

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-483/OL-94-01(DRS)

Docket No. 50-483

License No. NPF-30

Licensee: Union Electric Company
Post Office Box 620
Fulton, MO 65251

Facility Name: Callaway Nuclear Power Plant

Examination Administered At: Steedman, MO

Examination Conducted: Week of February 21, 1994

Chief Examiner:

R. M. Bailey
R. M. Bailey

3/22/94
Date

Approved By:

T. Burdick
T. Burdick, Chief
Operator Licensing Section 2

3/22/94
Date

Examination Summary

Examination administered during the week of February 21, 1994 (Report No. 50-483/OL-94-01[DRS]).

Written examinations and operating tests were administered to eight (8) senior reactor operator applicants. An exit meeting was conducted on February 25, 1994, with plant management.

Results: All eight SRO applicants passed the examinations.

The following is a summary of licensee strengths and weaknesses noted during performance of this examination:

Strengths

- The ability to work effectively as a team during dynamic scenarios.

Weaknesses

- Informal communications used by licensee's staff in support of dynamic scenarios.
- The inability to identify a running/unloaded diesel generator following a loss of AC power to its respective bus.
- The inability to utilize emergency operating procedures to minimize plant deterioration following a loss of all AC power.

Details on strengths and weaknesses are in Section 3.

REPORT DETAILS

1. Examiners

M. Bailey, Chief Examiner, NRC RIII
D. Lane, Examiner, Sonalyst, Inc.
M. Stein, Examiner, Sonalyst, Inc.

2. Persons Contacted

Licensee Representatives

+ J. Blosser, Plant Manager
+ M. Stiller, Manager - Nuclear Safety & Emergency Plan
+ J. Laux, Manager - Quality Assurance
+*G. Czeschin, Superintendent Training
+ G. Hughes, Supervisor - Engineering Nuclear Safety
+ N. Barnett, Shift Supervisor
+*P. Miller, Operating Supervisor
+*R. Moody, Operating Supervisor
+*P. McKenna, Operating Supervisor
+*D. Hopkins, Operating Supervisor
+ M. Henry, QA Engineer
+*J. Dampf, STS - License Training
+*S. Halverson, STS - Simulator

U.S. Nuclear Regulatory Commission (NRC)

+ B. Bartlett, Senior Resident Inspector
+ D. Calhoun, Resident Inspector
+ S. Lee, Inspector

+ Present at the management exit meeting on February 25, 1994

* Present at the training staff exit meeting on February 25, 1994

3. Initial License Training Program Observations

The licensee's training and operations department provided a high level of professional support during the examination validation and administration. This effort ensured a valid and consistent examination process and minimized delays in administration. The licensee's systems approach to training (SAT) program provided highly trained and motivated candidates.

a. Reference Material

The licensee's reference material was adequately bound and labeled. For the most part, the NRC examiners were able to extract the needed information for examination development with some exceptions:

- The licensee's material used by the NRC examiners contained reference to a positive displacement pump (PDP) in the chemical and volume control system. The NRC examiners were

informed during the written examination review process that the PDP had been permanently taken out of service since 1993 with no intention of being used again. The licensee's material contained no reference to this plant modification. This resulted in a rewrite of two questions on the written examination and modification of one scenario set.

b. Written Examination Administration

The licensee's pre-review of the initial written examination was very thorough and considered very valuable in the development of a valid plant specific examination.

The post-exam review of the written examination by the NRC examiners identified the following deficiencies in the candidate's knowledge as evidenced by a majority (50% or more) of the candidates failing to provide the correct response for each particular knowledge area examined. This information is being provided as input to the licensee's SAT process:

- Knowledge of the designated individual(s) allowing locked component's position to be altered.
(SRO-6, K/A:194001K101)
- Knowledge of the input(s) to the control rod drive system's bank overlap unit.
(SRO-11, K/A:001000K203)
- Knowledge of the cause for a rod control urgent failure alarm.
(SRO-17, K/A:001050K401)
- Knowledge of the cause and effect on plant operations following the failure of a loop 1 wide range T-cold LOW.
(SRO-37, K/A:010000K301)
- Knowledge of intermediate range nuclear instrumentation's expected operation and operator actions.
(SRO-53, K/A:015000A202)
- Knowledge of radiation protection measures requiring ALARA review and management approval prior to entry.
(SRO-62, K/A:194001K104)

The licensee's post examination review did not identify any questions needing NRC resolution prior to the final grading. The NRC examiner's post examination review did reveal one question (SRO-28) that needed resolution due to a wrong answer (b) being specified on the answer key. The answer key was changed to reflect the correct answer (c).

c. Operational Examination Administration

During the administration and evaluation of the operational examination, the NRC examiners observed the following strengths and weaknesses regarding the senior reactor operator applicants' performance:

The following strengths were observed:

- The crews performed a shift turnover briefing led by the SRO at the start of each simulator scenario. This crew briefing ensured that all members understood the plant conditions and allowed for resolution of any misunderstandings.
- Majority of the applicants demonstrated a good knowledge level of the plant operating procedures, abnormal procedures and emergency procedures during both the simulator scenarios and job performance measures sections of the examination.
- Majority of the applicants demonstrated good knowledge of and ability to reference the alarm response sheets in response to plant transients during the simulator scenarios.

The following weaknesses were observed:

- During performance of the simulator scenario sets, crew communications was adequate with appropriate feedback to each crew member. Some of the applicants' communications were informal at times but this did not impact the plant evolutions in progress. However, communication feedback from the licensee's staff (i.e. from personnel outside of the control room) was less than formal during plant evolutions directed by the crew. Responses such as "Okay, I'll get it!" and others like this were made in response to directions given by the applicants. This type of informal communication provides negative training and does not reinforce proper communication skills.
- Two of the operating crews demonstrated a weakness in ability to identify a running standby emergency diesel generator (unloaded) following the loss of its respective safety bus.
- One of the operating crews demonstrated a weakness in the emergency operating procedures usage. The procedure in use (ECA-0.0) addresses the restoration of power to either safety (vital) bus. The crew had one safety bus unavailable due to a fault with its respective standby diesel generator running and the other safety bus de-energized with its respective standby diesel generator available but not running. The running diesel engine had no cooling water available due to the loss of service water system. With these initial conditions, the crew decided to attempt to restore power to

the faulted bus using the running diesel generator while dispatching an operator to locally start the nonrunning standby diesel generator. This action resulted in an automatic trip of the running diesel generator on high temperature and a failure to energize the nonfaulted bus for sixteen minutes. The crew would have minimized plant deterioration following a loss of all AC power by attempting to start the idle standby diesel generator from the control room thereby restoring power to one safety bus within a few minutes.

- During performance of one job performance measure, a majority of the applicants demonstrated a knowledge weakness in understanding the cause and effect of a rod control urgent alarm during a reactor startup.

4. Operations Procedural Deficiencies

The following procedural deficiencies were noted during the performance of dynamic simulator scenarios and/or job performance measures:

- Procedure HTP-ZZ-02012, Gaseous Waste Release Permit, in section 1.11 directs the operator to verify start of the wrong fan unit (SGT02 versus SGT01). Procedure OTN-GT-00001, Containment Purge System, in section 4.5.6 directs the operator to start the correct fan unit. The licensee's representative obtained a temporary change notice (TCN No. 94-0091) to correct the error in procedure HTP-ZZ-02012 prior to examination administration.
- Procedure HTP-ZZ-02012, Gaseous Waste Release Permit, in section 1.7 directs the operator to verify marking of both recorders located on panel SP010. However, procedure OTN-GT-00001, Containment Purge System, in section 4.2.5.9 directs the operator to Initial/Date/Time only one of the two recorders located on panel SP010 and record that action in Part III of the release permit (Section 1.7).
- Procedure OTN-NE-00001, Standby Diesel Generation System, in section 5.1.8 (5.2.8) requires the verification of the proper operation of XFMR XNB01 (XNB02) TO BUS NB01 (NB02) SYNC light. However, it is not until section 5.1.9.3 (5.2.9.3) that the operator is directed to adjust output voltage to within 25 volts of incoming voltage, which is required for the SYNC light to function properly.
- Procedure OTN-NB-00001, 4.16 KV Vital Electrical System, section 5.3.12 (5.4.12) and procedure OTN-NE-00001, Standby Diesel Generation System, section 5.1.6 (5.2.6) both contain direction to adjust the frequency of DG NE01 (NE02). However, procedure OTN-NB-00001 is more detailed by specifying the control switch to use and expected actions.
- Emergency procedures ECA-0.1, Loss of All AC Power Recovery without SI Required, Attachment 8 and ES-1.1, SI Termination, Attachment 8

contain identical operator actions for restoration of offsite power. The logical progression of steps 5.a, 5.b and 5.c created confusion among some of the applicants as to the appropriate procedure to use in restoring normal power to a vital bus with its respective diesel generator providing emergency power. Procedures OTN-NB-00001 and OTN-NE-00001 are referenced and contain similar operator actions but assume different initial conditions on the vital bus. Two of the applicants referenced procedure OTN-NB-00001 which was not the appropriate procedure for the initial plant conditions.

These procedural deficiencies are noted due to their safety significance related to public safety and health concerns. No safety violation was noted during the use of these procedures but the potential for operator error does exist based upon incorrect or inappropriate procedural guidance. The licensee's senior management representative stated that an ongoing procedural review process was in place and that the above procedures would be reviewed for accuracy and completeness.

5. Simulator Performance Observations

Simulator performance discrepancies were identified. These discrepancies are noted in Enclosure 3.

6. Exit Meeting

At the conclusion of the site visit, the NRC examiners met with representatives of the plant staff to discuss the results of the examinations. Those attending this meeting are listed in Section 2 of this report. The following items were discussed during the exit meeting:

- Strengths and weaknesses noted in this report.

The general observations relating to the plant procedures deficiencies noted in Section 4.

Enclosure 3

SIMULATION FACILITY REPORT

Facility Licensee: Callaway Nuclear Power Plant

Facility Licensee Docket No. 50-483

Operating Tests Administered On: Week of February 21, 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:

<u>ITEM</u>	<u>DESCRIPTION</u>
1. Plugged Boric Acid Filter	Malfunction CVC-18 states that the Boric Acid filter plugging can be varied between 1 - 100%, however this malfunction would only work at 100%.
2. Emergency Borate Flow Indicator	Emergency Borate Flow Indicator (BG-FI-183A) failed to respond following establishment of a flow path. Boric acid flow was verified through alternative indications. This occurred in only one scenario set, but resulted in a delay of the scenario in progress due to Licensee's staff concern that the RO operating panel had "Locked Up" based upon previous history of similar performance problems.
3. Large Break LOCA Event	Following a Large Break LOCA event and entry into the emergency procedures, the applicants were proceeding through the subsequent operator actions when several meter indications started acting erratically and providing erroneous data. This resulted in early termination of the scenario in progress.

**U. S. NUCLEAR REGULATORY COMMISSION
SITE-SPECIFIC
WRITTEN EXAMINATION**

APPLICANT INFORMATION

Name:	Region: I / II / III / IV / V
Date: February 21, 1994	Facility/Unit: CALLAWAY
License Level: RO / SRO	Reactor Type: W / CE / BW / GE

INSTRUCTIONS

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 percent. Examination papers will be picked up 4 hours after the examination starts.

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

Applicant's Signature

RESULTS

Examination Value	<u>100</u> Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

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.

MULTIPLE CHOICE					068	a	b	c	d	___	
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	e	b	c	d	___
066	a	b	c	d	___	089	a	b	c	d	___
067	a	b	c	d	___	090	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.

MULTIPLE CHOICE

- 091 a b c d ____
- 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)

The reactor makeup system is aligned to supply normal makeup to the RWST.

Which ONE of the following describes the positions of the listed flow control valves?

FCV-110A, Boric acid pump discharge
 FCV-110B, Charging pump suction
 FCV-111A, Makeup pump discharge
 FCV-111B, VCT inlet

	FCV-110A -----	FCV-110B -----	FCV-111A -----	FCV-111B -----
a.	Shut	Open	Shut	Open
b.	Open	Shut	Open	Shut
c.	Shut	Shut	Open	Shut
d.	Open	Open	Shut	Shut

QUESTION: 002 (1.00)

Pressurizer level transmitter LT-459 has failed to the low end of the scale. The control functions have been transferred from LT-459 to the alternate channel LT-461. Which ONE of the following describes the necessary actions to restore letdown?

- a. Open just loop isolation valve LCV-459.
- b. Open just orifice isolation valve HV-8149-CA.
- c. First open loop isolation valve LCV-459 and then open orifice isolation valve HV-8149AA.
- d. First open orifice isolation valve HV-8149BA and then open loop isolation valve LCV-459.

QUESTION: 003 (1.00)

Which ONE of the following will occur upon a decreasing Instrument Air System pressure due to an air dryer control solenoid failure?

- a. The Lag air compressor loads at 117 psig; and all compressors "Fail-Safe" start at 115 psig.
- b. The Standby compressor loads at 117 psig; the Service Air Header Isolation valve KA-PV-11 "Fail-Safe" close at 110 psig.
- c. The Standby air compressor loads at 117 psig; and all compressors will be running at 110 psig.
- d. Service Air header isolation valve KA-PV-11 will close at 117 psig; the Lag air compressor loads at 115 psig.

QUESTION: 004 (1.00)

Which ONE of the following describes what happens if VCT pressure is decreased from 30 psig to 10 psig during RCS heatup in mode 3?

- a. NPSH for CCPs becomes inadequate.
- b. Seal injection flow increases.
- c. Flow to RCP No. 2 seals decreases.
- d. High RCP standpipe level alarm actuates.

QUESTION: 005 (1.00)

Containment isolation valve HV-8105 drifts to the CLOSED position resulting in a loss of normal charging.

Which ONE of the following is the required IMMEDIATE ACTION?

- a. Fully open BG-FCV-121 to maximize charging flow.
- b. Start an idle charging pump.
- c. Close all orifice isolation valves.
- d. Attempt to open HV-8105.

QUESTION: 006 (1.00)

Which ONE of the following allows a designated locked component's position to be altered from that specified in the Locked Component List?

- a. A member of management staff is present during the component's repositioning.
- b. A senior licensed operator is present during the component's repositioning.
- c. Direction of the Rad/Chem Supervisor Radwaste/Environmental (RCSRE) for components outside the Radwaste areas.
- d. Direction of the Shift Supervisor/Control Room Supervisor (SS/CRS) for components within Radwaste areas.

QUESTION: 007 (1.00)

Per Standing Order 93-002, "Guidelines for Improved Communications", which ONE of the following is an acceptable acknowledging response to the directive, "Reactor Operator, start the 'B' charging pump"?

- a. "OK, start the 'B' pump."
- b. "OK, start the pump."
- c. "Start the bravo CCP."
- d. "Start charging pump bravo."

QUESTION: 008 (1.00)

Immediately following a reactor trip without a safety injection the following conditions exist:

- reactor trip breakers open
- reactor bypass breakers open
- NIS power is 4% and decreasing
- control rod H-10 228 steps
- control rod H-6 228 steps

Which ONE of the following identifies the procedure flow path for this situation?

- a. Immediately enter OTO-ZZ-0003, "Response to Loss of Shutdown Margin" and initiate immediate boration per attachment 1.
- b. Immediately enter procedure FR-S.1, "Response To Nuclear Power Generation", and initiate immediate boration per step 4.
- c. Enter procedure E-O, "Rx Trip/SI" and at step 4 go to ES-0.1, "Reactor Trip Response", and initiate immediate boration per step 3.
- d. Enter procedure E-O, "Rx Trip/SI" and at step 1 go to FR-S.1 and initiate immediate boration per step 4.

QUESTION: 009 (1.00)

Four alarm annunciators are associated with decreasing RWST level.

Which ONE of the following also indicates an automatic signal has been sent to switch the RHR suction to the containment sump when an SIS is present?

- a. RWST HI/LO
- b. RWST LEVEL LO-LO-1
- c. RWST LEVEL LO-LO-2
- d. RWST EMPTY

QUESTION: 010 (1.00)

When an SIS is initiated, which ONE of the following describes the operation of the CCP Mini Flow Recirc Valves (HV-8110 and HV-8111)?

- a. Go closed on high BIT flow and go open on low BIT flow.
- b. Go open on high BIT flow and go closed on low BIT flow.
- c. Remain open to provide pump cooling under all conditions.
- d. Remain closed to provide maximum flow through the BIT.

QUESTION: 011 (1.00)

Which ONE of the following provides input to the Control Rod Drive System Bank Overlap Unit when control rod group 1 or 2 is being positioned?

- a. Step Counters
- b. Master Cyclers
- c. P/A Converter
- d. Slave Cyclers

QUESTION: 012 (1.00)

Which ONE of the following is the reason procedure E-0, "Reactor Trip or Safety Injection", step 2 requires the operator to verify the turbine has tripped?

- a. To prevent turbine blades from overheating on low steam pressure to the turbine.
- b. To ensure steam flow is stopped to the turbine and prevent an uncontrolled RCS cooldown.
- c. To prevent an overcurrent condition from occurring due to a reverse power on the generator.
- d. To ensure steam generators do not boil dry in the event of a loss of feedwater accident.

QUESTION: 013 (1.00)

Following a reactor trip and transition to E-1, "Loss of Reactor or Secondary Coolant", an ORANGE path is identified under SUBCRITICALITY.

Which ONE of the following should be performed with regard to implementing FR-S.1, "Response to Nuclear Power Generation"?

- a. Implement FR-S.1 at the discretion of the Shift Supervisor.
- b. Immediately suspend the performance of E-1 and implement FR-S.1.
- c. Continue monitoring status trees, if no RED path is encountered complete E-1 and then implement FR-S.1.
- d. Monitor the remaining status trees, if no RED path is encountered, then implement FR-S.1.

QUESTION: 014 (1.00)

According to rules of usage for procedures (APA-ZZ-00100, "Procedure Requirements"), the word MJST in a step denotes which ONE of the following?

- a. A recommendation imposed by UE management on its employees which should be met unless there is sufficient reason NOT to perform the activity.
- b. Permission to perform activities and is neither a requirement nor a recommendation.
- c. A legally binding requirement to which UE management has committed (e.g. in the FSAR) that is externally auditable by an appropriate regulatory body.
- d. A requirement imposed by UE management on its employees which is in excess of the legally binding requirements of the appropriate regulatory bodies.

QUESTION: 015 (1.00)

FR-S.1, "Response to Nuclear Power Generation", contains a caution that directs the operator to perform steps 5 through 15 of E-0, "Reactor Trip or Safety Injection", in parallel with FR-S.1.

Which ONE of the following is the basis for performing E-0 in parallel with FR-S.1?

- a. Because it is imperative to verify AC power is available for the performance of FR-S.1.
- b. Because it is possible to be in FR-S.1 without having verified safety injection actuation.
- c. To verify containment isolation phase A has been initiated in the event the PRT rupture disk fails.
- d. To ensure a heat sink is available if the ATWS cannot be terminated quickly.

QUESTION: 016 (1.00)

The following plant conditions exist:

- Reactor power: 80%.
- Tave-Tref: -0.2 degrees F.
- Generator output: 925 MWe.
- Control Bank D at 182 steps.
- All systems in AUTOMATIC.

First Stage impulse pressure channel PT-505 fails LOW.

Which ONE of the following describes plant response to this failure and the required IMMEDIATE ACTION?

- a. Continuous rod withdrawal; select the alternate impulse pressure channel.
- b. Continuous rod insertion; select the alternate impulse pressure channel.
- c. Reactor trip; enter E-0, "Reactor Trip or Safety Injection".
- d. Steam dumps actuate; place steam dump interlock switch in OFF/RESET.

QUESTION: 017 (1.00)

The following plant conditions exist:

Reactor Power at 50%.
Control Bank D at 188 steps.
Annunciator 79A ROD CTRL URG FAIL in alarm.
Control rods will NOT move in AUTO or MAN.

I&C investigation has found a blown fuse for the movable gripper coil for rod M12 in Group 2 of Control Bank D.

Which ONE of the following caused the above conditions?

- a. Regulation Failure in power cabinet 2AC.
- b. Multiplexing Error in power cabinet 2AC.
- c. Logic Error in power cabinet 2BD.
- d. Phase Failure in power cabinet 2BD.

QUESTION: 018 (1.00)

Which ONE of the following describes the method of controlling Tave while a dropped rod RETRIEVAL is in progress during at-power operations?

- a. Combination of rod bank movement and dilution/boration.
- b. Adjust the Main Turbine load as necessary.
- c. Moving other rods in the bank.
- d. Borating as necessary.

QUESTION: 019 (1.00)

The unit is being runback from 75% power due to the loss of a feedwater pump. Control Bank D group 1 Rod M-12 position remains at 185 steps. Control Bank D group 2 Rod D-12 position is indicating 150 steps and the bank demand is 135 steps.

Which ONE of the following actions is required?

- a. Trip the reactor and implement E-0, "Reactor Trip or Safety Injection".
- b. Stabilize the plant and perform a Quadrant Power Tilt Ratio calculation.
- c. Direct Reactor Engineering to perform an incore flux map to determine rod position.
- d. Initiate immediate boration.

QUESTION: 020 (1.00)

The reactor is operating at 50% power when turbine load is increased 10% with NO control rod motion or change in boron concentration.

Which ONE of the following is an indication you would EXPECT to receive?

- a. T-REF/T-AUCT HI annunciator.
- b. AUCT T-AVG HI annunciator.
- c. RPI DEV or PR TILT annunciator.
- d. PR UPPER DETECTOR FLUX DEV annunciator.

QUESTION: 021 (1.00)

Which ONE of the following describes the function of the P-6 interlock?

- a. Permits blocking of startup accident protection when 2 of 2 intermediate range NIS exceed $1E-10$ amps.
- b. Permits de-energizing the source range instruments when 1 of 2 intermediate range NIS exceed $1E-10$ amps.
- c. Permits disabling the $1E5$ counts high flux trip and permits deenergizing the source range instruments.
- d. Permits enabling the $1E5$ counts high flux trip below 10% power when the MCB reset buttons are sequentially depressed.

QUESTION: 022 (1.00)

Which ONE of the following will cause a time delay in initiating a S/G low level trip when S/G level drops below 14.8%?

- a. Containment pressure greater than 1.5 psig.
- b. Containment pressure less than 1.5 psig.
- c. Adverse containment and loop delta T less than 10%.
- d. Normal containment and loop delta T less than 20%.

QUESTION: 023 (1.00)

Given the following plant conditions:

Reactor power is 60%

Loop 1 delta-T is off-scale LOW

Loop 1 Tave indication is 612 degrees F

Which ONE of the following RTD failures in loop 1 caused these indications?

- a. One T-hot RTD failed low.
- b. One T-hot RTD failed high.
- c. The T-cold RTD failed low.
- d. The T-cold RTD failed high.

QUESTION: 024 (1.00)

Plant Conditions:

- Reactor power = 100%
- MSIV testing is in progress per OSP-AB-V0001
- Selector switch AB-HS-71 (Exercise Select MN STM/FW Iso Vlv) on panel RL025 is selected to the S/G "D" MSIV (AB-HV-11). The valve is indicating 10% closed.

With the conditions given above, a Main Steam Isolation Signal is received. Which of the following describes the response of valve AB-HV-11?

- a. Fast close along with the other MSIV's.
- b. Remain in its present position until a manual fast close is initiated.
- c. Fast close after the exercise test switch is released and the valve returns to full open.
- d. Fast close after selector switch AB-HS-71 is returned to normal.

QUESTION: 025 (1.00)

The Unit is operating at 100% power. Due to suspected steam generator tube leakage the Shift Supervisor has directed that OSP-BB-00009, "RCS Inventory Balance", be performed. The results indicate an increase of 0.77 gpm from the last RCS Inventory Balance results conducted 1 hour and 20 minutes ago.

Which ONE of the following actions is required in response to these conditions?

- a. Reduce power to 50% and verify 1 CCP operating with 75 gpm letdown flow.
- b. Decrease power at 25% per hour to HOT SHUTDOWN within the next 4 hours.
- c. Reduce the leakage rate to within limits within 4 hours or be in HOT STANDBY within the next 6 hours.
- d. Trip the Reactor and enter E-0, "Reactor Trip or Safety Injection".

QUESTION: 026 (1.00)

E-3, "Steam Generator Tube Rupture", requires the operator to identify the ruptured steam generator.

Which ONE of the following is the most reliable indication for identifying relatively small tube ruptures?

- a. Charging/Letdown mismatch equal to steamflow/feedflow mismatch of ruptured steam generator.
- b. Elevated activity samples on secondary systems associated with the ruptured steam generator.
- c. A significant uncontrolled level increase in ruptured steam generator.
- d. Pressure difference between the ruptured steam generator and other steam generators.

QUESTION: 027 (1.00)

The unit is in the process of ramping to full power at 10% per hour with the following conditions:

- NIS power 80%
- Turbine load 960 MWE
- Tave 580 degrees F
- Pressurizer pressure 2205 psig

Which ONE of the following describes plant status with respect to Technical Specification's limitations?

Pressure is:

- a. less than the required DNB value; no action is required, since cause is due to the power ramp.
- b. less than the required DNB value; the required action is to restore temperature to within the specified limits or reduce thermal power.
- c. above the required DNB value; no action is required.
- d. less than the required DNB value; the required action is to restore pressure to within the specified limits or reduce thermal power.

QUESTION: 028 (1.00)

Steps 3 and 4 of FR-S.1, Response to Nuclear Power Generation/ATWS, require the operator to:

3. "Check all AFW pumps running." If NOT, then manually start the AFW pumps.
4. "Initiate Emergency Boration of the RCS", perform Attachment 1

Which ONE of the following is the reason the above operator actions must be accomplished versus initiating safety injection?

- a. Initiation of SI will compound the problem by charging the RCS system solid, causing pressurizer PORVs and safety valves to lift.
- b. Initiation of SI will add ^a to the loss of heat sink problem and reduce the possible paths for emergency boration.
- c. Prompt operator action ensures an adequate heat sink and the most direct method of boration into the RCS is maintained.
- d. Automatic initiation of SI is preferred but delayed due to auto-initiate setpoint selection, operator action is necessary to anticipate and mitigate the ATWS.

QUESTION: 029 (1.00)

Technical Specifications 3.4.8, "Reactor Coolant System Specific Activity", requires the operator to reduce Tavg to less than 500 degree F if RCS activity limits are exceeded.

Which ONE of the following is the basis for reducing Tavg to less than 500 degrees F?

- a. Limits the site boundary dose rate to a small fraction of the 10 CFR part 100 limit with an assumed 1 gpm steam generator tube leak.
- b. To assure the 2 hour dose at the site boundary does not exceed the 10 CFR part 100 limits.
- c. Minimizes the effects of iodine spiking following any power change.
- d. Minimizes any radioactive release in the event of a steam generator tube rupture.

QUESTION: 030 (1.00)

E-1, "Loss of Reactor or Secondary Coolant", Step 1; "Check if RCPS should be tripped", is a continuous action step.

Which ONE of the following is the basis for continuously monitoring for the criteria to perform this step in response to a small break LOCA?

- a. To minimize RCS inventory loss if the LOCA break size increases.
- b. To minimize RCP damage from cavitation due to operation in a two phase system.
- c. To minimize cooldown rate if a main steam line break is in progress.
- d. To minimize RCS inventory loss and prevent peak centerline temperature (PCT) from exceeding 2200 degrees.

QUESTION: 031 (1.00)

Which ONE of the following is NOT an acceptable practice when defeating a computer input in accordance with ODP-ZZ-00013 "Control Of Computer Input Leads And Deletion Of Computer Points From Scan"?

- a. A computer input that provides control function may be defeated if MANUAL control is established.
- b. A jumpered lead that is out of service for GREATER THAN 30 days is tracked on Attachment 2 "Computer Input Defeat Log Review and Audit Form".
- c. When the input is defeated by jumpering, verification of the defeat is accomplished by calling up a readout for that computer point.
- d. A Work Request condition tag should be placed on the jumpered lead.

QUESTION: 032 (1.00)

Which one of the following describes the type of leakage and the action required by Technical Specifications if a pressurizer PORV is leaking to the PRT at a rate of 1.5 gpm with all other systems operating normally? (Assume no other RCS leakage)

- a. Identified leakage that requires shutdown
- b. Unidentified leakage that requires shutdown
- c. Identified leakage but does not require shutdown
- d. Unidentified leakage but does not require shutdown

QUESTION: 033 (1.00)

During the sequence of actions following a LOCA with adverse containment conditions, containment high temperatures will always cause _____ to indicate HIGHER than actual.

Which ONE of the following correctly completes the above statement?

- a. pressurizer level instruments
- b. core exit thermocouples
- c. RCS pressure instruments
- d. RCS wide range RTDs

QUESTION: 034 (1.00)

The Unit is operating at 100% power when the excess letdown line connection to the RCS loop ruptures resulting in a 1.5 inch diameter RCS leak.

Which ONE of the following actions is the MINIMUM necessary to stabilize RCS pressure and Pressurizer level?

- a. Operate one charging pump with letdown isolated.
- b. Operate two charging pumps with letdown isolated.
- c. Operate all charging pumps with letdown isolated.
- d. Manual initiation of Safety Injection.

QUESTION: 035 (1.00)

The unit is at 100% power steady state conditions. A reactor operator trainee inadvertently changes the Pressurizer Pressure Master Controller setpoint to 2370 psig. Assume a step change in the setpoint and assume that pressurizer pressure control remains in automatic.

Which ONE of the following is the immediate automatic responses of the system?

- a. spray valves close, pressurizer heaters energize.
- b. power operated relief valve PCV-455A opens, spray valves open, pressurizer heaters de-energize.
- c. spray valves open, pressurizer heaters deenergize.
- d. power operated relief valves PCV-455A and PCV-456A open, spray valves open, pressurizer heaters energize.

QUESTION: 036 (1.00)

Which ONE of the following additional requirements is necessary per APA-ZZ-00310, "Workman's Protection Assurance and Caution Tagging", when using a pressure control valve as an isolation boundary.

- a. The workman's work supervisor must be briefed on the hazards of working under the these isolation boundary conditions.
- b. The pressure control valve must be placed in manual and a work assistant must stand by the local valve operator.
- c. Only the work supervisor may authorize the tagging of the pressure control valve.
- d. The work supervisor must be in agreement that this is the only way to provide boundary isolation.

QUESTION: 037 (1.00)

The unit is entering MODE 4 from MODE 3 with the following conditions:

- Pressure is controlling at 425 psig
- All wide range cold leg temperatures 350 degrees
- Cold Overpressure Protection is ARMED

Which ONE of the following describes the plant response to TE413 (loop 1 wide range Tcold) failing LOW?

- a. Only PORV 455A would open.
- b. Only PORV 456A would open.
- c. Both PORV 455A and 456A would open.
- d. Neither PORV 455A nor 456A would open.

QUESTION: 038 (1.00)

The following conditions are present:

- The unit is operating at 85% power.
- Centrifugal charging pump "A" is running.
- Charging flow control valve FCV-121 is AUTO.
- The Positive Displacement charging pump is operating.
- HV-8149B, Letdown Isolation is OPEN.
- HV-8149A and HV-8149C Letdown Isolation valves are SHUT.

Which ONE of the following describes the response of pressurizer level AND reason for this response if instrument air pressure is lost to the CVCS system (consider valve and pump responses)? ASSUME NO OPERATOR ACTION.

- a. Pressurizer level will increase because FCV-121 fails OPEN and HCV-182 fails OPEN.
- b. Pressurizer level will decrease because FCV-121 fails AS-IS and HCV-182 fails SHUT.
- c. Pressurizer level will increase because HCV-182 fails AS-IS and FCV-121 fails SHUT.
- d. Pressurizer level will decrease because HCV-182 fails SHUT and HV-8149A fails AS-IS with FCV-121 failing OPEN.

QUESTION: 039 (1.00)

With the reactor initially operating at 100% power, which one of the following describes the status of the containment cooling system following a small break LOCA which caused containment pressure to increase to 4.5 psig and RCS pressure to equalize at 2020 psig?

- a. ESW flow to containment coolers increases to approximately 2000 gpm.
- b. ESW flow to containment coolers remains at approximately 1000 gpm.
- c. CRDM fans A and C are running in fast speed.
- d. CRDM fans B and D are running in slow speed.

QUESTION: 040 (1.00)

Which ONE of the following is the MINIMUM containment system's pH required to ensure fission product iodine absorption (into solution) following a large break LOCA?

- a. Sump pH of 8.5
- b. Sump pH of 11.5
- c. Spray pH of 8.5
- d. Spray pH of 11.5

QUESTION: 041 (1.00)

Which ONE of the following describes where RCP seal leakoff flow is routed after an inadvertent containment phase "A" isolation (CISA)?

- a. Suction of the charging pumps
- b. Containment sump
- c. VCT
- d. PRT

QUESTION: 042 (1.00)

Plant conditions:

- Power is 45%
- RCP 2 frame vibration has just increased to 7 mils and shaft vibration has just increased to 27 mils.
- Auctioneered high Tav_g is on loop 2.

Which ONE of the following contains the proper actions required to be performed?

- a. Trip the reactor and turbine, then stop the loop 2 RCP and enter E-0, "Reactor Trip or Safety Injection".
- b. Stop the loop 2 RCP and refer to OTG-ZZ-00004, "Power Operations", to shut down the plant.
- c. Stop the loop 2 RCP, then defeat the loop 2 auctioneered Tav_g & delta T circuits and refer to OTG-ZZ-00004.
- d. Trip the reactor and turbine, then enter E-0 and trip the loop 2 RCP as directed.

QUESTION: 043 (1.00)

The following plant conditions exist:

- Reactor startup in progress.
- SRNI N31 reads $2E4$ cps.
- SRNI N32 reads $1.7E4$ cps.
- Both IRNIs read $4E-11$ amps.
- SUR is 0 dpm.
- Control Bank D is at 62 steps.

Which ONE of the following describes the required IMMEDIATE ACTION if N32 channel suddenly fails to ZERO when Control Bank D is again withdrawn?

- a. Continue the startup using N31 as the valid channel/instrument.
- b. Stop rod withdrawal; place N31 Level Trip in BYPASS and continue the startup using the IRNI.
- c. Suspend all reactivity additions and rod motion until the N32 channel has been repaired.
- d. Insert all control banks; recommence the startup after the N32 channel has been repaired.

QUESTION: 044 (1.00)

Which ONE of the following describes why excore nuclear instrumentation must be adjusted as the core ages?

- a. Detector sensitivities decrease.
- b. Radial and axial flux patterns shift.
- c. Fuel temperatures increase.
- d. Fuel pellet/cladding shrink occurs.

QUESTION: 045 (1.00)

Which ONE of the following is an acceptable reason for NOT hanging a "Condition Tag" for an equipment problem?

- a. The problem is within the RCA.
- b. The problem is in an inaccessible area.
- c. The problem is a non-plant equipment failure.
- d. The problem has not been reported to the SS/OS.

QUESTION: 046 (1.00)

The following plant conditions exist:

- NIS power 7%
- Tave 557 degrees F
- Pressurizer pressure 2235 psig
- Turbine speed 600 rpm

Intermediate Range Channel N35 de-energizes due to a loss of its 120 Volt AC Instrument Bus.

Which ONE of the following identifies the implementing procedure flowpath?

- a. Implement OTO-SE-00002, "Intermediate Range Nuclear Failure", and re-energize Channel N35 before exceeding 10% power.
- b. Implement E-O, "Reactor Trip or Safety Injection", and transition to ES-0.1, "Reactor Trip Response" when directed.
- c. Implement OTO-NN-00001, "Loss of Safety Related Instrument Power", and re-energize the instrument bus on the backup power supply before exceeding 10% power.
- d. Implement OTO-SE-00002, "Intermediate Range Nuclear Failure", and continue the startup in accordance with OTG-ZZ-00003, Plant Startup after bypassing the trips on Channel N35.

QUESTION: 047 (1.00)

Which ONE of the following MODES of operation requires at least 3 RCPs OPERABLE and at least 2 RCPs OPERATING per Callaway Technical Specifications?

- a. MODE 1
- b. MODE 2
- c. MODE 3
- d. MODE 4

QUESTION: 048 (1.00)

Which ONE of the following combinations states the parameter inputs for main steamline isolation ESF actuation?

- a. Steam line pressure, Steam pressure rate, and Containment pressure.
- b. Main Steam line flow, Containment pressure, Pressurizer pressure.
- c. Reactor Coolant system flow, Containment pressure, and Pressurizer level.
- d. Steam line pressure, Main Steam line flow, and Pressurizer level.

QUESTION: 049 (1.00)

Component Cooling water pumps PEG01-A and PEG01-C are running, Component Cooling water pumps PEG01-B and PEG01-D breakers are tripped following the receipt of a safety injection signal.

Which ONE of the following describes the expected indications on the System Level Windows for the status panel of ESFAS?

	PEG01-A -----	PEG01-B -----	PEG01-C -----	PEG01-D -----
a.	White	Red	White	Red
b.	Red	Not Lit	Red	Not Lit
c.	Red	White	Red	White
d.	White	Not Lit	White	Not Lit

QUESTION: 050 (1.00)

A SINGLE DRPI is inoperable in Bank D during power operation.

Which ONE of the following actions is required to determine the position of the non-indicating rod?

- a. Use the curve book graph of rod position versus incore thermocouple temperatures.
- b. Use incore detectors to perform a flux map of the core.
- c. Take current measurements from the DRPI coils on the CRDM.
- d. Monitor excore detectors for changes in QPTR.

QUESTION: 051 (1.00)

All shutdown bank control rods are fully withdrawn, and control banks A, B and C are fully withdrawn. All control rods in bank D are suddenly dropped.

Which ONE of the following describes the reason that alarm annunciator 81A, TWO/MORE RODS AT BOTTOM does NOT annunciate?

- a. All shutdown banks are fully withdrawn.
- b. Control bank A is greater than six steps.
- c. Control bank B is greater than six steps.
- d. Control bank C is greater than six steps.

QUESTION: 052 (1.00)

The following readings are noted on the Power Range and Intermediate Range NIS Channels:

N-35 at $5 \times 10E-6$ amps
N-36 at $6 \times 10E-5$ amps
N-41 at 8.5%
N-42 at 9%
N-43 at 8.4%
N-44 at 9%

Which ONE of the following describes the problem indicated by these readings?

- a. N-35 reading low for existing conditions.
- b. N-36 reading high for existing conditions.
- c. N-41 and N-43 reading low for conditions.
- d. N-42 and N-44 reading high for conditions.

QUESTION: 053 (1.00)

The following plant conditions exist:

The unit is being shutdown.

IR channel N-35 has decreased and stabilized at $1.2 \times 10E-11$ amps.

IR channel N-36 has decreased and stabilized at $9.9 \times 10E-9$ amps.

Which ONE of the following describes the probable cause and action to be taken for these conditions?

- a. IR channel N-35 is over compensated; continue with the shutdown and adjust compensation within 1 hour after shutdown.
- b. IR channel N-35 is under compensated; wait 3 minutes and unblock the source range nuclear instruments.
- c. IR channel N-36 is under compensated; continue with the shutdown and adjust compensation within 1 hour after shutdown.
- d. IR channel N-36 is over compensated; wait 3 minutes and unblock the source range nuclear instruments.

QUESTION: 054 (1.00)

A LOCA has occurred, core exit thermocouple temperatures are indicating 690 degrees F and rapidly increasing.

Which ONE of the following is the expected response of the core exit thermocouples if core exit temperature continues to increase. ASSUME NO CORE COOLING IS PRESENT.

- a. The incore thermocouples will indicate lower than actual temperature as temperature core exit exceeds 700 degrees F.
- b. The incore thermocouples will indicate lower than actual temperature as core exit temperature exceeds 1200 degrees F.
- c. The incore thermocouples will become more accurate above 700 degrees F and provide satisfactory indication up to about 1200 degrees F.
- d. The incore thermocouples will become less accurate above 700 degrees F and provide satisfactory indication up to about 2300 degrees F.

QUESTION: 055 (1.00)

Control room operators have been unsuccessful in depressurizing steam generators to atmospheric per FR-C.1, "Response to Inadequate Core Cooling". Core exit thermocouples are 1225 degrees F and increasing.

Which ONE of the following describes the NEXT preferred option to reduce RCS pressure per FR-C.1?

- a. Start all available RCPs as necessary.
- b. Open Pressurizer PORVs and PORV Block valves.
- c. Open Reactor Vessel head vents.
- d. Reinstate Safety Injection using charging and SI pumps.

QUESTION: 056 (1.00)

Which ONE of the following describes the inputs to the MFP speed control system?

- a. Steam flow, feed flow, steam pressure, and no-load flow error setpoint.
- b. Steam pressure, feed flow, total steam flow, and no-load delta-P setpoint.
- c. Steam pressure, feed pressure, total steam flow, and no-load delta-P setpoint.
- d. Steam pressure, feed pressure, total feed flow, and no-load flow error setpoint.

QUESTION: 057 (1.00)

The following conditions exist:

- The unit is operating at 75% power.
- MFP "A" exhaust vacuum is 15.0" HgA.
- One of three (1/3) MFW discharge pressure switches is failed at 1950 psig pressure.
- One of four (1/4) steam generator water level detectors on S/G "B" sense level at 80%.
- MFP "B" bearing oil pressure is 6 psig.

Which ONE of the following actions is required in response to these conditions?

- a. Enter E-0, "Reactor Trip or Safety Injection", and transition to ES-1.1, "SI Termination", at step 27.
- b. Place rod control in automatic and rapidly reduce turbine load to less than 60% per OTO-AE-00001, "Feedwater System Malfunction".
- c. Place MFPVs in manual and restore S/G program level to 50% per OTO-AE-00001, "Feedwater System Malfunction".
- d. Place rod control in manual, initiate immediate boration and start both MDAFW pumps.

QUESTION: 058 (1.00)

Which ONE of the following will result in a total loss of main feed water flow while in Mode 1?

- a. Condenser hotwell level of 4 feet.
- b. Failure of the demineralizer bypass valve AD-HV-28 to open at 50 psid.
- c. The only running condensate pump bearing temperature at 195 degrees F.
- d. Train "A" low pressure feedwater heater shell side level above the HIGH setpoint.

QUESTION: 059 (1.00)

Following an SIS from 30% power, which ONE of the following describes the AFW system response to decreasing CST level?

- a. Automatic shift of motor driven pumps to ESW on low AFW pump suction pressure signal.
- b. Automatic shift of motor driven pumps to ESW on low CST level signal.
- c. Manual shift of motor driven pumps to ESW required upon actuation of MD AUX FEED PUMP TROUBLE annunciator.
- d. Manual shift of motor driven pumps to ESW required upon actuation of AFP SUCT PRESS LOW annunciator.

QUESTION: 060 (1.00)

Which ONE of the following describe the containment atmosphere radiation monitors GT-RE-31 AND GT-RE-32?

- a. Sample containment via the hydrogen control system and are isolated from the containment by a CISA actuation.
- b. Sample upstream of the containment isolation valves for the Hydrogen Control System and are not isolated by a CISA actuation.
- c. Sample between the containment isolation valves on the mini-purge exhaust line and can initiate a CISA actuation.
- d. Sample from the containment purge exhaust line outside containment and can initiate a CISA actuation.

QUESTION: 061 (1.00)

Which ONE of the following is the Total Effective Dose Equivalent (TEDE) wholebody "Administrative Exposure" limit for Union Electric personnel who are radiation workers with a complete exposure history, and NO prior site exposures, imposed by APA-ZZ-01000, "Callaway Plant Health Physics Program"?

- a. 5,000 mrem
- b. 4,500 mrem
- c. 4,000 mrem
- d. 2,000 mrem

QUESTION: 062 (1.00)

Which ONE of the following requires an ALARA review and management approval for entry?

- a. Danger High Radiation Area (DHRA)
- b. Caution High Radiation Area (CHRA)
- c. Very High Radiation Area (VHRA)
- d. Danger High Radiation Area/Radiological Exclusion Area (DREA)

QUESTION: 063 (1.00)

In addition to determining the area, which ONE of the following actions must be performed in response to actuation of alarm annunciator 62A, AREA RAD HIHI?

- a. Direct HP to ensure the affected area is evacuated.
- b. Announce over the plant PA system to evacuate the affected area.
- c. Dispatch an operator to evacuate personnel from the affected area.
- d. Evacuate the entire radiological controlled affected area.

QUESTION: 064 (1.00)

A chemical spill has occurred within the RCA. EIP-ZZ-03010, "Chemical Emergency Response Plan (CERP) Implementing Procedure", has been implemented.

Which ONE of the following organizations is responsible for placing the spill in a "safe" condition?

- a. Health Physics
- b. Chemistry & Radwaste
- c. Fire Brigade
- d. Hazardous Waste Management

QUESTION: 065 (1.00)

Which ONE of the following is the maximum allowable dose at the site boundary that should be received by a person following an inadvertent release from a Radioactive Gas Storage tank?

- a. A whole body dose of 0.002 rem over a one hour period.
- b. A thyroid dose of 0.27 rem over a two hour period.
- c. A thyroid dose of 0.017 rem over a one hour period.
- d. A whole body dose of 0.5 rem over a two hour period.

QUESTION: 066 (1.00)

A radwaste release is in progress, alarm annunciator 61B, PROCESS RAD HI actuates due to a yellow alarm on HB-RE-18, RW BLD DISCH LINE HP-RE-0018 GAMMA DET.

Which ONE of the following lists the IMMEDIATE ACTION required?

- a. Verify HB-FV-866, Radwaste Discharge Isolation, closes and check TRENDS to validate the alarm per approved release permit.
- b. Notify Radwaste and verify implementation of RTA-HB-00115, "Panel HB115 Annunciator Response".
- c. Notify Radwaste and check TRENDS to validate the alarm per approved release permit.
- d. Evaluate the release per EIP-ZZ-00101, "Classification of Emergencies", and refer to APA-ZZ-01003, "Offsite Dose Calculation Manual".

QUESTION: 067 (1.00)

Which ONE of the following requires MANDATORY personnel accountability per EIP-ZZ-00102, "Emergency Implementing Actions"?

- a. A plant radiological incident requiring a 24-hour report to NRC region headquarters.
- b. An Unusual Event declared for a fire.
- c. A Site Area Emergency has been declared.
- d. An Alert has been declared for a radiological incident.

QUESTION: 068 (1.00)

The following plant conditions exists:

- Reactor power 100% steady state
- RCS pressure 2200 psig (slowly decreasing)
- Pressurizer level 50% (decreasing)
- Tave 588 degrees F (stable)
- Charging/letdown lineup CCP "A" running, 75 gpm letdown
- Charging flow 110 gpm
- VCT level 30% (decreasing)
- Containment humidity increasing
- Containment sump levels increasing

Which ONE of the following actions is required for this situation per OTO-BB-00003, "Reactor Coolant System Excessive Leakage"?

- a. Operate one centrifugal charging pump as necessary to maintain pressurizer level.
- b. Isolate the letdown system by closing BG-LCV-459 and 460.
- c. Swap the charging pump suction to the RWST.
- d. Trip the reactor and enter E-0, "Reactor Trip or Safety Injection".

QUESTION: 069 (1.00)

The charcoal filters in the Containment Atmosphere Control System remove which ONE of the following materials?

- a. Radioactive iodine.
- b. Hydrogen gas.
- c. Ultra-fine particulates.
- d. Fission product gas Krypton.

QUESTION: 070 (1.00)

Which ONE of the following is defined as simply a "CONFINED SPACE"?

- a. A tank containing less than 19.5% oxygen by volume.
- b. A tank shaped like an inverted cone.
- c. A space not designed for continuous occupancy.
- d. A space with an atmosphere that is oxygen enriched.

QUESTION: 071 (1.00)

Emergency entries into the Reactor Building WITHOUT pre-entry surveys require which ONE of the following?

- a. Shift Supervisor approval and Self Contained Breathing Apparatus (SCBA's) must be worn by all personnel entering.
- b. Emergency Duty Officer approval and SCBA's must be worn by all personnel entering.
- c. Health Physics Supervisor approval and a minimum of two personnel must be in SCBA's.
- d. Plant Manager approval and a minimum of two personnel must be in SCBA's.

QUESTION: 072 (1.00)

After the Emergency Diesel Generator receives an emergency start signal and is running, electrical protection is limited to which ONE of the following?

- a. Overload overcurrent.
- b. Loss of field.
- c. Reverse power.
- d. Differential overcurrent.

QUESTION: 073 (1.00)

Following a Mode change from Mode 6 to Mode 5 the "B" EDG remains out of service for surveillance testing. (Assume the "A" EDG is OPERABLE.)

Which ONE of the following actions should be taken to update the Equipment Out of Service Log (EOSL)?

- a. Change the "B" EDG status code from 54, Active/Time Tracking Not In Applicable Mode, to a status code 51, Active/Time Tracking.
- b. Change the "B" EDG status code from 54, Active/Time Tracking Not In Applicable Mode, to a status code 50, Active/Not Time Tracking.
- c. Revision to the existing EOSL record is NOT required.
- d. Revise the existing EOSL record to eliminate the previous mode and list the present mode operability requirements.

QUESTION: 074 (1.00)

Which ONE of the following shows that a "Working File" copy of a procedure that has been in use for 80 hours was properly verified?

- a. The procedure copy start date is dated 4 days ago and signed.
- b. The procedure copy is stamped "Working File" and initialed as verified on each shift since the start date.
- c. The procedure copy is stamped "Working File" and signed as verified on each day since the start date.
- d. The procedure copy is marked "CONTROLLED COPY" and dated and signed by the shift supervisor on the start date only.

QUESTION: 075 (1.00)

A loss of off-site power and a steam generator tube rupture has occurred simultaneously with 1% fuel clad failure.

Which ONE of the following will occur as a result of this event?
(Assume ALL appropriate EOP actions are taken.)

- a. A release to the environment will occur from the condenser air removal system when the high-high radiation alarm actuates.
- b. Any radioactive release via the ruptured tubes will be terminated by Blowdown and Sample Process Isolation Signal (BSPIS) when the high-high radiation alarm actuates.
- c. A release to the environment will occur when the Pressurizer PORV is opened by the operator to depressurize the RCS.
- d. A radioactive release to the environment only via the ruptured steam generator relief valves.

QUESTION: 076 (1.00)

Which ONE of the following will result if power is lost to the 125 VDC Bus NK51?

- a. All four MSIVs will drift shut.
- b. A and C MSIVs will drift shut.
- c. A loss of slow close for MSIVs A and C; fast close is still available via the Yellow train.
- d. A loss of slow close for all four MSIVs; fast close is still available via the Yellow train.

QUESTION: 077 (1.00)

Following a loss of all A.C. Power, the operations crew implemented ECA-0.0, "Loss of All AC Power". After the "A" Diesel Generator, NE01, was successfully placed on bus NB01, the STA announced that core exit thermocouples are reading greater than 700 degrees.

Based on this information, which ONE of the following actions should be taken?

- a. Continue on in ECA-0.0 until directed to exit to ECA-0.1, "Loss of All AC Power Recovery Without SI Required", or ECA-0.2, "Loss of All AC Power Recovery With SI Required".
- b. Continue on in ECA-0.0 until completed then, go to FR-C.1, Response to Inadequate Core Cooling.
- c. Immediately exit ECA-0.0 and go to FR-C.2, "Response to Degraded Core Cooling".
- d. Immediately exit ECA-0.0 and go to FR-C.1, "Response to Inadequate Core Cooling".

QUESTION: 078 (1.00)

Immediately following a loss of all off-site AC power, the control board operator reports the loss of AC power to both NB01 and NB02 safeguards busses, one of the reactor trip breakers failed to open (remains closed), reactor power is 1% and decreasing with a negative SUR on the intermediate range instruments.

Which ONE of the following states the IMMEDIATE ACTIONS required in response to these conditions?

- a. Enter E-0, "Reactor Trip or Safety Injection", direct the operator to manually trip the reactor and transition to FR-S.1, "Response to Nuclear Power Generation".
- b. Enter E-0, "Reactor Trip or Safety Injection", dispatch an equipment operator to start an Emergency Diesel Generator locally.
- c. Immediately enter ECA-0.0, "Loss of All AC Power", direct the operator to manually trip the reactor and transition to FR-S.1, "Response to Nuclear Power Generation".
- d. Immediately enter ECA-0.0, "Loss of All AC Power", dispatch an equipment operator to open the reactor trip breaker locally.

QUESTION: 079 (1.00)

Which ONE of the following requires a 1 hour OPERABILITY demonstration per Callaway Technical Specifications?

- a. Three code safeties on a single steam generator are failed in the shut position while operating in Mode 1.
- b. The "A" Emergency Diesel generator day tank level is 385 gallons and cannot be refilled while operating in Mode 4.
- c. All three Auxiliary Feed Water (AFW) pumps out of service while operating in Mode 1.
- d. Reactor coolant is 65 degrees F and Steam generator pressure is 210 psig in any Mode 6.

QUESTION: 080 (1.00)

Which ONE of the following states the function and design operational requirements of the containment Hydrogen Recombiners?

- a. Designed to maintain Hydrogen concentration less than 4% and must be taken out of service before exceeding 6%.
- b. Designed to maintain Hydrogen concentration less than 6% and must be taken out of service before decreasing below 4%.
- c. Will limit Hydrogen concentration to between 4% and 6%, and must be taken out of service before exceeding 6%.
- d. Will limit Hydrogen concentration to between 4% and 6%, and must be taken out of service before decreasing below 4%.

QUESTION: 081 (1.00)

General operating procedure OTG-ZZ-00007, "Refueling Preparation, Performance, and Recovery", contains the following precaution:

"At least one reactor coolant pump should be in service until RCS temperature is less than 160 degrees F."

Which ONE of the following is the basis/reason for this precaution?

- a. To prevent boron precipitation prior to vessel head removal.
- b. To ensure uniform RCS boron concentration.
- c. To prevent RCS temperature stratification.
- d. To prevent developing a large RCS-to-pressurizer delta-T.

QUESTION: 082 (1.00)

Which one of the following explains why loads in excess of 2250 pounds are prevented from being moved over the spent fuel pool?

- a. Ensure an radiation release from dropping a heavy load into the SFP is less than 10% of the total gaseous activity from any single irradiated fuel assembly.
- b. Prevent the SFP Bridge Crane from operating with loads in excess of the monorail or manual hoist ratings.
- c. Ensure that the activity released from the worst case dropped load accident would not exceed that of two fuel assemblies.
- d. Ensures that any possible damage to the storage racks will not result in a critical array.

QUESTION: 083 (1.00)

The unit is operating at 100% power and all systems are in automatic. The selected steam pressure channel for feedwater control fails LOW.

Which ONE of the following describes the system response and the IMMEDIATE ACTION required?

- a. Feed flow will increase then stabilizes at a higher S/G level; the operator must select the alternate steam flow channel.
- b. Feed flow will increase then stabilizes at a higher S/G level; the operator must select the alternate steam pressure channel.
- c. Feed flow will decrease then stabilizes at a lower S/G level; the operator must select the alternate steam pressure channel.
- d. Feed flow will decrease then stabilizes at a lower S/G level; the operator must select the alternate steam flow channel.

QUESTION: 084 (1.00)

The following conditions exist:

- Mode 3
- RCS pressure is 2235 psig
- Tave is 557 degrees F being maintained by the steam dumps.
- All four RCP's running

A complete loss of Condenser Vacuum occurs with NO operator actions, RCS Tave will stabilize at which ONE of the following temperatures?

- a. 550 degrees F.
- b. 557 degrees F.
- c. 561 degrees F.
- d. 564 degrees F.

QUESTION: 085 (1.00)

If a main steam line ruptures inside containment, which ONE of the following sets of coincident signals will initiate a steam line isolation signal?

- a. 2/3 High-2 containment pressure signals coincident with 1/4 signals on low steam line pressure.
- b. 1/3 High-2 containment pressure signals coincident with 2/3 high steam line flow signals.
- c. 1/3 Low steam line pressure signals coincident with 2/3 high steam line differential pressure signals.
- d. 1/4 Low steam line pressure signals coincident with 2/3 high steam line flow signals.

QUESTION: 086 (1.00)

The following conditions exist:

- Reactor tripped due to Main Steam Line Rupture.
- SI has actuated.
- Operators have transitioned to ECA-2.1, "Uncontrolled Depressurization of All Steam Generators".

Which ONE of the following describes a condition under which ECA-2.1 is exited to E-2, "Faulted Steam Generator"?

- a. If any steam generator pressure increases prior to SI termination.
- b. When the feed flow to all steam generators is greater than 100 gpm.
- c. When the RWST level decreases to 25%.
- d. When RCS subcooling based on core exit TC is less than 75 degrees F.

QUESTION: 087 (1.00)

Which ONE of the following describes the interlock function of the RHR-RCS loop suction valves PV-8702A/B and HV-8701A/B as RCS pressure increases from 300 to 400 psig?

- a. At 325 psig in the RCS the 4 loop suction valves CANNOT be closed from the control room.
- b. At 350 psig in the RCS the 4 loop suction valves CAN be opened from the control room.
- c. At 375 psig in the RCS the 4 loop suction valves CANNOT be closed from the control room.
- d. At 400 psig in the RCS the 4 loop suction valves CAN be opened from the control room.

QUESTION: 088 (1.00)

The unit is in Mode 6 with reduced RCS inventory.

Which ONE of the following describes the relationship of RHR pump vortexing versus flow and level?

Vortexing will occur:

- a. at or above the loop low level alarm (BLI-0053, 17 inches) with RHR flow rates below 1700 gpm.
- b. at any RHR flow rate above 1700 gpm with loop level at or below the hot leg centerline.
- c. at any RHR flow rate below the Technical Specification limit of 1000 gpm and loop level below the low level alarm.
- d. at or below the Technical Specification limit of 1000 gpm and below the loop low level limit.

QUESTION: 089 (1.00)

With PRT tank level at normal operating level (approximately 65%), which ONE of the following describes the approximate available volume before the rupture disk is challenged by tank pressure?

- a. 4800 gallons or 600 cubic feet.
- b. 4000 gallons or 500 cubic feet.
- c. 3200 gallons or 400 cubic feet.
- d. 2400 gallons or 300 cubic feet.

QUESTION: 090 (1.00)

The following plant conditions exist:

- Power is 100%
- Normal system lineup with "A" CCP running
- Pressurizer level, (slowly decreasing)
- CCW Surge tank "A" level, (increasing)
- Radiation Monitor EG-RE-9, CCW process radiation monitor, (increasing)

Which ONE of the following components could be a source of in-leakage to the CCW system under the existing conditions?

- a. RCP seal water return heat exchanger.
- b. RHR Heat Exchanger A.
- c. RCP Thermal barrier heat exchanger.
- d. Spent fuel pool cooling heat exchanger.

QUESTION: 091 (1.00)

The IMMEDIATE OPERATOR ACTIONS of procedure OTO-EG-00001, "CCW System Malfunction", direct the operator to ensure all safety loop loads are being supplied by CCW.

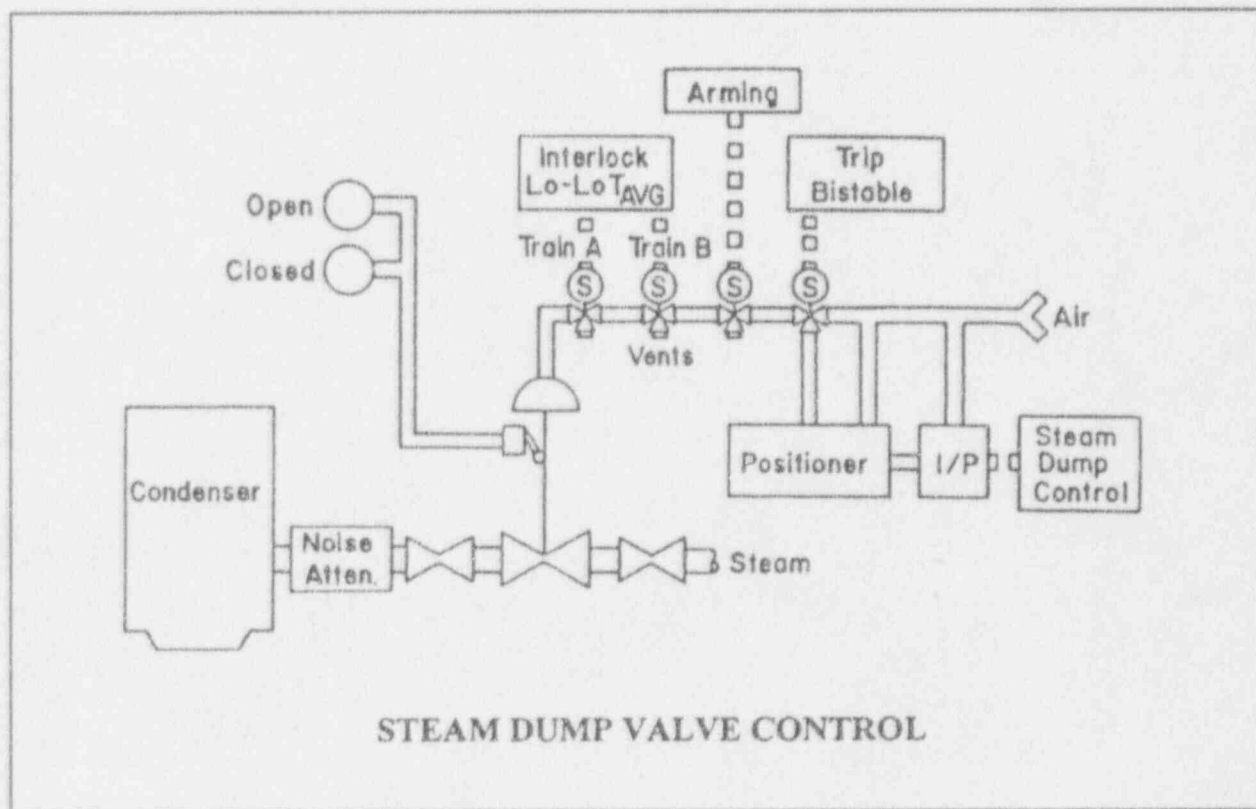
Which ONE of the following is a safety loop load?

- a. RCP thermal barrier cooling coil.
- b. Residual Heat Removal (RHR) heat exchanger.
- c. Catalytic hydrogen recombiners.
- d. Seal water return heat exchanger.

QUESTION: 092 (1.00)

Which ONE of the following describes a function of the steam dump valve control system? STEAM DUMP VALVE CONTROL diagram is included for reference.

- a. The trip bistable solenoid valve de-energizes to port instrument air to the diaphragm, opening the dump valves.
- b. The arming and interlock solenoid valves energize to port instrument air to the diaphragm, allowing the dump valves to open.
- c. The trip bistable solenoid valve energizes to vent instrument air from the diaphragm, closing the dump valves.
- d. The arming and interlock solenoid valves energize to vent instrument air from the diaphragm, opening the dump valves.



QUESTION: 093 (1.00)

The following plant conditions exist:

- Reactor power is 85%
- The auxiliary operator inadvertently trips 1 of 3 running circulating water pump breakers.
- Condenser vacuum begins to decrease slowly.

Which ONE of the following describes the expected automatic action and operator IMMEDIATE ACTION for this event?

- a. An automatic turbine runback; verify all steam dumps to the condenser are shut.
- b. The standby vacuum pump will auto-start at 7 inches Hga.; manually decrease turbine load.
- c. An automatic turbine trip; verify three condenser vacuum pumps are running.
- d. An automatic turbine runback; verify three condenser vacuum pumps are running.

QUESTION: 094 (1.00)

Which ONE of the following instrument failures will result in an uncontrolled control rod group withdrawal accident if rod control is in automatic?

- a. Turbine first stage pressure fails low.
- b. Auctioneered T-Hot control fails high.
- c. Auctioneered T-Avg control fails low.
- d. Power range channel N-43 fails high.

QUESTION: 095 (1.00)

The plant is operating in Mode 1 at 95% power, the wet pipe sprinkler system covering the Cable area above Access Control has been placed out of service for maintenance.

Which ONE of the following actions is required to comply with OPERABILITY requirements of APA-ZZ-00703, "Fire Protection Operability Criteria and Surveillance Requirements", for fire suppression systems?

- a. Within 1 hour place the plant in HOT STANDBY and in HOT SHUTDOWN within the next 6 hours.
- b. Establish a continuous fire watch with backup fire suppression equipment or be in HOT STANDBY within 1 hour.
- c. Establish an hourly fire watch patrol for the Cable area above Access Control.
- d. Within 1 hour initiate action to place the plant in HOT SHUTDOWN within the next 6 hours.

QUESTION: 096 (1.00)

Which ONE of the following is the Shift Supervisor's responsibility per APA-ZZ-00701, "Control of Impairments to Fire Protection Systems and Components"?

- a. Identifying "planned impairments" for which an Fire Protection Impairment Log (FPIL) entry is required.
- b. Identifying "unplanned impairments" to Fire Protection systems/components.
- c. Notifying the Security Shift Supervisor each time an impairment to Fire Protection systems/components occurs.
- d. Notifying American Nuclear Insurers (ANI) of impairments to Fire Protection systems/components.

QUESTION: 097 (1.00)

Which ONE of the following describes how a heat sink is maintained after evacuating the control room due to a control room fire?

- a. MD AFP "B" to S/G "D" and TD AFP to S/G "B".
- b. MD AFP "A" to S/G "B" and TD AFP to S/G "C".
- c. MD AFP "B" to S/G "A" and TD AFP to S/G "C".
- d. MD AFP "A" to S/G "C" and TD AFP to S/G "B".

QUESTION: 098 (1.00)

An event has occurred that requires entry into FR-P.1 because of an Integrity ORANGE path condition.

Under which ONE of the following conditions would the crew exit FR-P.1?

- a. The Integrity path turns GREEN while the crew is performing FR-P.1.
- b. A Containment path turns RED while Integrity path remains ORANGE.
- c. An Inventory path turns ORANGE while Integrity path remains ORANGE.
- d. A Subcriticality path turns YELLOW while Integrity path remains ORANGE.

QUESTION: 099 (1.00)

Which ONE of the following is Union Electric's commitment to on-shift staffing at Callaway?

- a. Shift change may proceed if the shift compliment is no more than 1 less than the minimum shift staffing requirements due to unexpected illness.
- b. On-shift compliment may be one less than minimum shift staffing requirements for a period up to 2 hours due to illness provided immediate action is taken to restore the shift compliment.
- c. Shift change may proceed when only 1 shift member of the minimum shift compliment is no more than 2 hours late for the shift.
- d. On-shift compliment may be one less than minimum due to illness if immediate action is taken to ensure minimum shift staffing requirements are restored prior to the next shift.

QUESTION: 100 (1.00)

Which ONE of the following should be performed by a radio-equipped operator who discovers a suspected explosive or incendiary device in the plant?

- a. Report the device immediately via any means other than the radio; radios should not be used for immediate bomb reports.
- b. Remain in the vicinity of the device and report the device immediately using the radio.
- c. Report the device immediately using the radio; from a location at least 25 feet from the suspected bomb.
- d. Go immediately to the control room or CAS and report the device via face-to-face communications only.

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

ANSWER: 001 (1.00)

b.

REFERENCE:

LP-11, T61.0110.6, CVCS, page 1-62
Objective E

004010A402 [3.6/3.1]

004010A402 ..(KA's)

ANSWER: 002 (1.00)

c.

REFERENCE:

LP-11, T61.0110.6, page 1-8, 1-9
Objective: C

000028A102 [3.4/3.4]

000028A102 ..(KA's)

ANSWER: 003 (1.00)

a.

REFERENCE:

OTO-KA-00001, Rev. 5, page 2
Objective: I.A of LP-B-33

000065G011 [3.4/3.5]

000065G011 ..(KA's)

ANSWER: 004 (1.00)

c.

REFERENCE:

OTN-BG-00004, Rev , page 1, precaution 2.4
OTA-RL-RK042, 42C,
LP11
Objective: F

004000K104 [3.4/3.8]

004000K104 ..(KA's)

ANSWER: 005 (1.00)

d.

REFERENCE:

OTO-BG-00002, page 2
Objective: B of LP-B-22

000022G010 [3.5/3.4]

000022G010 ..(KA's)

ANSWER: 006 (1.00)

d.

REFERENCE:

ODP-ZZ-00004, Rev. 16, page 5
Objective: A.1.a of LP-A-6

194001K101 [3.5/3.7]

194001K101 ..(KA's)

ANSWER: 007 (1.00)

d.

REFERENCE:

Standing Order 93-002, page 2
Objective: None found, LP-A-6

194001A105 [3.6/3.8]

194001A105 ..(KA's)

ANSWER: 008 (1.00)

c.

REFERENCE:

ES-0.1, Reactor Trip Response
LP-6, T61.003D.6, page 1-19
Objective: C
LP-29, T61.003D.6, page 1-31
Objective: B

000024A202 [3.9/4.4]

000024A202 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

LP-13, T61.0110.6, RWST, page 5
Objective: C.

006020A304 [4.2/4.3]

006020A304 ..(KA's)

ANSWER: 010 (1.00)

a.

REFERENCE:

LP-11, T61-0110.6, CVCS, page 1-20
Objective: M

006030K401 [2.7/3.1]

006030K401 ..(KA's)

ANSWER: 011 (1.00)

b.

REFERENCE:

LP-26, T61.0110.6, page 1-31, 1-32
Objective: D

001000K203 [2.7/3.1]

001000K203 ..(KA's)

ANSWER: 012 (1.00)

b.

REFERENCE:

LP-D-4, T61.003D.6, page 1-22
Objective: D

000007K103 [3.7/4.0]

000007K103 ..(KA's)

ANSWER: 013 (1.00)

d.

REFERENCE:

LP-D-1, page 1-46,
Objective: 10

000029G012 [4.1/4.2]

000029G012 ..(KA's)

ANSWER: 014 (1.00)

d.

REFERENCE:

APA-ZZ-00100, Rev. 8, page 1
Objective: C.2 of LP-A-29

194001A102 [4.1/3.9]

194001A102 ..(KA's)

ANSWER: 015 (1.00)

b.

REFERENCE:

LP-D-29, T61.003D.6, page 1-36
Objective: C

000029K312 [4.4/4.7]

000029K312 ..(KA's)

ANSWER: 016 (1.00)

b.

REFERENCE:

OTO-AC-00003, Rev. 0, page 1
Objective: B of B-8

000001G012 [3.7/3.9]

000001G012 ..(KA's)

ANSWER: 017 (1.00)

d.

REFERENCE:

LP-26, T610110.6, page 1-36
Objective: M

001050K401 [3.4/3.8]

001050K401 ..(KA's)

ANSWER: 018 (1.00)

d.

REFERENCE:

OTO-SF-00003, Rev. 4, page 6
LP B-54, OT61.003B.6-54 page 1-1
Objective: LP-54, A

000003K304 [3.8/4.1]

000003K304 ..(KA's)

ANSWER: 019 (1.00)

a.

REFERENCE:

OTO-SF-000004, Rev. 5, page 2
Objective: LP-55, B

000005A104 [3.9/3.9]

000005A104 ..(KA's)

ANSWER: 020 (1.00)

a.

REFERENCE:

OTO-SF-000006, Rev. 2, page 1
Objective: LP B-57, A

000005G005 [3.1/3.3]

000005G005 ..(KA's)

ANSWER: 021 (1.00)

c.

REFERENCE:

LP-27, T61.0110.6, pages 1-18 and 1-30
Objective: E

012000K406 [3.2/3.5]

012000K406 ..(KA's)

ANSWER: 022 (1.00)

d.

REFERENCE:

LP-27, T610110.6, page 1-23
Objective: D

012000K603 [3.1/3.5]

012000K603 ..(KA's)

ANSWER: 023 (1.00)

d.

REFERENCE:

LP-30, T61-0110.6, page 1-3
Objective: B

002020K509 [3.6/3.9]

002020K509 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

LP-49, T61.0110.6, Main Steam Isolation, page 10
Objective:

039000A302 [3.1/3.5]

039000A302 ..(KA's)

ANSWER: 025 (1.00)

c.

REFERENCE:

OTO-BB-00001, Rev. 3, page 3
Technical Specifications 3.4.6.2, Action b.
Objective: I.B of LP-B-14

000037A108 [3.3/3.1]

000037A108 ..(KA's)

ANSWER: 026 (1.00)

b.

REFERENCE:

LP-D-17, T61.003D.6, page 1-40
Objective: I

000038A203 [4.4/4.6]

000038A203 ..(KA's)

ANSWER: 027 (1.00)

d.

REFERENCE:

Technical Specifications 3.2.5, page 3/4 2-13
Objective: J of LP-A-9

000027G008 [3.1/3.6]

000027G008 ..(KA's)

ANSWER: 028 (1.00)

~~B~~: C.

REFERENCE:

LP-D-29, T61.003D.6, page 1-42
Objective: C

000007A204 [4.4/4.6]

000007A204 ..(KA's)

ANSWER: 029 (1.00)

d.

REFERENCE:

Technical Specifications, Bases, page B 3/4 4-5,6
Objective: None found

000076G004 [2.1/3.7]

000076G004 ..(KA's)

ANSWER: 030 (1.00)

d.

REFERENCE:

LP-D-2, T61.003D.6, page 1-3
Objective: A

000011A201 [4.2/4.7]

000011A201 ..(KA's)

ANSWER: 031 (1.00)

a.

REFERENCE:

ODP-ZZ-00013, Rev. 5, page 3
APA-ZZ-00605, Rev. 4, page 5
Objective: C.3 of LP-A-6

194001A115 [3.1/3.4]

194001A115 ..(KA's)

ANSWER: 032 (1.00)

c.

REFERENCE:

Technical Specification 3/4 4.6.2
Objective:

000009A233 [3.3/3.8]

000009A233 ..(KA's)

ANSWER: 033 (1.00)

a.

REFERENCE:

LP-D4, T61.003D.6, page 1-27,
Objective: C

000011A204 [3.7/3.9]

000011A204 ..(KA's)

ANSWER: 034 (1.00)

d.

REFERENCE:

LP-D-8, T61.003D.6, page 1-8
Objective: A

000009A202 [3.5/3.8]

000009A202 ..(KA's)

ANSWER: 035 (1.00)

a.

REFERENCE:

LP-30, T61.0110.6, page 1-26
Objective: J

010000K603 [3.2/3.6]

010000K603 ..(KA's)

ANSWER: 036 (1.00)

d.

REFERENCE:

APA-ZZ-00310, Rev. 9, page 10
Objective: None found

194001K109 [3.4/3.4]

194001K109 ..(KA's)

ANSWER: 037 (1.00)

d.

REFERENCE:

LP-30, T61.0110.6, page 1-28
Objective: J

010000K301 [3.8/3.9]

010000K301 ..(KA's)

ANSWER: 038 (1.00)

a.

REFERENCE:

LP-11, T61.0110.6, pages 1-19, 1-20
Objective: P

011000A102 [3.3/3.5]

011000A102 ..(KA's)

ANSWER: 039 (1.00)

a.

REFERENCE:

LP-40, T61.0110.1, page 26
Objective: D

022000A301 [4.1/4.3]

022000A301 ..(KA's)

ANSWER: 040 (1.00)

a.

REFERENCE:

LP-18, T61.0110.6, page 1-8
Objective: D

026000G006 [2.5/3.8]

026000G006 ..(KA's)

ANSWER: 041 (1.00)

d.

REFERENCE:

LP-11, T61.0110.6, page 1-23
Objective: G, LP-9

003000K103 [3.3/3.6]

003000K103 ..(KA's)

ANSWER: 042 (1.00)

c.

REFERENCE:

OTO-BB-00002, NOTE, Attachment 1, page 1
Objective: LP B-15, A

015000G010 [3.4/3.4]

000015G010 ..(KA's)

ANSWER: 043 (1.00)

d.

REFERENCE:

OTO-SE-00001, page 2
Objective: I.B of LP-B-49

000032A202 [3.6/3.9]

000032A202 ..(KA's)

ANSWER: 044 (1.00)

b.

REFERENCE:

OSP-SE-00004, page 2
Objective: G of LP-28, T61.0110.6

000033A208 [3.3/3.4]

000033A208 ..(KA's)

ANSWER: 045 (1.00)

b.

REFERENCE:

APA-ZZ-00325, Rev. 2, page 7
Objective: None found

194001K102 [3.7/4.1]

194001K102 ..(KA's)

ANSWER: 046 (1.00)

b.

REFERENCE:

LP-D-28, T61.0110.6, pages 20 and 59
Objective: E

000057A219 [4.0/4.3]

000057A219 ..(KA's)

ANSWER: 047 (1.00)

c.

REFERENCE:

LP-9, T61.0110.6, page 1-50
Objective: None Listed

003000G011 [3.2/3.9]

003000G011 ..(KA's)

ANSWER: 048 (1.00)

a.

REFERENCE:

Callaway dwg. 7250D64, sheets 7 & 8
Objective: B.2. of LP-52

013000A403 [4.5/4.7]

013000A403 ..(KA's)

ANSWER: 049 (1.00)

a.

REFERENCE:

LP-52, 18HT61, page 36
Objective: E

013000A302 [4.1/4.2]

013000A302 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

Technical Specifications, 3.1.3.2 ACTION a., page 3/4 1-17.
LP-26, T61.0110.6, page 1-60
Objective: U.

014000A102 [3.2/3.6]

014000A102 ..(KA's)

ANSWER: 051 (1.00)

b.

REFERENCE:

LP-26, T61.0110.6, page 1-58
Objective: T.

014000K406 [3.4/3.7]

014000K406 ..(KA's)

ANSWER: 052 (1.00)

a.

REFERENCE:

LP-28, 25T61, no specific reference.
OTG-ZZ-00005, page 7
Objective: H

015000A303 [3.9/3.9]

015000A303 ..(KA's)

ANSWER: 053 (1.00)

c.

REFERENCE:

LP-28, 25T61, page 52
OTG-ZZ-00005, page 10
Objective: None Listed

015000A202 [3.1/3.5]

015000A202 ..(KA's)

ANSWER: 054 (1.00)

d.

REFERENCE:

LP-29, T61.0110.6, page 1-9
Objective: F

017020K403 [3.1/3.3]

017020K403 ..(KA's)

ANSWER: 055 (1.00)

a.

REFERENCE:

LP-D-25, T61.003D.6, page 1-66
Objective: M

000074K311 [4.0/4.4]

000074K311 ..(KA's)

ANSWER: 056 (1.00)

c.

REFERENCE:

LP-23, T61.0110.6, page 1-27
Objective: E

059000G007 [3.1/3.2]

059000G007 ..(KA's)

ANSWER: 057 (1.00)

b.

REFERENCE:

OTO-AE-00001, page 2
Objective: I.A of LP-B-10

000054A202 [4.1/4.4]

000054A202 ..(KA's)

ANSWER: 058 (1.00)

a.

REFERENCE:

LP-22, T61.0110.6, page 1-12

LP-23, T61.0110.6, page 1-20

Objective: D

059000K416 [3.1/3.2]

059000K416 ..(KA's)

ANSWER: 059 (1.00)

a.

REFERENCE:

LP-25, T61.0110.6/T61.016C.6, page 1-25

Objective: D

061000A104 [3.9/3.9]

061000A104 ..(KA's)

ANSWER: 060 (1.00)

a.

REFERENCE:

LP-40, T61.0110.6, page 43

Objective: K

SNUPPS DWG M-22GS01(Q), CONTAINMENT HYDROGEN CONTROL

072000K102 [3.5/3.9]

072000K102 ..(KA's)

ANSWER: 061 (1.00)

d.

REFERENCE:

APA-ZZ-01000, Rev. 9, Attachment 1, page 1
Objective: B.8 of LP-A-31

194001K103 [2.8/3.4]

194001K103 ..(KA's)

ANSWER: 062 (1.00)

d.

REFERENCE:

APA-ZZ-01000, Rev. 9, page 8
Objective: B of LP-A-31

194001K104 [3.3/3.5]

194001K104 ..(KA's)

ANSWER: 063 (1.00)

b.

REFERENCE:

OTA-RL-RK62, Rev. 3, page 1
Objective: None found

000061A205 [3.5/4.2]

000061A205 ..(KA's)

ANSWER: 064 (1.00)

c.

REFERENCE:

Standing Order 93-018, page 1
Objective: D of LP-A-35

194001K110 [3.0/3.3]

194001K110 ..(KA's)

ANSWER: 065 (1.00)

d.

REFERENCE:

Technical Specification 3.11.2.6 Bases, page 3/4 11-1
Objective: K of LP-16

000060G008 [2.9/3.8]

000060G008 ..(KA's)

ANSWER: 066 (1.00)

c.

REFERENCE:

OTA-SP-RM011, page 30,
OTA-RL-RK061, page 1,
Objective: None found

000059G010 [3.5/3.8]

000059G010 ..(KA's)

ANSWER: 067 (1.00)

c.

REFERENCE:

EIP-ZZ-00102, Rev. 10, page 4
Objective: None found

194001A116 [3.1/4.4]

194001A116 ..(KA's)

ANSWER: 068 (1.00)

a.

REFERENCE:

OTO-BB-00003, RCS Excessive Leakage, page 5.
Objective: B of LP-B-16

011000A203 [3.8/3.9]

011000A203 ..(KA's)

ANSWER: 069 (1.00)

a.

REFERENCE:

LP-40, T61.0110.6, page 32
Objective: E

027000K501 [3.1/3.4]

027000K501 ..(KA's)

ANSWER: 070 (1.00)

c.

REFERENCE:

APA-ZZ-00802, Rev. 5, page 2
Objective: G.2 of LP-A-30

194001K114 [3.3/3.6]

194001K114 ..(KA's)

ANSWER: 071 (1.00)

b.

REFERENCE:

ODP-ZZ-00019, Rev. 4, page 8
Objective: E.4 of LP-A-6

194001K105 [3.1/3.4]

194001K105 ..(KA's)

ANSWER: 072 (1.00)

d.

REFERENCE:

LP-3, T61.016C.6, pages 46 and 58
Objective: None found

064000K203 [3.2/3.6]

064000K203 ..(KA's)

ANSWER: 073 (1.00)

c.

REFERENCE:

ODP-ZZ-00002, Rev. 9, page 13
Objective: B-4 of LP-A-1

194001A106 [3.4/3.4]

194001A106 ..(KA's)

ANSWER: 074 (1.00)

c.

REFERENCE:

ODP-ZZ-00009, Rev. 6, page 6
Objective: B.2 of LP-A-6

194001A101 [3.3/3.4]

194001A101 ..(KA's)

ANSWER: 075 (1.00)

d.

REFERENCE:

LP-D-17, T61.003D.6. page 1-87
Objective: R

000056K302 [4.4/4.7]

000056K302 ..(KA's)

ANSWER: 076 (1.00)

c.

REFERENCE:

LP-49, T61.0110.6, page 1-6
Objective: A

000058A203 [3.5/3.9]

000058A203 ..(KA's)

ANSWER: 077 (1.00)

a.

REFERENCE:

LP-D-22, T61.003D.6, page 1-119 through 1-121
Objective: W

000055G012 [3.9/4.0]

000055G012 ..(KA's)

ANSWER: 078 (1.00)

d.

REFERENCE:

LP-D-22, T61.003D.6, page 1-26
Objective: B

000055K302 [4.3/4.6]

000055K302 ..(KA's)

ANSWER: 079 (1.00)

b.

REFERENCE:

Callaway Tech. Spec. 3/4.8.1, Action b and d., pages 3/4 8-1 & 8-2
Objective: None found

064000G011 [3.4/3.9]

064000G011 ..(KA's)

ANSWER: 080 (1.00)

a.

REFERENCE:

LP-40, T61.0110.6, pages 35 and 49
Objective: H
OTN-GS-00001, Rev. 4, page 1

028000A203 [3.4/4.0]

028000A203 ..(KA's)

ANSWER: 081 (1.00)

c.

REFERENCE:

Control Board Certification, Mod. E, chapter 1, page 1-5
Objective: B

034000K101 [2.5/3.2]

034000K101 ..(KA's)

ANSWER: 082 (1.00)

d.

REFERENCE:

Technical Specifications Bases 3/4.9.7, page E 3/4 9-2
Objective:

000036G004 [2.6/3.8]

000036G004 ..(KA's)

ANSWER: 083 (1.00)

d.

REFERENCE:

OTO-AB-0003, Rev. 4, SG Pressure Channel Failure, page 2
Objective: A & B of LP B-4

NOTE: The correct response may be in error however, OTO-AB-00003,
section 5.2 substantiates choice "d" as the correct answer.

035010A203 [3.4/3.6]

035010A203 ..(KA's)

ANSWER: 084 (1.00)

c.

REFERENCE:

LP-20, T61.0110.6, page 1-20
Objective: F

NOTE: Steam tables should be provided to the candidate as reference material.

039000A105 [3.2/3.3]

039000A105 ..(KA's)

ANSWER: 085 (1.00)

a.

REFERENCE:

LP-49, T61.0110.6, page 1-9
Objective: D.

000040A204 [4.5/4.7]

000040A204 ..(KA's)

ANSWER: 086 (1.00)

a.

REFERENCE:

LP-D-16, T61.003D.6, page 1-47, 1-48
Objective: D

000040K304 [4.5/4.7]

000040K304 ..(KA's)

ANSWER: 087 (1.00)

b.

REFERENCE:

LP-7, T61.0110.6, page 1-12
Objective: B

005000A401 [3.6/3.4]

005000A401 ..(KA's)

ANSWER: 088 (1.00)

b.

REFERENCE:

OTN-BB-00002, page 1 of Attachment 4.
LP-E-1, T61.003E.6, page 1-12
Objective: B of LP-E-1, OTG-ZZ-00007

000025K202 [3.2/3.2]

000025K202 ..(KA's)

ANSWER: 089 (1.00)

a.

REFERENCE:

LP-9, T61.0110.6, page 1-43
Objective: C

007000A205 [3.2/3.6]

007000A205 ..(KA's)

ANSWER: 090 (1.00)

c.

REFERENCE:

OTO-BB-00003, RCS Excessive Leakage, Rev. 5, page 4
LP-10, T61.0110.6, page 1-18
Objective: H of LP-10

008000A104 [3.1/3.2]

008000A104 ..(KA's)

ANSWER: 091 (1.00)

b.

REFERENCE:

OTO-EG-00001, rev. 3, page 2
Objective: B of LP B-29

000026K303 [4.0/4.2]

000026K303 ..(KA's)

ANSWER: 092 (1.00)

b.

REFERENCE:

LP-20, T61.0110.6, page 1-29
Objective: J of LP-20

NOTE: "STEAM DUMP VALVE CONTROL" graphic is to be included for
reference.

041000G007 [2.8/3.0]

041000G007 ..(KA's)

ANSWER: 093 (1.00)

d.

REFERENCE:

OTO-AD-00001, Rev. 3, page 1
Objective: A & B of LP-B-9

000051A202 [3.9/4.1]

000051A202 ..(KA's)

ANSWER: 094 (1.00)

c.

REFERENCE:

LP-26, T61.0110.6, page 1-15
OTO-BB-00004, Rev. 4, page 1
Objective: A of LP B-17

000001A205 [4.4/4.6]

000001A205 ..(KA's)

ANSWER: 095 (1.00)

c.

REFERENCE:

APA-ZZ-00703, Rev. 4, page 1 of Attachment 1 and page 2 of Attachment 3.
Objective: H of LP-35, T61.0110.6

000067A215 [2.9/3.9]

000067A215 ..(KA's)

ANSWER: 096 (1.00)

b.

REFERENCE:

APA-ZZ-00701, Rev. 4, page 5
Objective: B.2 of LP-A-30

194001A110 [2.9/3.9]

194001A110 ..(KA's)

ANSWER: 097 (1.00)

a.

RE. CE:

OTO-ZZ-00001, Control Room Inaccessibility, Attachment 5
Objective:

000068K303 [3.7/4.3]

000068K303 ..(KA's)

ANSWER: 098 (1.00)

b.

REFERENCE:

LP-D-1, T61.0110.6, page 1-26
Objective: B.7

000069G012 [3.5/3.5]

000069G012 ..(KA's)

ANSWER: 099 (1.00)

b.

REFERENCE:

APA-ZZ-00010, Rev. 11, page 21
Objective: B.5.b of LP-A-29

194001A103 [2.5/3.4]

194001A103 ..(KA's)

ANSWER: 100 (1.00)

c.

REFERENCE:

APA-ZZ-01102, Rev. 4, page 5
Objective: None found

194001A104 [3.0/3.2]

194001A104 ..(KA's)

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

A N S W E R K E Y

MULTIPLE CHOICE

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

A N S W E R K E Y

MULTIPLE CHOICE

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

A N S W E R K E Y

MULTIPLE CHOICE

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

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