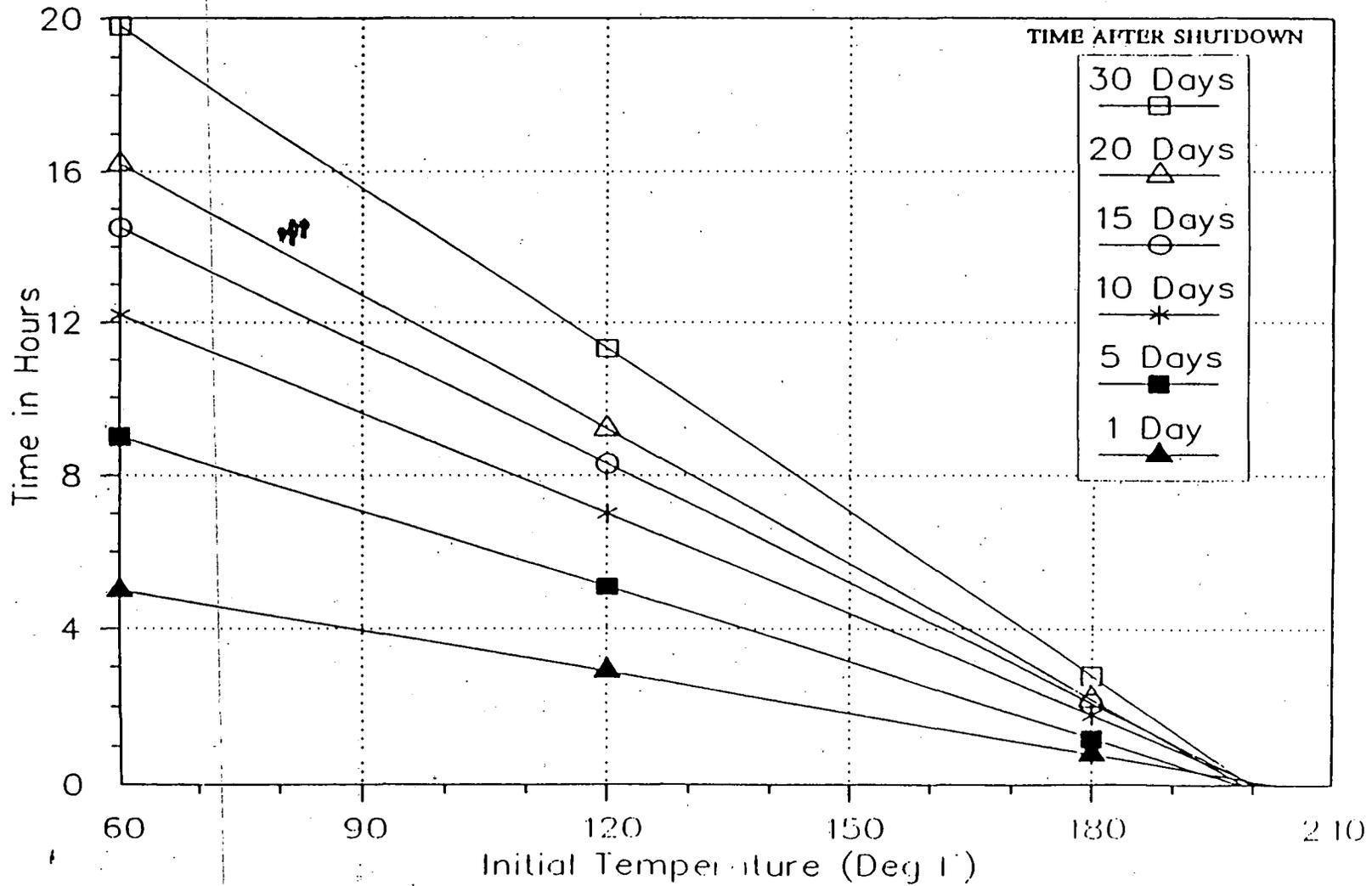
APPROXIMATE TIME TO 200°F CURVES

PCS NOT FILLED/INTACT, PCS LEVEL AT 617'6"



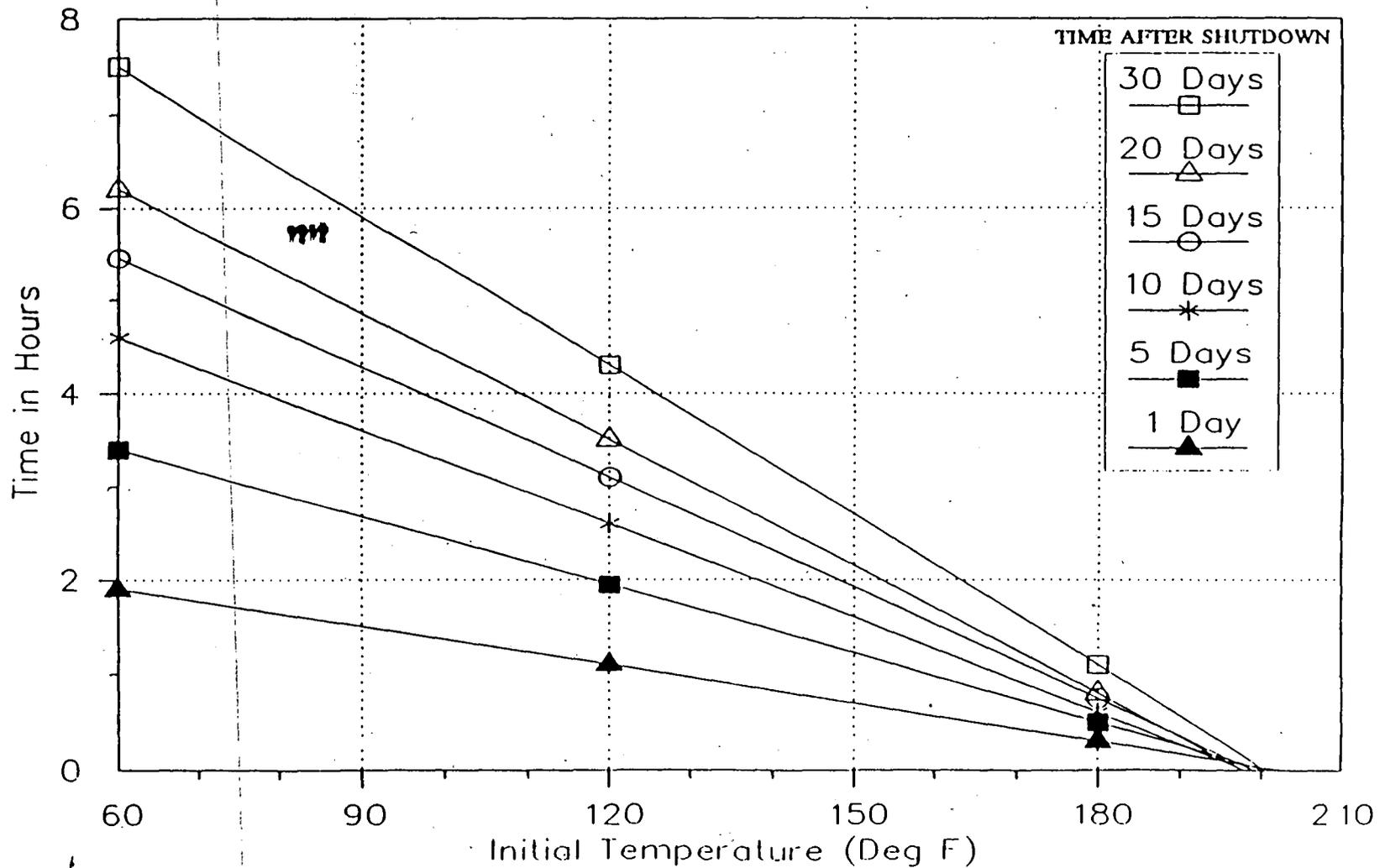
APPROXIMATE TIME TO 200°F CURVES

REFUELING CAVITY FLOODED TO 647'



APPROXIMATE TIME TO 200°F CURVES

REFUELING CAVITY FLOODED TO 632'



QUESTION: 060 (1.00)

Given the following:

- PCS operating with the Pressurizer solid and all systems are configured correctly.
- Charging pump P-55B suction supply is from the SIRWT.
- A malfunction has caused Pressurizer pressure to increase.

WHICH ONE (1) of the following is cause of the pressure increase?

- a. Charging line stop valve CLOSING.
- b. Charging pump suction inadvertently switched to the VCT.
- c. Letdown backpressure regulating valve CLOSING.
- d. Pressurizer Pressure transmitter (Protection channel) failing HIGH.

QUESTION: 061 (1.00)

Given the following:

- Power is at 80%.
- BOTH Tave/Tref controllers have just failed Tave LOW.
- Pressurizer level controller is in "CASCADE".

WHICH ONE (1) of the following describes the actions that should be taken with the operating pressurizer level controller?

- a. Push the AUTO button (bumpless transfer) to place controller in the "AUTO" mode.
 - b. Push the Manual button (bumpless transfer) to place controller in the "MANUAL" mode.
 - c. Slowly adjust setpoint, allow system response, then place controller in "AUTO".
 - d. Match setpoint, then place controller in "MANUAL".
-

QUESTION: 062 (1.00)

Given the following:

-During Refueling Operations, a fuel bundle is dropped in the Spent Fuel Pool resulting in high radiation levels in the Spent Fuel Pool area.

WHICH ONE (1) of the following fans must be aligned manually in response to this event? ASSUME all automatic actions have occurred.

- a. V-70A
- b. V-69
- c. V-7
- d. V-8B

QUESTION: 063 (1.00)

Given the following:

-Plant is currently REFUELING.
-Source Range channel "NI-2" is in service with its associated audible indication in containment OPERABLE.
-Source Range channel "NI-1" has just failed offscale LOW.
-Core alterations are in progress.

WHICH ONE (1) of the following actions should be implemented?

- a. Initiate emergency boration to ensure an adequate shutdown margin is maintained.
 - b. Suspend all operations involving positive reactivity changes.
 - c. Initiate 1/M plots and continue with core alterations.
 - d. Establish continuous monitoring of the operable Source range channel and continue core alterations.
-

QUESTION: 064 (1.00)

Given the following:

- Power is at 100%.
- PCS Xenon is 50 uCi/kg.
- A SG tube leak is suspected.
- Off-gas flow rate is reported to be 3 CFM.
- RIA-0631 (Condenser Off-gas Monitor) indicates 30,000 CPM.

WHICH ONE (1) of the following is the primary to secondary leak rate?
(ONP 23.2, "Steam Generator Tube Leak", Attachment 2 is attached.)

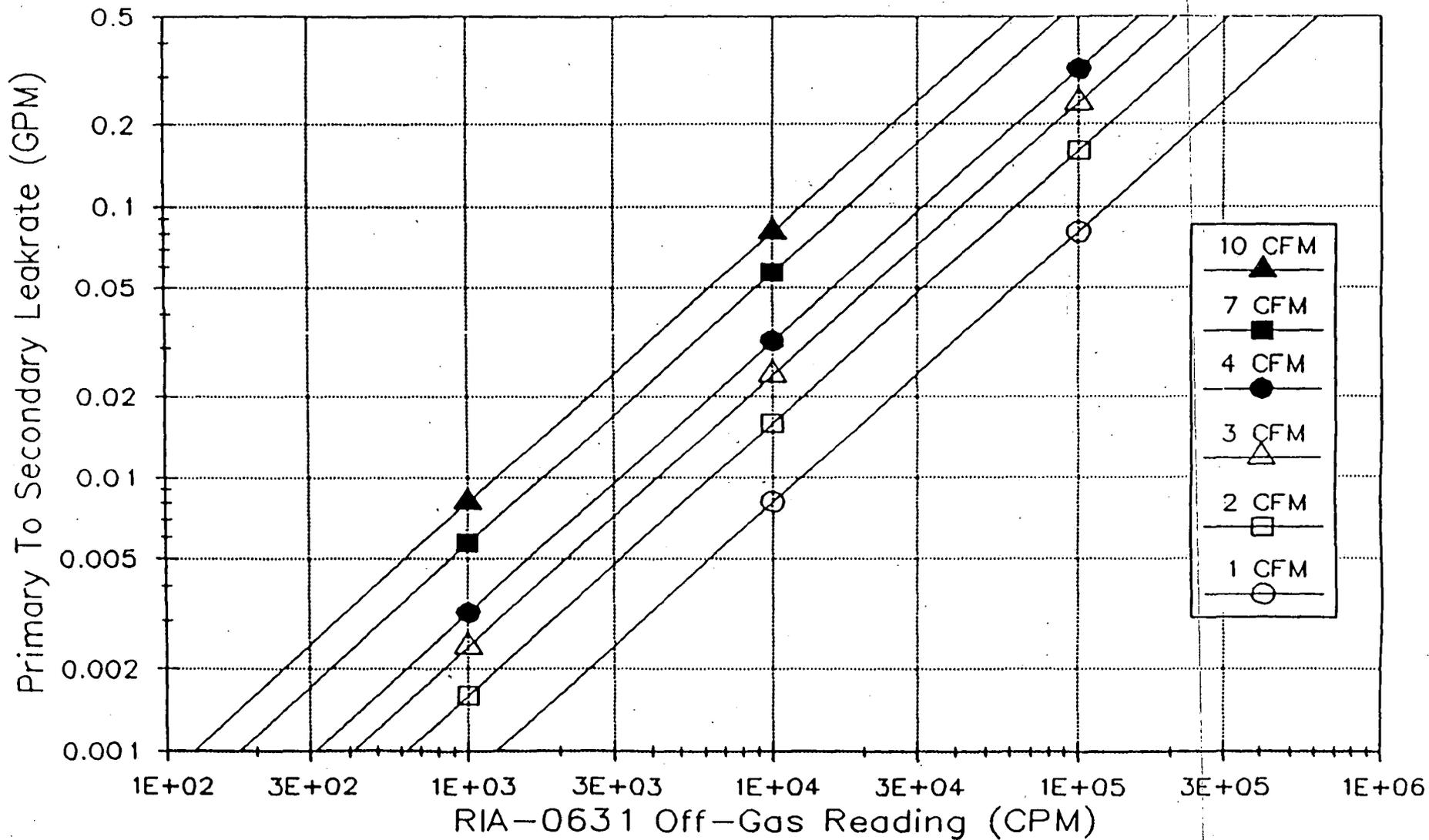
- a. 0.007 gpm
- b. 0.01 gpm
- c. 0.07 gpm
- d. 0.10 gpm

QUESTION: 065 (1.00)

WHICH ONE (1) of the following indications would confirm that a Steam Generator Tube Rupture was occurring?

- a. Pressurizer pressure DECREASE with affected SG steam flow LESS than feed flow.
 - b. Pressurizer level DECREASE with affected SG steam flow EQUAL to feed flow.
 - c. Pressurizer pressure DECREASE with affected SG steam flow GREATER than feed flow.
 - d. Pressurizer level DECREASE with affected SG steam flow DECREASING as feed flow DECREASES.
-

Primary To Secondary Leak Rate At Various Off-Gas Flow Rates



QUESTION: 066 (1.00)

Given the following:

-Per EOP 5.0, "Steam Generator Tube Rupture", Step 11, PCS temperature is reduced to below 525 degrees F (515 to 500 degrees F preferred) prior to isolating a ruptured Steam Generator.

WHICH ONE (1) of the following is the reason for the PCS temperature reduction?

- a. To prevent pressurizer PORVs from opening.
- b. To prevent SG safeties from opening.
- c. To assure natural circulation in the unaffected loop.
- d. To assure PCS subcooling is maintained at a minimum of 25 degrees F.

QUESTION: 067 (1.00)

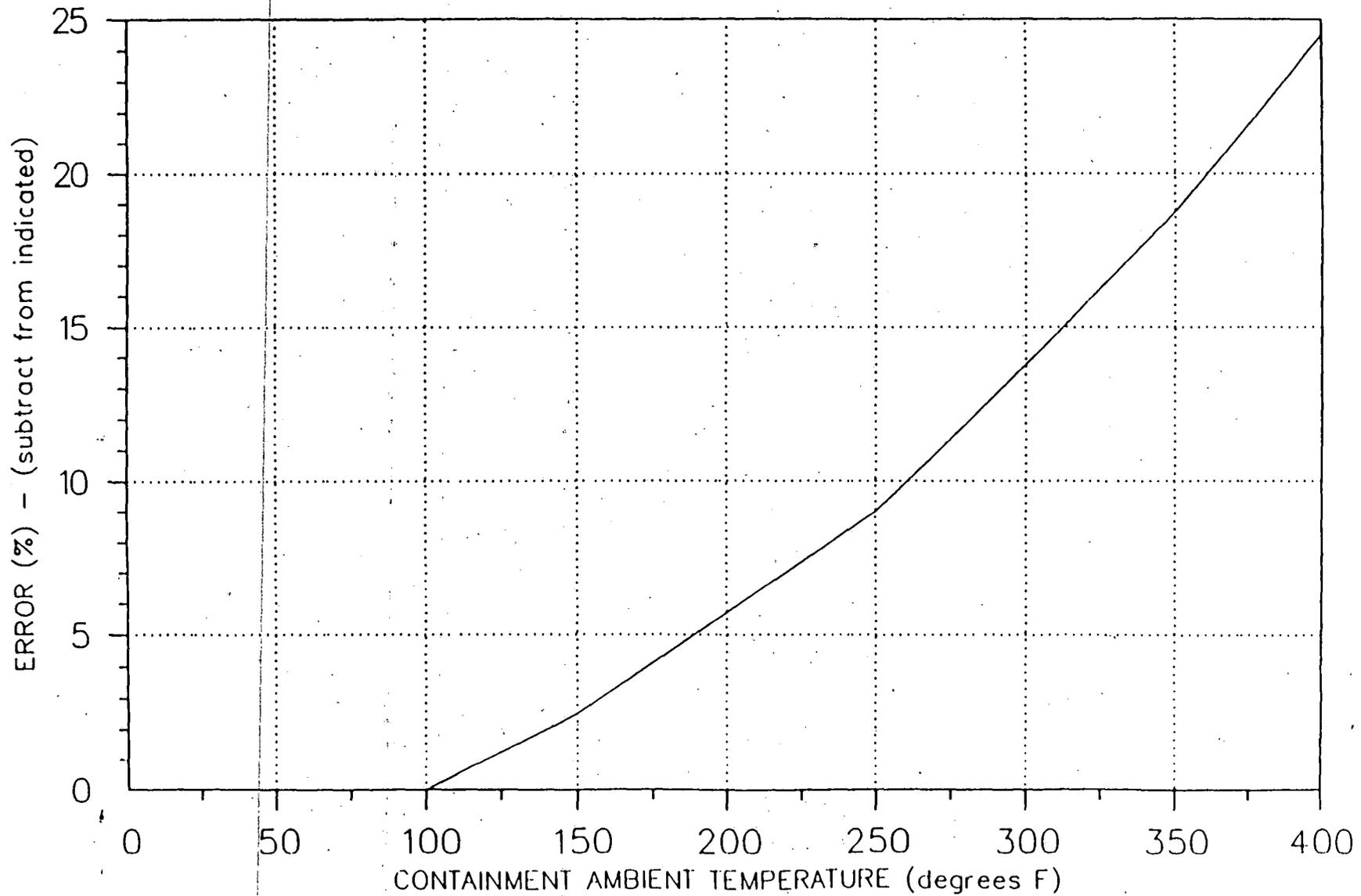
Given the following:

-Primary Coolant System pressure is 1400 psia.
-Indicated Pressurizer level on LIC-0101B is 65%.
-Containment temperature is 202 degrees F.

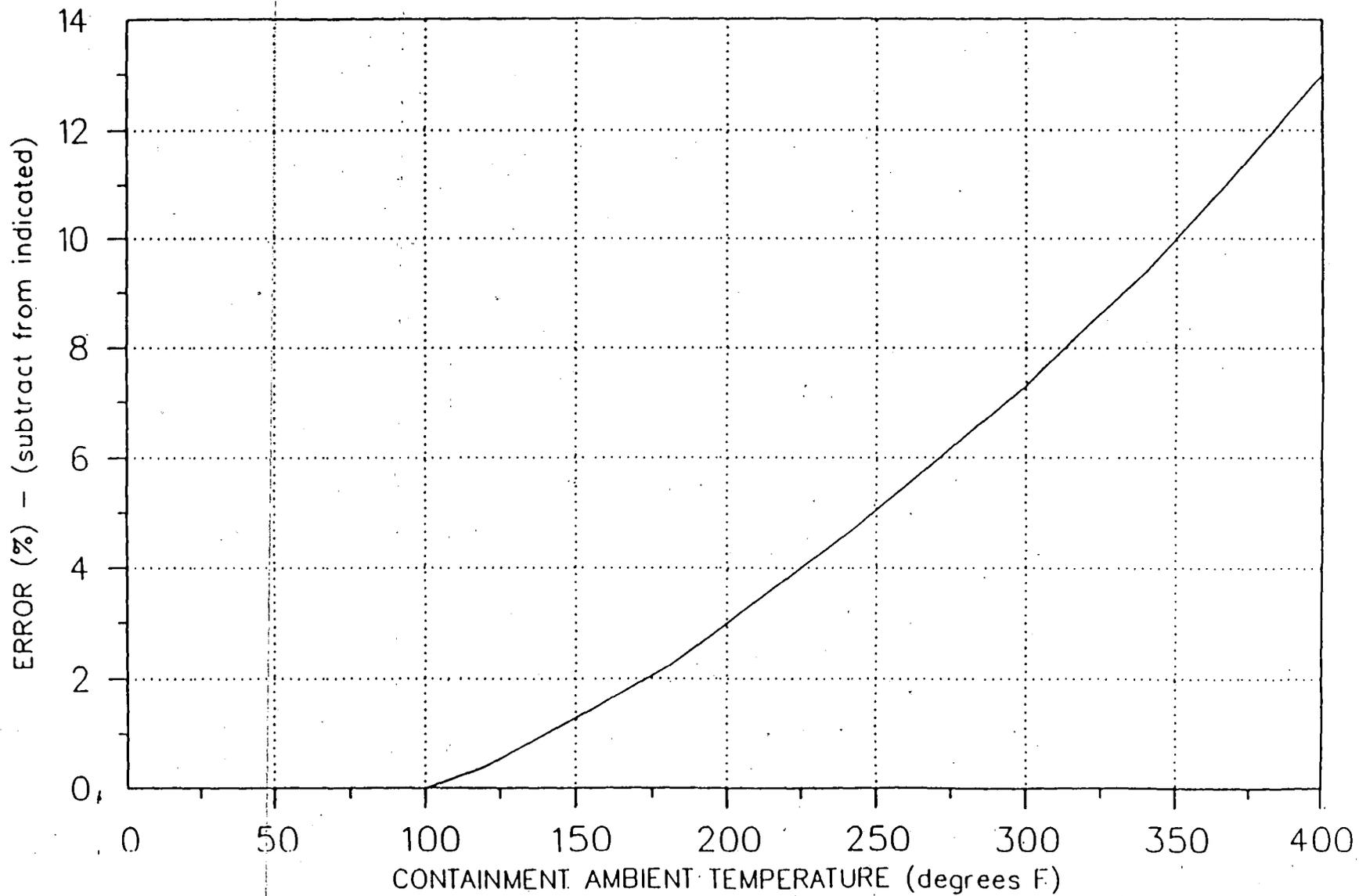
WHICH ONE (1) of the following is the "ACTUAL" Pressurizer level? (EOP 6.0, "Excess Steam Demand Event", Attachments 2 and 3 are attached.)

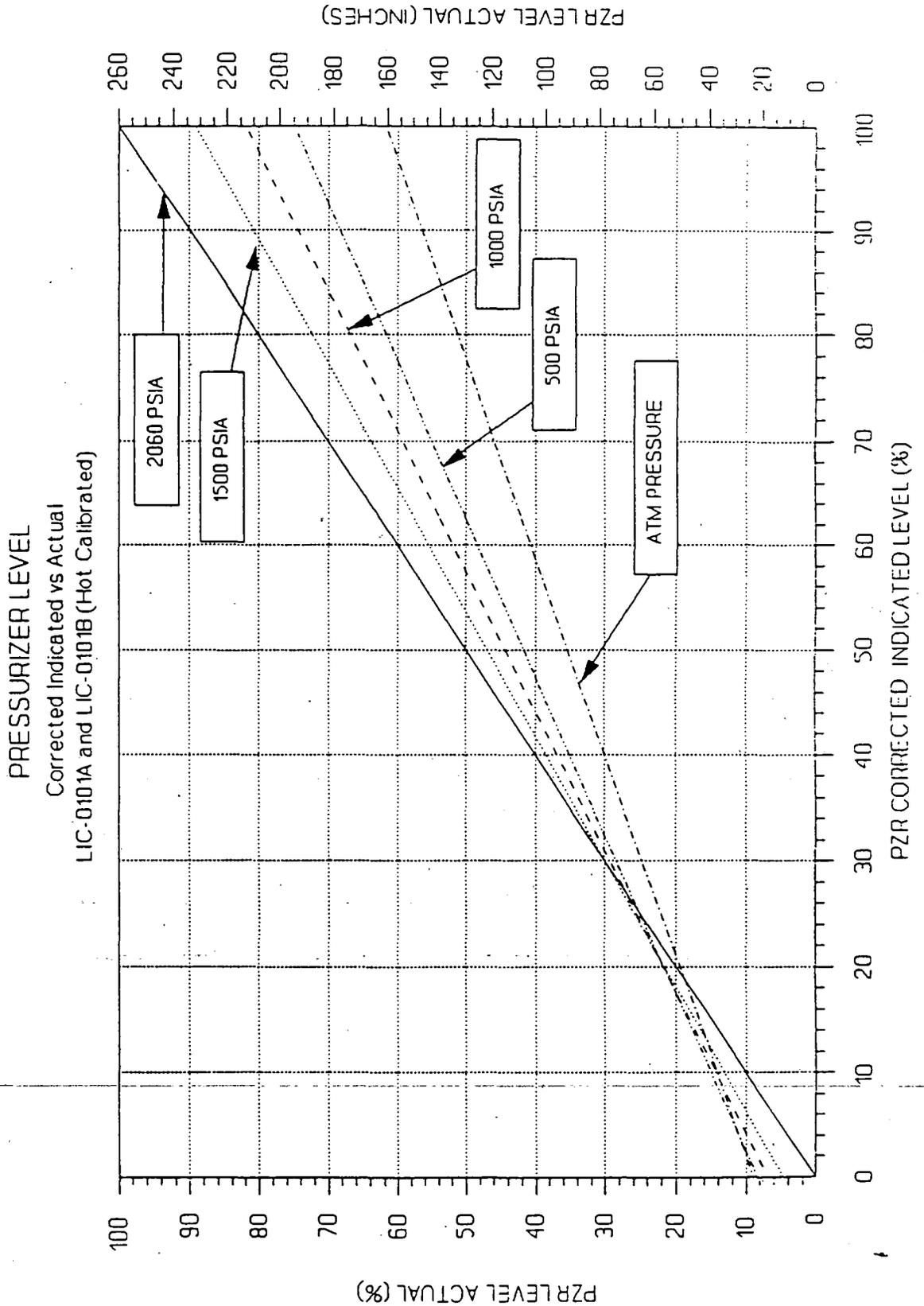
- a. 55%
 - b. 59%
 - c. 65%
 - d. 85%
-

PRESSURIZER
ERROR IN PZR LEVEL
HOT CALIBRATED (LIC-0101A AND B)



PRESSURIZER
ERROR IN PZR LEVEL
COLD CALIBRATED (LIA-0102A AND LI-0103A)

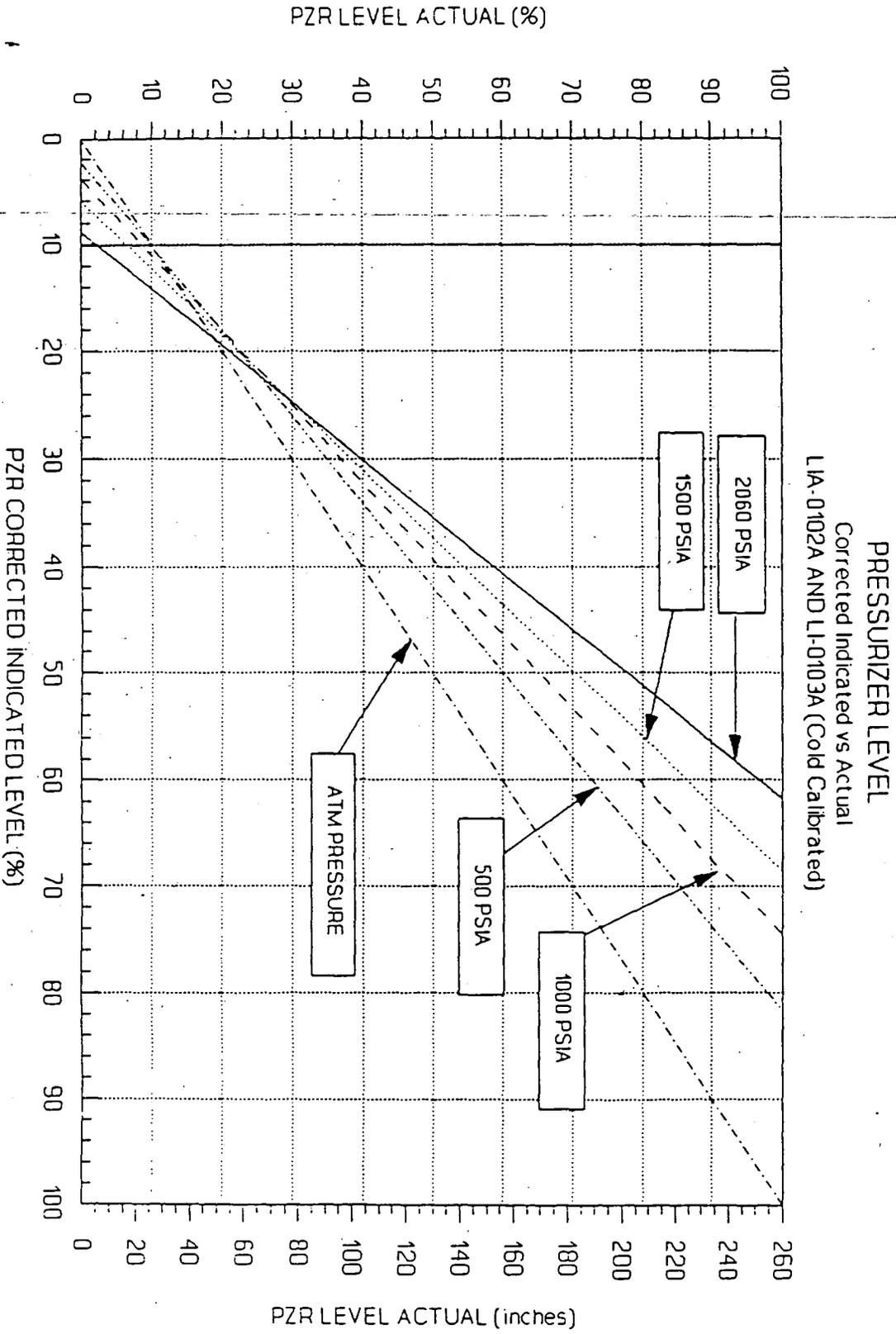




NOTE: Attachment 2 should be used to obtain Corrected Indicated level prior to use of this attachment.

NOTE:

Attachment 2 should be used to obtain Corrected Indicated level prior to use of this attachment.



QUESTION: 068 (1.00)

Given the following:

-During an Excess Steam Demand event, both steam generators are suspected of being affected.

WHICH ONE (1) of the following steam generators should be isolated?

- a. EITHER steam generator.
- b. BOTH steam generators, returning them to service one at a time.
- c. ONLY the steam generator with the highest associated Tc.
- d. ONLY the steam generator with the lowest pressure.

QUESTION: 069 (1.00)

Given the following:

-Reactor power is at 35% and increasing.

-The AO has just reported that it appears an Atmospheric Steam Dump Valve (ADV) or Safety Valve is OPEN.

WHICH ONE (1) of the following is the IMMEDIATE action that should be taken at this time per ONP 9, "Excessive Load Increase"?

- a. Stop the power increase and prepare for a power reduction as directed by the Shift Supervisor.
- b. Manually trip the reactor and enter EOP 1.0, "Standard Post Trip Actions".
- c. Adjust Turbine load as necessary to match Reactor power.
- d. Check ADVs, place ADV control to "MANUAL", and attempt to close ADV, if OPEN.

QUESTION: 070 (1.00)

WHICH ONE (1) of the following condenser pressures is the MINIMUM at which an automatic turbine/reactor trip will occur?

- a. 15" Hg.
- b. 19" Hg.
- c. 21" Hg.
- d. 25" Hg.

QUESTION: 071 (1.00)

Given the following:

- The reactor has been manually tripped due to a loss of ALL Feedwater.
- Operators are initiating Step 6 of EOP 7.0, "Loss of All Feedwater", and are tripping all PCPs.

WHICH ONE (1) of the following is the reason for tripping all Primary Coolant Pumps per this step in the procedure?

- a. To reduce heat input into the Primary Coolant System.
 - b. To reduce Primary Coolant System pressure.
 - c. To save SG inventory while restoring feedwater flow.
 - d. To minimize the possibility of a tube rupture as AFW is restored to the SG.
-

QUESTION: 072 (1.00)

WHICH ONE (1) of the following is the MAXIMUM time following a loss of all AC power actions to minimize hydraulic/thermal shock to Service Water/CCW cooled components MUST be performed?

- a. 1 minute
- b. 10 minutes
- c. 30 minutes
- d. 60 minutes

QUESTION: 073 (1.00)

WHICH ONE (1) of the following is the reason for tripping an Emergency Diesel Generator (EDG) that started, when its respective vital bus did not energize?

- a. Minimize potential of overloading the EDG output breaker.
 - b. Conserve fuel oil in case offsite power is not restored.
 - c. Minimize potential of EDG damage due to running unloaded.
 - d. Prevent overheating due to a loss of cooling water flow.
-

QUESTION: 074 (1.00)

Given the following:

- Reactor at 100% power.
- NI-06 has been lost.
- Charging has increased to 133 gpm.
- Letdown remains at 40 gpm.
- AFW Flow control valves CV-0736A and CV-0737A have failed open.

WHICH ONE (1) of the following AC instrument buses has been lost?

- a. Y-10
- b. Y-20
- c. Y-30
- d. Y-40

QUESTION: 075 (1.00)

WHICH ONE (1) of the following describes 4160V breaker operation if DC control power is lost?

- a. Breakers will remain in their "as is" condition and operation would only be possible by manual means.
 - b. Automatic breaker trips would remain operational but remote operation of breakers would not be possible.
 - c. Breakers would remain remotely operable but automatic trip functions would become inoperable.
 - d. Breakers would trip open and operation would only be possible by manual means.
-

QUESTION: 076 (1.00)

Given the following:

- Reactor trip due to LOCA condition.
- Instrument bus Y-10 has been lost.
- EOP 1.0, "Standard Post Trip Actions", has been entered and immediate actions are being performed.

WHICH ONE (1) of the following Radiation Monitors will be out of service and therefore not available for use in diagnostics based on the above conditions?

- a. Blowdown Monitor (RIA-0707)
- b. Containment Area Monitors (RIA-1805, 1806, 1807, and 1808)
- c. Condenser Off Gas Monitor (RIA-0631)
- d. Main Steam Line Monitors (RIA-2323 and 2324)

QUESTION: 077 (1.00)

Given the following:

- Reactor Power is at 100%
- Instrument air pressure indicates 79 psig and slowly decreasing.

WHICH ONE (1) of the following is the IMMEDIATE action that must be taken at this time per ONP 7.1, "Loss of Instrument Air"?

- a. Monitor plant equipment for status changes and take manual control as necessary.
 - b. Start the available instrument air compressor.
 - c. Manually trip the reactor and enter EOP 1.0, "Standard Post Trip Actions".
 - d. Open the Dryer bypass valve MV-CA677.
-

~~QUESTION: 078 (1.00)~~

Question deleted. No right answer.
4/6/94 JL

Given the following:

- Control Room is being evacuated due to a fire.
- ONP 25.2, "Alternate Safe Shutdown Procedure", has been entered.

WHICH ONE (1) of the following is an IMMEDIATE action that must be performed per ONP 25.2, "Alternate Safe Shutdown Procedure"?

- a. Commence emergency boration to cold shutdown.
- b. Trip two (2) PCPs.
- c. Place the AVG TEMP DISPLAY SELECT SWITCH to "Loop 1".
- d. Verify Buses 1C and 1D energized.

QUESTION: 079 (1.00)

WHICH ONE (1) of the following is controlled from the Cold Shutdown Panel C-33?

- a. Atmospheric steam dump valves
- b. Pressurizer heaters
- c. Main steam isolation valves
- d. Charging and Letdown flow

QUESTION: 080 (1.00)

WHICH ONE (1) of the following conditions represents a loss of primary containment integrity per Technical Specifications 3.6.1, "Containment Integrity" with the unit at 100% power?

- a. During an inspection of the equipment hatch, it is determined that the equipment hatch is not sealed.
- b. During an inspection of the outer containment airlock door it is determined that both seals have failed.
- c. An electrician opens the outer containment airlock door to perform maintenance activities without prior approval.
- d. While performing an operability test of two normally open, redundant containment isolation valves, one of the valves fails to close.

QUESTION: 081 (1.00)

WHICH ONE (1) of the following describes the Reactor Vessel level when the Reactor Vessel Level Monitoring System (RVLMS) indicates RED for all levels?

- a. Completely full.
- b. At or below the top of the fuel.
- c. At or above the vessel flange.
- d. At or above the hot and cold leg nozzles.

QUESTION: 082 (1.00)

WHICH ONE (1) of the following is the Technical Specification basis for the requirement to be shutdown with Tave less than 500 degrees if specific activity of the primary coolant exceeds 1.0 microcurie/gram DOSE EQUIVALENT I-131?

- a. Reduces the dissolution of fission products in the reactor coolant.
- b. Minimizes the temperature related degradation of the CVCS demineralizers while PCS clean-up is in progress.
- c. Reduces the rate of release if a steam generator tube should simultaneously rupture.
- d. Minimizes the iodine spiking phenomena which occurs due to the large change in THERMAL POWER level caused by the unit shutdown.

QUESTION: 083 (1.00)

Given the following:

-A fuel cladding failure has resulted in a Containment High Radiation (CHR) signal isolating containment.

For WHICH ONE (1) of the following valves is the CHR signal allowed to be bypassed so the valve can be reopened?

- a. Primary System Sampling Isolation
- b. Containment Sump Drain Isolation
- c. Steam Generator Blowdown Isolation
- d. Containment Vent Header Isolation

QUESTION: 084 (1.00)

Given the following:

-During Refueling an Auxiliary Operator (AO) had to reposition a locked valve which does NOT have any administrative signoffs.

The repositioning and verification is required to be documented in WHICH ONE (1) of the following logbooks per Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct"?

- a. Primary Side AO Logbook
- b. Reactor Logbook
- c. Control Room Logbook
- d. Fuel Handling Logbook

QUESTION: 085 (1.00)

WHICH ONE (1) of the following responsibilities can the Site Emergency Director (SED) delegate per EIP EI-2.1, "Emergency Actions/Notifications/Responsibilities"?

- a. Requesting Federal assistance.
 - b. Approval of exceeding 10CFR20 dose limits.
 - c. Recommendations regarding protective actions for the public.
 - d. Approving a Site Evacuation.
-

QUESTION: 086 (1.00)

Given the following:

-A "working clearance" is required for performing around-the-clock repairs to Diesel Generator 1-1 using contractor personnel.

WHICH ONE (1) of the following is the preferred assignment of responsibilities as Person in Charge (PIC) and Delegate for the clearance per Administrative Procedure 4.10, "Personnel Protective Tagging"?

- a. A CPCO engineer as PIC and the contractor assistant foreman as Delegate.
- b. The contractor foreman as PIC and the contractor assistant foreman as Delegate.
- c. The contractor foreman as PIC and a CPCO maintenance supervisor as Delegate.
- d. A CPCO engineer as PIC and a CPCO maintenance supervisor as Delegate.

QUESTION: 087 (1.00)

WHICH ONE (1) of the following is the proper location for placing Red Workmans Protection tags associated with PULLED fuses per Administrative Procedure 4.10, "Personnel Protective Tagging"?

- a. On the fuses.
- b. On the fuse receptacle.
- c. On the supply breaker for the fused equipment.
- d. On the control switch for the fused equipment.

QUESTION: 088 (1.00)

WHICH ONE (1) of the following is the proper method for verifying the position of a "LOCKED OPEN" valve?

- a. Without removing the locking device, verify the operator is in the OPEN position as indicated by valve stem.
- b. Remove the locking device and attempt to move the valve operator in the CLOSED direction a small amount; then, return valve to original position.
- c. Without removing the locking device, move the valve operator slightly in the CLOSED direction and then return it to its full OPEN position.
- d. Remove the locking device and attempt to move the valve operator in the OPEN direction; if the operator does not move, the valve is fully OPEN.

QUESTION: 089 (1.00)

WHICH ONE (1) of the following individuals is NOT permitted to operate reactor controls under the supervision of a licensed operator?

- a. An auxiliary operator enrolled in a current license training course to obtain an operator license.
- b. A licensed reactor operator whose license has become inactive per the requirements of 10CFR55.
- c. A licensed reactor operator who recently failed an NRC administered Senior Reactor Operator Upgrade Examination.
- d. A certified senior reactor operator training department instructor whose certification has become inactive.

QUESTION: 090 (1.00)

Given the following:

-A 21 year-old male licensed operator has the following Total Effective Dose Equivalent (TEDE) at the middle of the second quarter:

Current quarterly TEDE - 325 mRem
Current yearly TEDE - 580 mRem

WHICH ONE (1) of the following is the MAXIMUM additional TEDE exposure this operator can receive without exceeding Palisades annual administrative control level?

- a. 3420 mRem
- b. 3675 mRem
- c. 4420 mRem
- d. 4675 mRem

QUESTION: 091 (1.00)

WHICH ONE (1) of the following is the MINIMUM number of eight (8) hour shifts per 10 CFR 55, "Operators' Licenses" that you must actively perform operator functions to maintain a license in an active status?

- a. 5 shifts per calendar quarter.
- b. 5 shifts per calendar year.
- c. 7 shifts per calendar quarter.
- d. 7 shifts per calendar year.

QUESTION: 092 (1.00)

WHICH ONE (1) of the following describes the application of NOTES in Emergency Operating Procedures (EOPs)?

- a. Apply to the entire procedure in which the NOTE is listed.
- b. Apply to the step(s) immediately preceding the NOTE.
- c. Only apply to the immediate action steps of that procedure.
- d. Only apply to the step(s) immediately following the NOTE.

QUESTION: 093 (1.00)

WHICH ONE (1) of the following is the MAXIMUM time allowed to complete the initial accountability of personnel during an emergency?

- a. 15 minutes
- b. 30 minutes
- c. 45 minutes
- d. 60 minutes

QUESTION: 094 (1.00)

Per Administrative Procedure 3.04, "Reporting Requirements", WHICH ONE (1) of the following events would require the EARLIEST notification (time requirement) to the NRC?

- a. A new fuel bundle falls to the floor in the Fuel Building and is destroyed. The person performing the receipt inspection breaks his leg as he avoids the falling fuel bundle.
- b. An unauthorized individual in the protected area has been apprehended by Security personnel while causing equipment damage.
- c. All of the aircraft warning lights on the MET Tower are burned out and have gone unnoticed for 2 shifts.
- d. One hour after assuming the shift it is determined that one of the ROs is intoxicated.

QUESTION: 095 (1.00)

Given the following procedural documents:

1. Emergency Operating Procedures
2. Plant Operating Procedures
3. Site Emergency Plan
4. Technical Specifications
5. Standing Orders

WHICH ONE (1) of the following is the correct hierarchy (highest to lowest priority)?

- a. 1, 2, 3, 4, and 5
- b. 1, 4, 2, 5, and 3
- c. 4, 1, 2, 3, and 5
- d. 4, 5, 1, 2, and 3

QUESTION: 096 (1.00)

Given the following:

- A "Hot Work" permit has been issued for welding in the Auxiliary Building.
- A fire watch has been established for the area involving the welding.

WHICH ONE (1) of the following is the MINIMUM time the fire watch is required to remain in the area following completion of the "Hot Work"?

- a. 30 minutes
- b. 60 minutes
- c. 2 hours
- d. 4 hours

QUESTION: 097 (1.00)

In WHICH ONE (1) of the following procedures may steps NOT be designated N/A or have their sequence altered?

- a. ONP-17, "Loss Of Shutdown Cooling."
- b. SOP -8, "Main Turbine And Generating System."
- c. GOP-3, "Hot Shutdown To Critical In Hot Standby."
- d. MO-38, "Auxiliary Feedwater System Pumps Inservice Test."

QUESTION: 098 (1.00)

It is presently 1445 on Saturday. You are the Shift Supervisor and have to call in a control room operator to replace one of the "C" shift control room operators that called in sick.

WHICH ONE (1) of the following operators should be utilized to fill this vacancy?

- a. Operator "A" who has worked his normal "B" shift and came in at 0600 to relieve an operator early. His turnover time totaled 15 minutes.
- b. Operator "B" who has worked his normal "B" shift and came in at 2345 on Friday to cover for vacation with 30 minutes turnover time.
- c. Operator "C" who worked "A" shift and was relieved at 0805 which included 20 minutes turnover time.
- d. Operator "D" who worked "A" shift and 4 hours over on "B" shift on Friday. He then reported back to work at 1950 on Friday and was relieved at 0805. Total turnover time was 30 minutes.

QUESTION: 099 (1.00)

WHICH ONE (1) of the following circumstances does NOT require the Shift Engineer to notify the Duty and Call Superintendent?

- a. Maintenance Supervisor is contacted for emergency maintenance on back shift due to equipment failure that requires a derate.
- b. Shift staffing is less than allowed by Technical Specifications due to an ill crew member being sent home and the replacement operator will be 1.5 hours late.
- c. Diesel Generator 1-2 fuel oil manual supply valve was isolated due to a crack in the line.
- d. Work being performed by an outside contractor during a plant shutdown has resulted in the job not progressing satisfactorily due to poor interfacing.

QUESTION: 100 (1.00)

WHICH ONE (1) of the following would be considered inappropriate shift conduct per Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct"?

- a. All shift AOs are having lunch outside at the picnic tables.
- b. Control operator (CO-1) is reading "Nuclear News".
- c. An I&C Technician is checking out the DEH controls on C01 panel while drinking a cup of coffee.
- d. Control operator (CO-2) is talking to the Dispatcher while not facing the panels.

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

ANSWER: 001 (1.00)

~~9~~ 9 [+1.0]

REFERENCE:

1. Palisades LER 94-002, "Inadvertent CS Pump Actuation During Performance of TS Surveillance Testing."
2. KA 013000K105 (4.1/4.4)
3. Both RO and SRO

013000K105 .. (KA's)

ANSWER: 002 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASEE, "CRDM and Controls", EO 4.22, p. 31 and T/S 3.10.5, p. 3-60.
2. KA 001000G005 (3.7/4.1)
3. SRO Only

001000G005 .. (KA's)

ANSWER: 003 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASEE, "CRDM and Controls", EO 4.17, p. 28 and ARP 5, Alarm Window #5, "Shutdown rod Position Abnormal", p. 4.
2. KA 001050K401 (3.4/3.8)
3. Facility exam bank question #4958 for LP-ASEE.
4. Both RO and SRO

001050K401 .. (KA's)

ANSWER: 004 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: T/S 3.1.2, p. 3-4.
2. KA 002000A103 (3.7/3.8)
3. Both RO and SRO

002000A103 ..(KA's)

ANSWER: 005 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASEA, "Primary Coolant System", EO 4.12, p. 27.
2. KA 002000A408 (3.4/3.7)
3. Facility exam bank question #155 for LP-ASEA.
4. Both RO and SRO

002000A408 ..(KA's)

ANSWER: 006 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASED, "Primary Coolant Pumps and Motors", EO 4.16, p. 16.
2. KA 003000A201 (3.5/3.9)
3. Both RO and SRO

003000A201 ..(KA's)

ANSWER: 007 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASED, "Primary Coolant Pump and Motors", EO 4.20, and T/S 3.1.1, Basis, p. 3-1d.
2. KA 003000G006 (2.7/3.8)
3. Facility exam bank question #4715 for LP-ASED.
4. SRO Only

003000G006 .. (KA's)

ANSWER: 008 (1.00)

a. [+1.0] *Also accept C
2. 4/6/94*

REFERENCE:

1. Palisades: LP-ISFB, "CVCS", EO 4.3, p. 10.
2. KA 004020A402 (3.7/3.3)
3. Both RO and SRO

004020A402 .. (KA's)

ANSWER: 009 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASFA, "CVCS/Boric Acid Heat Trace", EO 4.9, p. 28 and SOP 2A, "CVCS Charging and Letdown: Concentrated Boric Acid", p. 48.
2. KA 004000K511 (3.6/3.9)
3. Facility exam bank question #533 for LP-ASFA.
4. Both RO and SRO

004000K511 ..(KA's)

ANSWER: 010 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASFA, "CVCS/Boric Acid Heat Trace", EO 4.12, pp. 31-32.
2. Palisades: SOP 2A, "CVCS Charging and Letdown: Concentrated Boric Acid", p. 5.
3. KA 004000K203 (3.3/3.5)
4. Both RO and SRO

004000K203 ..(KA's)

ANSWER: 011 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASCC, "Shutdown Cooling System", EO 4.7 and SOP 3, "Safety Injection and Shutdown Cooling System", Plant Requirements, p. 2.
2. KA 005000K407 (3.2/3.5)
3. Both RO and SRO

005000K407 ..(KA's)

ANSWER: 012 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASAC, "DGs and SD/DBA Sequencers", EO 4.10, and Logic Diagram E-17, Sheet 4.
2. KA 005000A401 (3.6/3.4)
3. Both RO and SRO

005000A401 ..(KA's)

ANSWER: 013 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASHA, "Safety Injection System", EO 4.16, p. 26.
2. KA 006000A303 (4.1/4.1)
3. Both RO and SRO

006000A303 ..(KA's)

ANSWER: 014 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ISGD, "Safety Injection Systems", EO 4.8 and T/S 3.3.1, p. 3-29.
2. Palisades: LP-ASHA, "Safety Injection System", EO 4.18.
3. KA 006000G005 (3.5/4.2)
4. SRO Only

006000G005 ..(KA's)

ANSWER: 015 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASEA, "Primary Coolant System", EO 4.20a and T/S 3.1.1.i, p. 3-1d.
2. KA 010000G005 (3.2/3.8)
3. 1992/09/21 SRO exam question
4. SRO Only

010000G005 .. (KA's)

ANSWER: 016 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASFD, "PZR Level Control", EO 4.7, p. 10 & 12.
2. Palisades: SOP 2A, "CVCS Charging and Letdown: Concentrated Boric Acid", Attachment 3, p. 1.
3. KA 011000K101 (3.6/3.9)
4. Both RO and SRO

011000K101 .. (KA's)

ANSWER: 017 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASGD, "Thermal Margin Monitor", EO 4.3, p. 29-32.
2. KA 012000K501 (3.3/3.8)
3. SRO Only

012000K501 .. (KA's)

ANSWER: 018 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASGD, "Thermal Margin Monitor", EO 4.13, pp. 41-46.
2. KA 012000G007 (3.6/3.6)
3. Facility exam bank question #7862 for LP-ASGD.
4. SRO Only

012000G007 ..(KA's)

ANSWER: 019 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASGC, "Reactor Protection System", EO 4.2.4, p. 13 and FSAR 7.2.7, p. 7.2-14.
2. KA 012000K603 (3.1/3.5)
3. Facility Exam Bank question #7692 for LP-ASGC.
4. SRO Only

012000K603 ..(KA's)

ANSWER: 020 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASHA, "Safety Injection System", EO 4.9 and Logic Diagram E-17, Sheet 5.
2. KA 013000A301 (3.7/3.9)
3. 1990/08/06 RO exam question
4. Both RO and SRO

013000A301 ..(KA's)

ANSWER: 021 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASGA, "Nuclear Instrumentation", EO 4.2M and T/S 3.17, Table 3.17., p. 3-78, and Table 3.17.4, p. 3-81.
2. Palisades: GOP 3, Hot Shutdown To Critical In Hot Standby", Caution, p. 4.
3. KA 015000G005 (3.3/3.8)
4. Both RO and SRO

015000G005 ..(KA's)

ANSWER: 022 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASGA, "Nuclear Instrumentation", EO 4.2g, p. 23.
2. KA 015000K103 (3.1/3.1)
3. Both RO and SRO

015000K103 ..(KA's)

ANSWER: 023 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASEA, "Primary Coolant System", EO 4.12, pp. 26-28.
2. KA 017020K401 (3.4/3.7)
3. Both RO and SRO

017020K401 .. (KA's)

ANSWER: 024 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASHD, "Containment Air Cooling System", EO 4.5, p. 11.
2. KA 022000K402 (3.1/3.4)
3. Both RO and SRO

022000K402 .. (KA's)

ANSWER: 025 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASHC, "Containment Spray System", EO 4.11 & 4.12, pp. 10-11.
2. KA 026000K402 (3.1/3.6)
3. Both RO and SRO

026000K402 .. (KA's)

ANSWER: 026 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASLC, "SGWLC", EO 4.3 and Simulator Malfunctions RX10, RX14 and RX15, pp. 200, 204 & 205.
2. KA 035010A203 (3.4/3.6)
3. Both RO and SRO

035010A203 .. (KA's)

ANSWER: 027 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASJB, "Main Steam", EO 4.15, Student Handout, p. 10 and Main Steam System Description, p. 25.
2. Palisades: LP-ASEA, "Primary System", TP-ASEA-5, 5A and 5B.
3. KA 041020A408 (3.0/3.1)
4. Both RO and SRO

041020A408 .. (KA's)

~~ANSWER: 028 (1.00)~~

*Question deleted. Not enough info. Could be three right answers.
4/18/94*

~~d. [+1.0] *Also accept C*~~

~~*J 4/8/94*~~

REFERENCE:

1. Palisades: LP-ASLC, "SGWLC", EO 4.4, pp. 33, 34 and SH-ASLC, "SGWLC", pp. 13-14 & 22.
2. KA 059000A306 (3.2/3.3)
3. Both RO and SRO

059000A306 .. (KA's)

ANSWER: 029 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASLC, "SGWLC", EO 4.10, pp. 39-41.
2. KA 059000A412 (3.4/3.5)
3. Both RO and SRO

059000A412 ..(KA's)

ANSWER: 030 (1.00)

c [+1.0]

REFERENCE:

1. Palisades: LP-ASLD, "AFW", EO 4.7 and SOP 12, "Feedwater System", p. 5.
2. Palisades: LP-ISIE, "AFW", p. 17 and Logic E-17, sheets 21, 21A & 22.
3. KA 061000A301 (4.2/4.2)
4. Both RO and SRO

061000A301 ..(KA's)

ANSWER: 031 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASLD, "AFW", EO 4.12, p. 47.
2. KA 061000K407 (3.1/3.3)
3. Facility exam bank question #628 for LP-ASLD
4. Both RO and SRO

061000K407 ..(KA's)

ANSWER: 032 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASAB, "Preferred DC, Preferred and Instrument AC", EO 4.6 and ONP 24.3, "Loss of Preferred AC Bus Y30", p. 1.
2. KA 062000K201 (3.3/3.4)
3. Facility exam bank question #5631 for LP-ASAB.
4. SRO Only

062000K201 ..(KA's)

ANSWER: 033 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ASAA, "Electrical Distribution", EO 4.12, p. 26 and SOP 30, "Station Power", Attachment 4, p. 2.
2. KA 062000A401 (3.3/3.1)
3. SRO Only

062000A401 ..(KA's)

ANSWER: 034 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASAC, "DGs and SD/DBA Sequencers", EO 4.6 and 4.7 and Logic Diagrams E-17, Sheets 12 & 13.
2. KA 064000K402 (3.9/4.2)
3. Both RO and SRO

064000K402 ..(KA's)

ANSWER: 035 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASAC, "DGs and SD/DBA Sequencers", EO 4.14 and T/S 3.7.1, 3.7.2, 3.3.2 and 3.0.3.
2. KA 064000G005 (3.4/3.9)
3. SRO Only

064000G005 ..(KA's)

ANSWER: 036 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASDC, "Radiation Monitoring Systems", EO 4.10, p. 45.
2. KA 072000A301 (2.9/3.1)
3. 1992/09/21 RO exam question
4. Both RO and SRO

072000A301 ..(KA's)

ANSWER: 037 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASDC, "Radiation Monitoring Systems", EO 4.4, and SOP 37, "Process Liquid Monitor System", pp. 2-3.
2. KA 073000A402 (3.7/3.7)
3. Facility exam bank question #7727 for LP-ASDC.
4. SRO Only

073000A402 ..(KA's)

ANSWER: 038 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASBC, "Instrument and Service Air System", EO 4.6 and ONP 7.1, Attachment 2 p. 1.
2. KA 078000K302 (3.4/3.6)
3. Both RO and SRO

078000K302 ..(KA's)

ANSWER: 039 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ISDB, "Fire Protection", EO 4.12, p. 14.
2. KA 086000K402 (3.0/3.4)
3. Both RO and SRO

086000K402 ..(KA's)

ANSWER: 040 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASHB, "Containment Building", EO 4.3 and Standing Order 54, section for Containment Systems, p. 7.
2. KA 103000A101 (3.7/4.1)
3. SRO Only

103000A101 ..(KA's)

ANSWER: 041 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAN, "Control System Transients", EO 4.2, pp. 27-28.
2. KA 000001A204 (4.2/4.3)
3. 1990/08/06 SRO exam question
4. Both RO and SRO

000001A204 ..(KA's)

ANSWER: 042 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAN, "Control Systems Transients", Terminal Objective TBANT00.02 and ONP 5.1, "Control Rod Drop", p. 1.
2. KA 000003G010 (3.9/3.8)
3. Both RO and SRO

000003G010 ..(KA's)

ANSWER: 043 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASEE, "CRDM and Controls", EO 4.21, and T/S 3.10.4, p. 3-60.
2. KA 000005A105 (3.4/3.4)
3. Both RO and SRO

000005A105 ..(KA's)

ANSWER: 044 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-TBAB, "EOP 1.0 and EOP 2.0", EO 4.5 and Basis Document for EOP 1.0, p. 9.
2. KA 000007K301 (4.0/4.6)
3. Both RO and SRO

000007K301 ..(KA's)

ANSWER: 045 (1.00)

d.

REFERENCE:

1. Palisades: LP-TBAB, "EOP 1.0 and EOP 2.0", EO 4.1 and EOP 1.0, "Standard Post Trip Actions", step 5, p. 3.
2. KA 000007A202 (4.3/4.6)
3. Both RO and SRO

000007A202 ..(KA's)

ANSWER: 046 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAA, "Introduction/Safety Functions", EO 4.7, p. 10.
2. KA 000009G012 (3.8/3.9)
3. Both RO and SRO

000007G012 ..(KA's)

ANSWER: 047 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAG, "EOP 4.0, Loss of Coolant Accident", EO 4.19, pp. 10 & 29 and LP-TBAG, Student Handout, p. 9.
2. KA 000008A212 (3.4/3.7)
3. 1990/08/06 SRO exam question
4. Both RO and SRO

000008A212 .. (KA's)

ANSWER: 048 (1.00)

b. [+1.0]

REFERENCE:

1. Steam tables/Mollier Diagram
2. KA 000008K101 (3.2/3.7)
3. Both RO and SRO

000008K101 .. (KA's)

ANSWER: 049 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAG, "EOP 4.0, "Loss of Coolant Accident", EO 4.31 and EOP 4.0, "Loss of Coolant Accident Recovery", p. 20.
2. KA 000009A238 (3.9/4.3)
3. Both RO and SRO

000009A238 .. (KA's)

ANSWER: 050 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: "EOP 9.0, Functional Recovery", Step 11, p. 3.
2. KA 000009G012 (4.1/4.3)
3. Both RO and SRO

000009G012 .. (KA's)

ANSWER: 051 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASHC, "Containment Spray System", EO 4.15, p. 18 and EOP 4.0, "Loss of Coolant Accident Recovery", p. 6.
2. KA 000011A208 (3.4/3.9)
3. Both RO and SRO

000011A208 .. (KA's)

~~ANSWER: 052 (1.00)~~

~~d. [+1.0]~~

*Question deleted. No right answer
4/12/94*

REFERENCE:

1. Palisades: LP-ASHA, "Safety Injection System", EO 4.19, p. 18.
2. Palisades: LP-ISKC, "Emergency/Off Normal Operations", p. 9.
3. KA 000011K313 (3.8/4.2)
4. Both RO and SRO

000011K313 .. (KA's)

ANSWER: 053 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASHG, "Critical Functions Monitoring System", EO 4.2, p. 11.
2. KA 000011A117 (3.5/4.1)
3. Both RO and SRO

000011A117 ..(KA's)

ANSWER: 054 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAC, "EOP 8.0, Loss of Forced Circulation", EO 4.5 and "EOP 8.0, Loss of Forced Circulation", p. 6.
2. KA 000015K101 (4.4/4.6)
3. Both RO and SRO

000015K101 ..(KA's)

ANSWER: 055 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASED, "Primary Coolant Pumps and Motors", EO 4.23, p. 26 and ONP 6.2, "Loss of Component Cooling", p. 2.
2. KA 000015A210 (3.7/3.7)
3. Both RO and SRO

000015A210 ..(KA's)

ANSWER: 056 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASFA, "CVCS/Boric Acid Heat Trace", EO 4.16 and SOP 2A, "Chemical And Volume Control System Charging and Letdown; Concentrated Boric Acid", p. 26.
2. KA 000024A110 (3.5/3.4)
3. Both RO and SRO

000024A110 ..(KA's)

ANSWER: 057 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAL, "Radioactive Transients", EO 4.3 and ONP 4.2, "Loss of Containment Integrity", Immediate Actions, p. 1.
2. KA 000024K301 (4.1/4.4)
3. Both RO and SRO

000024K301 ..(KA's)

ANSWER: 058 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAO, "Shutdown Cooling Operations and Loss of Shutdown Cooling", EO 4.1.7 and ONP 17, "Loss of Shutdown Cooling", Attachment 1, p. 5.
2. KA 000025G012 (3.3/3.5)
3. SRO Only

000025G012 ..(KA's)

ANSWER: 059 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAI, "Cooling System Transients", EO 4.7 and ONP 6.2, "Loss of Component Cooling", p. 2.
2. Palisades: LP-ASED, "Primary Coolant Pumps and Motors", EO 4.23, p. 26.
3. KA 000026K303 (4.0/4.2)
4. Both RO and SRO

000026K303 .. (KA's)

ANSWER: 060 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAN, "Control System Transients", EO 4.5 and ONP 18, "Pressurizer Pressure Control Malfunctions", p. 2.
2. Palisades: LP-ASFA, "CVCS/Boric Acid Heat Trace", EO 4.4, p. 18.
3. KA 000027A211 (4.0/4.1)
4. Both RO and SRO

000027A211 .. (KA's)

ANSWER: 061 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASFD, "PZR Level Control", EO 4.8, pp. 16-17 and SOP 1, "Primary Coolant System", pp. 42-43.
2. Palisades: LP-TBAN, "Control System Transients", Terminal Objective TBANTOO.04 and ONP 13, "Tave/Tref Controller Failure", p. 1.
3. Facility exam bank question #7972 for LP-TBAN.
4. KA 000028K203 (2.6/2.9)
5. Both RO and SRO

000028K203 .. (KA's)

ANSWER: 062 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAL, "Radioactive Transients", EO 4.3d and ONP 11.2, "Fuel Handling Accident", Immediate Actions, p. 1.
2. KA 000036G010 (3.7/3.8)
3. 1992/09/21 SRO exam question
4. Both RO and SRO

000036G010 ..(KA's)

ANSWER: 063 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASGA, "Nuclear Instrumentation", EO 4.2M and T/S 3.8.1, pp. 3-46 & 3-47.
2. KA 000032G010 (2.9/3.1)
3. Both RO and SRO

000032G010 ..(KA's)

ANSWER: 064 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAF, "Steam Generator Tube Leak/Rupture", EO 4.5 and ONP 23.2, "Steam Generator Tube Leak", Attachment 2, p. 1.
2. KA 000037A212 (3.3/4.1)
3. Facility exam bank question #4227 for LP-TBAF.
4. SRO Only

000037A212 .. (KA's)

ANSWER: 065 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAF, "Steam Generator Tube Leak/Rupture", EO 4.13, p. 12-13.
2. KA 000038A202 (4.5/4.8)
3. Both RO and SRO

000038A202 .. (KA's)

ANSWER: 066 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAF, "Steam Generator Tube Leak/Rupture", EO 4.15, p. 31 and Basis Document for EOP 5.0, p. 5.
2. KA 000038K306 (4.2/4.5)
3. Both RO and SRO

000038K306 .. (KA's)

ANSWER: ~~067~~ (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-TBAD, "Excess Steam Demand Event", Terminal Objective TBADTOO.06 and EOP-6.0, "Excess Steam Demand Event", Attachments 2 and 3.
2. KA 000040G012 (3.8/4.1)
3. 1990/08/06 SRO exam question
4. SRO Only

000040G012 ..(KA's)

ANSWER: 068 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-TBAD, "Excess Steam Demand Event", EO 4.5 and EOP 6.0, "Excess Steam Demand Event", NOTE, p. 6.
2. KA 000040K304 (4.5/4.7)
3. Both RO and SRO

000040K304 ..(KA's)

ANSWER: 069 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAK, "Secondary System Transients and Acts of Nature", EO 4.3 and ONP 9, "Excessive Load Increase", Immediate Actions, p. 1.
2. KA 000040G010 (4.1/4.2)
3. Both RO and SRO

000040G010 ..(KA's)

ANSWER: 070 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAK, "Secondary System Transients and Acts of Nature", EO 4.3 and ONP 14, "Loss of Condenser Vacuum", p. 1.
2. KA 000051A202 (3.9/4.1)
3. Both RO and SRO

000051A202 ..(KA's)

ANSWER: 071 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-TBAE, "Feedwater Transients", EO 4.7 and Basis Document for EOP 7.0, p. 4.
2. KA 000054K304 (4.4/4.6)
3. Both RO and SRO

000054K304 ..(KA's)

ANSWER: 072 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAR, "Electrical Emergency Recovery", EO 4.2, p. 22 and EOP 3.0, "Electrical Emergency Recovery", Step 42, p. 11.
2. KA 000055G012 (3.9/4.0)
3. Both RO and SRO

000055G012 ... (KA's)

ANSWER: 073 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ISBB, "Diesel Generators", EO 4.7, p. 31.
2. Palisades: LP-TBAS, "ONP 20 Diesel Generators", EO 4.1 and ONP 20, "Diesel Generator Manual Control", p. 1.
3. KA 000056K302 (4.4/4.7)
4. Both RO and SRO

000056K302 .. (KA's)

ANSWER: 074 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAP, "Electrical ONPs - Preferred and Instrument AC Transients", EO 4.4, and ONP 24.2, "Loss of Preferred AC Bus Y20", p. 1.
2. KA 000057A215 (3.8/4.1)
3. Both RO and SRO

000057A215 ... (KA's)

ANSWER: 075 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ASAB, "Preferred DC, Preferred and Instrument AC", EO 4.7, p. 19 and ONP 2.3, "Loss of DC Power", Attachment 2, p. 1.
2. KA 000058A203 (3.5/3.9)
3. Both RO and SRO

000058A203 ..(KA's)

ANSWER: 076 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-TBAB, "Transients, Emergency Prevention And Mitigation", EO 4.1, p. 50.
2. Palisades: LP-TBAP, "Electrical ONPs - Preferred and Instrument AC Transients", EO 4.2.
3. KA 000061A204 (3.1/3.5)
4. 1992/09/21 SRO exam question
5. Both RO and SRO

000061A204 ..(KA's)

ANSWER: 077 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-TBAI, "Cooling Systems Transients", EO 4.5 and ONP 7.1, "Loss of Instrument Air", Immediate Actions, p. 1.
2. KA 000065G010 (3.2/3.3)
3. SRO Only

000065G010 ..(KA's)

ANSWER: ~~078 (1.00)~~ Question deleted. No right answer.
 J 4/6/94
~~d. [+1.0]~~

REFERENCE:

- ~~1. Palisades: LP-TBAM, "ONP 25.1 and ONP 25.2", EO 4.2 and ONP 25.2, "Alternate Safe Shutdown Procedure", Immediate Actions, p. 1.~~
- ~~2. KA 000068G010 (4.1/4.2)~~
- ~~3. Both RO and SRO~~

~~000068G010 ..(KA's)~~

ANSWER: 079 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-TBAM, "ONP 25.1 and ONP 25.2", Terminal Objective TBAMTOO.02 and ONP 25.2, "Alternate Safe Shutdown Procedure", p. 9.
2. KA 000068K201 (3.9/4.0)
3. Both RO and SRO

000068K201 ..(KA's)

ANSWER: 080 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ISGA, "Containment and Containment Integrity", EO 4.3, T/S 1.4 "Miscellaneous Definitions", p. 1-4 and T/S 3.6.1, p. 3-40.
2. KA 000069A201 (3.7/4.3)
3. SRO Only

000069A201 ..(KA's)

ANSWER: 081 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ASEC, "Reactor Vessel and Internals", EO 4.8c, p. 24.
2. KA 000074A101 (4.2/4.4)
3. 1992/09/21 SRO exam question
4. SRO Only

000074A101 .. (KA's)

ANSWER: 082 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ASEA, "Primary Coolant System", EO 4.16 and T/S 3.1.4, Basis, p. 3-18.
2. KA 000076K306 (3.2/3.8)
3. SRO Only

000076K306 .. (KA's)

ANSWER: 083 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-TBAL, "Radioactive Transients", EO 4.1 and ONP 11.1, "Fuel Cladding Failure", Attachment 1, p. 1.
2. Palisades: LP-ASHE, "Containment Hydrogen Analyzers and Recombiners", EO 4.4.
3. KA 000076G006 (3.0/3.3)
4. SRO only

000076G006 ..(KA's)

ANSWER: 084 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.17 and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", pp. 27-29.
2. KA 194001A106 (3.4/3.4)
3. 1990/08/06 exam question
4. Both RO and SRO

194001A106 ..(KA's)

ANSWER: 085 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: SRO JTA 344 110 05.03 and EIP EI-2.1, "Emergency Actions/Notifications/Responsibilities", pp. 2-3.
2. KA 194001A116 (3.1/4.4)
3. 1990/08/06 exam question
4. SRO Only

194001A116 ..(KA's)

ANSWER: 086 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.31 and Administrative Procedure 4.10, "Personnel Protective Tagging", p. 3.
2. KA 194001K102 (3.7/4.1)
3. 1991/03/25 exam question
4. SRO Only

194001K102 ..(KA's)

ANSWER: 087 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: Administrative Procedure 4.10, "Personnel Protective Tagging", section 6.6.5, p. 19.
2. KA 194001K102 (3.7/4.1)
3. Both RO and SRO

194001K102 ..(KA's)

ANSWER: 088 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ISAA, "Procedures, Documents and Manuals", EO 4.10 and Administrative Procedure 4.02, "Control of Equipment", section 7.3.1, pp. 20-21.
2. KA 194001K101 (3.6/3.7)
3. Both RO and SRO

194001K101 ..(KA's)

ANSWER: 089 (1.00)

- d. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.14.
2. 10 CFR 55.13[a] [2]
3. KA 194001A109 (2.7/3.9)
4. Both RO and SRO

194001A109 ..(KA's)

ANSWER: 090 (1.00)

- a. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.38 and Administrative Procedure 7.04, "Radiation Dosimetry", section 6.0, p. 4 and Attachment 1, pp. 1-3.
2. KA 194001K103 (2.8/3.4)
3. SRO Only

194001K103 ..(KA's)

ANSWER: 091 (1.00)

- c. [+1.0]

REFERENCE:

1. Palisades: Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", p. 21.
2. 10 CFR 55.53.e, p. 80.
3. KA 194001A103 (2.5/3.4)
4. SRO Only

194001A103 ..(KA's)

ANSWER: 092 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ISAA, Procedures, Documents and Manuals", EO 4.6 and Administrative Procedure 10.51, "Writer's Guideline for Procedures", section 7.0, p. 6.
2. Palisades: Administrative Procedure 4.06, "EOP Development and Implementation", p. 10.
3. KA 194001A102 (4.1/3.9)
4. Both RO and SRO

194001A102 ..(KA's)

ANSWER: 093 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: SRO JTA 344 110 05 03 and Administrative Procedure EI-12.1, "Personnel Accountability", p. 1.
2. KA 194001A116 (3.1/4.4)
3. SRO Only

194001A116 ..(KA's)

ANSWER: 094 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.68 and Administrative Procedure 3.04, "Reporting Requirements", Attachment 2, p. 14.
2. KA 194001A105 (3.6/3.8)
3. SRO Only

194001A105 ..(KA's)

ANSWER: 095 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.1
2. KA 194001A103 (2.5/3.4)
3. SRO Only

194001A103 ..(KA's)

ANSWER: 096 (1.00)

a. [+1.0]

REFERENCE:

1. Palisades: FPIP-7, "Fire Prevention Activities", p. 17.
2. Palisades: Note: No EO for this question, but this procedure FPIP-6, "Fire Suppression Training", section 8.0, p. 8 describes the training requirements for Fire Brigade personnel.
3. KA 194001K116 (3.5/4.2)
4. Both RO and SRO

194001K116 .. (KA's)

ANSWER: 097 (1.00)

d. [+1.0]

REFERENCE:

1. Palisades: Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", p. 37.
2. KA 194001A102 (4.1/3.9)
3. SRO Only

194001A102 .. (KA's)

ANSWER: 098 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.64 and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", p. 23.
2. KA 194001A103 (2.5/3.4)
3. SRO Only

194001A103 .. (KA's)

ANSWER: 099 (1.00)

b. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.71 and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", Section 5.5.1, p. 39.
2. KA 194001A105 (3.6/3.8)
3. SRO Only

194001A105 ..(KA's)

ANSWER: 100 (1.00)

c. [+1.0]

REFERENCE:

1. Palisades: LP-ADA, "Administrative Training", EO 4.70, p. 37 of Exercise Key for LP-ADA and Administrative Procedure 4.00, "Operations Organization, Responsibilities and Conduct", Section 5.2.1, p. 19.
2. KA 194001A103 (2.5/3.4)
3. Both RO and SRO

194001A103 ..(KA's)

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