ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-483
License No.:	NPF-30
Report No.:	50-483/97-301
Licensee:	Union Electric Company
Facility:	Callaway Plant
Location:	Junction Hwy. CC and Hwy. O Fulton, Missouri
Dates:	July 7, 1997
Inspector:	H. Bundy, Chief Examiner, Operations Branch
Approved By:	J. L. Pellet, Chief, Operations Branch Division of Reactor Safety

ATTACHMENTS:

Attachment 1:	Supplemental Information
Attachment 2:	Final Written Examination and Answer Key

EXECUTIVE SUMMARY

Callaway Plant
NRC Inspection Report 50-483/97-301

NRC examiners evaluated the competency of two retake reactor operator license applicants for issuance of operating licenses at the Callaway Plant facility. The licensee developed the initial license examination using NUREG-1021, "Operator Licensing Standards for Power Reactors," Interim Revision 8. The initial written examinations were administered to both applicants on June 27, 1997, by facility proctors in accordance with instructions provided by the chief examiner. The operating tests had been waived for these applicants. Both applicants displayed the requisite knowledge and skills to satisfy the requirements of 10 CFR 55 and were issued reactor operator licenses.

Operations

- Both applicants passed the reactor operator written examination. No broad knowledge or training weaknesses were identified as a result of evaluation of the graded examinations.

- The licensee submitted a satisfactory examination outline which was used for examination development.

- The written examination was acceptable for administration as submitted and of high quality.

Report Details

I. Operations

O4 Operator Knowledge and Performance

O4.1 Initial Written Examination

a. Inspection Scope

On June 27, 1997, the facility licensee proctored the administration of the written examination approved by the chief examiner and NRC Region IV supervision to two individuals who had applied for initial retake reactor operator licenses. The licensee graded the written examinations and the staff reviewed its results. These individuals had previously passed the operating test portion of the examination and it had been waived by Region IV. The licensee also performed a post-examination question analysis, which was reviewed by the chief examiner. This inspection consisted of in-office review and approval of the examination results supplied by the licensee.

b. Observations and Findings

The minimum passing score was 80 percent. The scores for the applicants averaged 81.8 percent. Both applicants missed Questions 23, 42, 53, 61, 62, 72, 87, 95, and 98. Pursuant to the licensee's request, Question 99 was deleted because the proctors inadvertently failed to provide an attached curve, which was necessary to answer the question. Also, pursuant to the licensee's request, Choice C was allowed as a correct answer in addition to Choice D for Question 32. The examinations were regraded based on these determinations. No broad training or knowledge weaknesses were identified. Reasons for missing the valid questions appeared to be related to question difficulty and isolated knowledge weaknesses.

c. Conclusions

Both applicants passed the reactor operator written examination. No broad knowledge or training weaknesses were identified as a result of evaluation of the graded examinations.

O5 Operator Training and Qualification

O5.1 Initial Licensing Examination Development

The facility licensee developed the initial licensing examination in accordance with guidance provided in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Interim Revision 8.

O5.1.1 Examination Outline

a. Inspection Scope

The facility licensee submitted the initial examination outline on May 2, 1997. The chief examiner reviewed the submittal against the requirements of NUREG-1021.

b. Observations and Findings

The initial examination outline was satisfactory as a guide for development of the examination. However, the chief examiner provided several minor enhancement suggestions which were incorporated by the licensee.

c. Conclusions

The licensee submitted a satisfactory examination outline, which was used for examination development.

O5.1.2 Examination Package

a. Inspection Scope

The facility licensee submitted the completed examination package on June 12, 1997. The chief examiner reviewed the submittal against the requirements of NUREG-1021.

b. Observations and Findings

The draft-written examination contained 100 questions, of which 67 were new, 12 were modified licensee examination bank questions, and 21 were directly from the licensee's examination bank. This distribution satisfied NUREG-1021 requirements. The draft examination was responsive to the knowledge and abilities sample plan submitted on May 2, 1997, technically valid, and discriminated at the proper level. It was considered adequate for administration. The questions were generally of high quality. However, the chief examiner provided comments on construction for 8 questions. The comments related to the suitability of question distractors or construction of the question stem. In response to the chief examiner's comments, the licensee revised or replaced these questions.

c. Conclusions

The written examination was acceptable for administration as submitted and of high quality.

V. Management Meetings

X1 Exit Meeting Summary

The chief examiner presented the inspection results to Mr. Czeschin on July 9, 1997, and he acknowledged the findings presented.

Mr. Czeschin did not identify as proprietary any information or materials examined during the inspection.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

F. Biermann, Operating Supervisor, Training
G. Czeschin, Superintendent, Training
R. Moody, Operating Supervisor, Training
R. Neil, Shift Supervisor Operations, Training

NRC

D. Passehl, Senior Resident Inspector

ATTACHMENT 2

FINAL WRITTEN EXAMINATION AND ANSWER KEY

CALLAWAY PLANT

EXAMINATION COVER SHEET

TRAINING DEPARTMENT

COURSE TITLE: RO INITIAL LICENSE EXAMINATION DATE: 6/27/97

NAME (Print): _____ SCORING:

SIGNATURE: _____ Points Possible: ~~100~~ 99

TWO POSSIBLE ANSWERS: C & D ATN 6/30/97 Points Missed: _____

Grade: _____

DIRECTIONS: BLACK OUT CORRECT ANSWERS

1.	■	B	C	D	26.	A	B	C	■	51.	A	■	C	D	76.	■	B	C	D
2.	A	B	C	■	27.	■	B	C	D	52.	A	B	■	D	77.	A	B	■	D
3.	A	■	C	D	28.	A	■	C	D	53.	A	■	C	D	78.	A	■	C	D
4.	A	B	■	D	29.	A	B	C	■	54.	■	B	C	D	79.	A	B	C	■
5.	A	■	C	D	30.	■	B	C	D	55.	A	■	C	D	80.	A	B	■	D
6.	A	B	■	D	31.	A	B	■	D	56.	A	B	C	■	81.	A	B	C	■
7.	■	B	C	D	32.	A	B	■	■	57.	■	B	C	D	82.	A	B	C	■
8.	■	B	C	D	33.	A	■	C	D	58.	A	B	■	D	83.	■	B	C	D
9.	A	B	■	D	34.	A	B	■	D	59.	A	■	C	D	84.	A	■	C	D
10.	A	■	C	D	35.	■	B	C	D	60.	A	■	C	D	85.	A	■	C	D
11.	A	B	C	■	36.	A	B	■	D	61.	A	B	C	■	86.	■	B	C	D
12.	A	B	C	■	37.	A	B	■	D	62.	A	B	C	■	87.	A	B	C	■
13.	A	B	■	D	38.	■	B	C	D	63.	A	B	■	D	88.	■	B	C	D
14.	■	B	C	D	39.	■	B	C	D	64.	A	B	C	■	89.	■	B	C	D
15.	■	B	C	D	40.	A	■	C	D	65.	■	B	C	D	90.	A	■	C	D
16.	A	B	■	D	41.	A	B	■	D	66.	A	■	C	D	91.	A	B	C	■
17.	■	B	C	D	42.	A	B	C	■	67.	A	■	C	D	92.	A	B	■	D
18.	A	■	C	D	43.	■	B	C	D	68.	A	■	C	D	93.	A	B	■	D
19.	A	B	C	■	44.	■	B	C	D	69.	■	B	C	D	94.	A	B	C	■
20.	■	B	C	D	45.	A	B	■	D	70.	A	B	C	■	95.	A	B	■	D
21.	A	B	■	D	46.	A	B	■	D	71.	A	■	C	D	96.	A	B	■	D
22.	A	■	C	D	47.	A	B	C	■	72.	■	B	C	D	97.	■	B	C	D
23.	A	■	C	D	48.	A	■	C	D	73.	A	B	■	D	98.	A	B	C	■
24.	■	B	C	D	49.	■	B	C	D	74.	A	B	■	D	~~99.~~	~~A~~	~~B~~	~~■~~	~~D~~
25.	■	B	C	D	50.	A	B	■	D	75.	A	B	C	■	100.	A	■	C	D

THIS QUESTION DELETED

CALLAWAY PLANT

EXAMINATION COVER SHEET

TRAINING DEPARTMENT

COURSE TITLE: RO INITIAL LICENSE EXAMINATION DATE: _____

NAME (Print): _____ SCORING:

SIGNATURE: _____ Points Possible: 100

Points Missed: _____

Grade: _____

DIRECTIONS: BLACK OUT CORRECT ANSWERS

1	A	B	C	D	26	A	B	C	D	51	A	B	C	D	76	A	B	C	D
2	A	B	C	D	27	A	B	C	D	52	A	B	C	D	77	A	B	C	D
3	A	B	C	D	28	A	B	C	D	53	A	B	C	D	78	A	B	C	D
4	A	B	C	D	29	A	B	C	D	54	A	B	C	D	79	A	B	C	D
5	A	B	C	D	30	A	B	C	D	55	A	B	C	D	80	A	B	C	D
6	A	B	C	D	31	A	B	C	D	56	A	B	C	D	81	A	B	C	D
7	A	B	C	D	32	A	B	C	D	57	A	B	C	D	82	A	B	C	D
8	A	B	C	D	33	A	B	C	D	58	A	B	C	D	83	A	B	C	D
9	A	B	C	D	34	A	B	C	D	59	A	B	C	D	84	A	B	C	D
10	A	B	C	D	35	A	B	C	D	60	A	B	C	D	85	A	B	C	D
11	A	B	C	D	36	A	B	C	D	61	A	B	C	D	86	A	B	C	D
12	A	B	C	D	37	A	B	C	D	62	A	B	C	D	87	A	B	C	D
13	A	B	C	D	38	A	B	C	D	63	A	B	C	D	88	A	B	C	D
14	A	B	C	D	39	A	B	C	D	64	A	B	C	D	89	A	B	C	D
15	A	B	C	D	40	A	B	C	D	65	A	B	C	D	90	A	B	C	D
16	A	B	C	D	41	A	B	C	D	66	A	B	C	D	91	A	B	C	D
17	A	B	C	D	42	A	B	C	D	67	A	B	C	D	92	A	B	C	D
18	A	B	C	D	43	A	B	C	D	68	A	B	C	D	93	A	B	C	D
19	A	B	C	D	44	A	B	C	D	69	A	B	C	D	94	A	B	C	D
20	A	B	C	D	45	A	B	C	D	70	A	B	C	D	95	A	B	C	D
21	A	B	C	D	46	A	B	C	D	71	A	B	C	D	96	A	B	C	D
22	A	B	C	D	47	A	B	C	D	72	A	B	C	D	97	A	B	C	D
23	A	B	C	D	48	A	B	C	D	73	A	B	C	D	98	A	B	C	D
24	A	B	C	D	49	A	B	C	D	74	A	B	C	D	99	A	B	C	D
25	A	B	C	D	50	A	B	C	D	75	A	B	C	D	100	A	B	C	D

QUESTION #1

A Safety Injection has occurred due to a Steam Generator Tube Rupture. The crew has just completed verifying that both NB01 and NB02 are energized per Step 3 of E-0, Reactor Trip or Safety Injection. Which one of the following describes the HVAC flowpath for the Fuel Building at this time?

A. Fuel Building supply and normal exhaust stops; emergency exhaust dampers align to the Aux Building.

B. Fuel Building supply and normal exhaust stops; emergency exhaust dampers align to Fuel and Aux Building.

C. Fuel Building supply keeps running or starts; normal and emergency Fuel Building exhaust isolates.

D. Fuel Building supply and exhaust keeps running or starts; emergency exhaust dampers align to the Fuel Building.

QUESTION #2

The plant is at 100% power, all systems lined up for normal operation with the NCP operating with 120 gpm letdown flow. A complete loss of offsite power occurs without a safety injection signal. All plant systems respond as designed except that 2 rods in the "C" Control Bank are at 200 steps withdrawn.

Which ONE of the below describes the actions that will be performed during the initial response to the above conditions?

A. Manually start either CCP, open suctions from RWST to CCP since immediate boration flow from Boric Acid Transfer Pumps are not available.

B. Ensure NCP is running, open BGHV8104, Emergency Boration to CCP suction, and start either Boric Acid Transfer pump.

C. Ensure either CCP is running, open suctions from RWST to CCP since immediate boration flow from Boric Acid Transfer Pumps are not available.

D. Ensure either CCP is running, open BGHV8104, Emergency Boration to CCP suction, and start either Boric Acid Transfer pump.

QUESTION #3

Plant conditions are as follows:

- Safety Injection occurred on low steam line pressure
- ECA-2.1 Uncontrolled Depressurization of All Steam Generators
- ECA-2.1, Step 2, Control Auxiliary Feed Flow to Minimize RCS Cooldown, has AFW flow at 15,000 lbm/hr to each S/G.

	Level	Pressure
A S/G	20% WR	355 psig stable
B S/G	15% WR	300 psig decreasing
C S/G	15% WR	290 psig decreasing
D S/G	25% WR	355 psig increasing

Which ONE of the following actions should be taken ?

A. Continue with performance of ECA-2.1, Uncontrolled Depressurizaton of All Steam Generators

B. Transition to E-2, Faulted Steam Generator Isolation

C. Transition to FR-H.1, Response to Loss of Secondary Heat Sink

D. Transition to E-0, Reactor Trip or Safety Injection

QUESTION #4

You are the on-duty Reactor Operator. In accordance with plant policy, which one of the following non-licensed individuals may you allow to start the 'A' Safety Injection (SI) Pump from Panel RL017 in the Control Room?

A. Any system engineer authorized by the Shift Supervisor who is performing SI system surveillances.

B. Any assistant equipment operator performing OJT on the SI system who is being monitored by the Control Room Supervisor.

C. Any individual who is in a license training program under my direct observation.

D. Any electrical maintenance supervisor troubleshooting why the SI pump vibration readings are abnormal.

QUESTION #5

The following plant conditions exist:

- Reactor power is 1 x 10E-8 amps
- A reactor startup is in progress
- N-35 Intermediate Range channel fails LOW

Which ONE of the following actions is correct per Technical Specification 3.3.1, "Reactor Trip System Instrumentation"?

A. Restore inoperable channel prior to exceeding P-6.

B. Restore inoperable channel prior to exceeding 5% power.

C. Restore inoperable channel prior to exceeding 10% power.

D. Bypass the inoperable channel and continue with reactor startup.

QUESTION #6

The plant is operating at 100% power with all equipment in its normal lineup. A spurious SI occurs during some I&C testing. All equipment functions as designed.

Which ONE of the following procedures will the CRS transition to upon completing ES-1.1, SI Termination?

A. OTG-ZZ-0001A, Shutdown Bank Withdrawal

B. OTG-ZZ-00002, Reactor Startup

C. OTG-ZZ-00005, Plant Shutdown 20% Power to Hot Standby

D. OTG-ZZ-00006, Plant Cooldown Hot Standby to Cold Shutdown

QUESTION #7

The following plant conditions exist at 0400:

- T avg 557°F
- PZR Press 2235 psig
- Source Range Channel 31 indicates 19 cps
- Source Range Channel 32 indicates 20 cps

The following plant conditions exist at 0409:

- Tavg 556°F
- PZR Press 2240 psig
- Source Range Channel 31 indicates 39 cps
- Source Range Channel 32 indicates 46 cps

Which ONE of the following includes a plant response to the above conditions?

A. The "B" CCP suction valve from the RWST, BNLCV112E, opens.

B. The Containment Evacuation Alarm sounds.

C. The High Flux at Shutdown Alarm sounds.

D. The reactor trip breakers open on high source range counts.

QUESTION #8

Which ONE of the following describes the Flow Control Valves for the Motor Driven Auxiliary Feedwater Pumps?

A. The valves are motor operated and throttle close to limit runout flow under all secondary side pressure conditions.

B. The valves are motor operated and throttle close automatically at high flow rates to limit containment pressure increase caused by a steam line rupture in containment.

C. The valves are air operated and throttle close to limit runout flow under all secondary side pressure conditions.

D. The valves are air operated and throttle close automatically at high flow rates to limit containment pressure increase caused by a steam line rupture in containment.

QUESTION #9

Fuel handling operations are in progress to support refueling. Both Fuel Building Radiation Monitors, GG-RE-27 and GG-RE-28 alarm, resulting in a Fuel Building Ventilation Isolation Signal (FBVIS). Which of the following would be the correct immediate actions to be taken in response to this event?

A. Store any fuel assembly in transfer in a safe location.
Ensure at least one personnel airlock door is closed.
Ensure the Fuel Building roll-up door is closed.

B. Evaluate the need to evacuate the Fuel Building.
Ensure at least one personnel airlock door is closed.
Ensure the Fuel Building roll-up door is closed.

C. Evaluate the need to evacuate the Fuel Building.
Store any fuel assembly in transfer in a safe location.
Ensure at least one personnel airlock door is closed.

D. Evaluate the need to evacuate the Fuel Building.
Store any fuel assembly in transfer in a safe location.
Ensure the Fuel Building roll-up door is closed.

QUESTION #10

The crew is responding to a plant transient and are currently in procedure ECA-1.2, "LOCA Outside Containment".

Why should operators wait some amount of time during each valve repositioning per this procedure?

A. Prevents overcurrent trips on valve motor breakers.

B. Allows system pressure to respond to repositioning.

C. Prevent valve motor overheating due to excessive operation.

D. To allow check on indications of leak in auxiliary building.

QUESTION #11

RCS activity is 50 microcuries per gram dose equivalent I-131.

Which ONE of the following is the Chemistry sampling requirements per OTO-BB-00005?

A. Normal 3 day sample requirements are necessary.

B. Once per day until activity decreases for 3 consecutive days.

C. Once per hour until activity decreases less than Tech Spec limit.

D. Once per two hours until activity decreases on 3 consecutive samples.

QUESTION #12

Which one of the following instructional communications between the Reactor Operator and the Primary Operator would be in accordance with the Callaway Plant Policy on verbal communications?

A. Open the CCW heat exchanger A tube side drain, EGV0021.

B. Open the CCW heat exchanger alpha tube side drain, EGV0021.

C. Primary Operator, open the CCW heat exchanger A tube side drain, EGV0021.

D. Primary Operator, open the CCW heat exchanger alpha tube side drain, EGV0021.

QUESTION #13

The plant is operating at 100% Power. An inadvertent Safety Injection occurs when an I&C technician is performing a surveillance. WHICH ONE of the following will open and remain open until recovery from the SI is commenced?

A. RCP DISCH PZR SPRY LINE ISO PCV, BBPCV0455B and BBPCV0455C.

B. CVCS REGEN HX TO PZR AUX SPRAY ISO HV, BGHV8145.

C. CVCS REGEN HX TO LOOP 4 COLD LEG ISO HV, BGHV8147.

D. CVCS LTDN ORIFICE B OUT ISO HV, BGHV8149B.

QUESTION #14

Which ONE of the following describes the containment atmosphere radiation monitors GT-RE-31 and GT-RE-32?

A. They sample containment via the hydrogen control system and are isolated from containment by a CIS A actuation.

B. They sample upstream of the containment isolation valves for the hydrogen control system and are NOT isolated by a CIS A actuation.

C. They sample between the containment isolation valves on the mini purge exhaust line and initiate a CPIS on high high activity.

D. They sample from the containment purge exhaust line outside containment and initiate a CPIS on high high activity.

QUESTION #15

A loss of condenser vacuum is occurring due to unknown reasons, and power has been reduced from 100% to 75% over the last 5 minutes.

The following conditions exist:

- Auct High Tavg 593°F
- Reactor / Turbine Power 75% / 775 Mwe
- LP 'A' Condenser Pressure 5.8 Hga
- LP 'B' Condenser Pressure 6.2 Hga
- LP 'C' Condenser Pressure 6.5 Hga

Which one of the below describes the expected operation of the condenser steam dumps with these conditions:

A. Less than 12 steam dumps are available and all available dumps are FULLY OPEN.

B. ALL 12 condenser steam dumps are available and all are FULLY OPEN.

C. Less than 12 steam dumps are available and all available dumps are PARTIALLY OPEN.

D. Less than 12 steam dumps are available and all are CLOSED.

QUESTION #16

The plant is at 8% power preparing to synchronize the main generator to the grid when the running main feed pump trips. As the Balance of Plant operator you observe the following steam generator narrow range levels:

A indicates 16%
B indicates 15%
C indicates 14%
D indicates 17%

All other plant parameters are normal.

Which one of the following correctly describes the status of the Auxiliary Feedwater (AFW) System?

A. No AFW pumps are running

B. Only the turbine driven AFW pump is running

C. Only the motor driven AFW pumps are running

D. All the AFW pumps are running

QUESTION #17

The following conditions exist:

- PRZR Relief Tank Level Hi/Lo -- ALARMING on HIGH LEVEL
- PRZR Relief Tank Pressure -- ALARMING on HIGH PRESSURE

Which ONE of the below combinations contain sources, ALL of which should be monitored for leakage into the PRT?

A. RHR Pump Suction Reliefs (EJ8708A/B), RCP Seal Leakoff Relief (BG8121), and CVCS Letdown Relief (BG8117).

B. ECCS Accumulator Reliefs (8855A-D), RHR Pump Suction Relief (EJ8708A/B), and CVCS Letdown Relief (BG8117).

C. RCP Seal Leakoff Relief (BG8121), CVCS Letdown Relief (BG8117) and RHR Discharge Reliefs (EJ8856A/B).

D. Safety Injection Pump Suction Reliefs (EM8858A), RHR Pump Suction Reliefs (EJ8708A/B), and RCP Seal Leakoff Relief (BG8121).

QUESTION #18

Per ODP-ZZ-00310, WPA Tagging, which one of the following situations would require that a new tagout be generated?

A. Tags need to be removed to perform rotation checks following maintenance.

B. There is a need for a sixth partial on an existing tagout.

C. Monthly audit identifies missing tags on an existing tagout.

D. Additional tags are needed after maintenance has been started on a component.

QUESTION #19

The electric fire pump has started due to a rupture in the main fire header going into the Radwaste Building. When can the pump be secured and returned to standby?

A. Any'ime from Panel KC008 in the main control room.

B. Anytime from the local control panel.

C. From Panel KC008 in the main control room after system pressure has been restored.

D. From the local control panel after system pressure has been restored.

QUESTION #20

Callaway Plant is in Mode 4. "B" RHR is in service. A plant cooldown is in progress. The Reactor Operator is directed to stop the cooldown. EGHV102, "B" CCW to "B" RHR heat exchanger is CLOSED.

Which ONE of the following events occur?

A. "B" CCW flashes in the "B" RHR heat exchanger causing the "B" CCW surge tank level to increase.

B. "B" ESW flashes in the "B" CCW heat exchanger causing water hammer in the "B" ESW.

C. "B" RHR flashes in the "B" RHR heat exchanger causing the "B" RHR suction relief to lift.

D. "B" ESW flashes in the "B" CCW heat exchanger causing the heat exchanger tube side relief valve to lift.

QUESTION #21

Plant conditions are as follows:

- Mode 1
- 100% Reactor Power
- All required Tech Spec and FSAR equipment is operable.
- An inadvertent CSAS occurs.

Which ONE of the following sets of valves will OPEN due to the CSAS?

A. RWST Isolation Valves, BNHV3 and BNHV4.

B. Containment Sump Isolation Valves ENHV1 and ENHV7.

C. Containment Spray Pump Discharge Valves ENHV6 and ENHV12.

D. Containment Spray Add Eductor Outlet Valves ENV5 and ENV11.

QUESTION #22

The plant is operating at 100% power. The controlling PZR pressure transmitter, PT-455, fails high. As a result of this failure, HOW will the following PZR components initially respond? (Select ONE of the following)

	PZR PORV's	SPRAY VALVES	PZR B/U HEATERS
A.	Both will OPEN	Will CLOSE	Will Deenergize
B.	One will OPEN	Will OPEN	Will Deenergize
C.	One will OPEN	Will CLOSE	Will Energize
D.	Neither will OPEN	Will OPEN	Will Deenergize

QUESTION #23

FR-H.1, Response to Loss of Secondary Heat Sink has just been entered. Plant conditions are as follows:

- Total available AFW flow-200,000 lbm/hr
- A,B,D S/G levels-2% NR
- C S/G level-20% WR
- A,B,D S/G pressures- 950 psig
- C S/G pressure - completely depressurized
- Containment temperature -190°F
- Containment activity - 6E-2 microcuries per gram
- RCS pressure - 900 psig
- PZR level - off scale low
- RCP's - secured

Which ONE of the following actions should be taken in accordance with FR-H.1 ?

A. Immediately initiate steps 10 through 16, RCS bleed and feed

B. Transition to E-1, Loss of Reactor or Secondary Coolant

C. Transition to E-2, Faulted Steam Generator Isolation

D. Return to procedure and step in effect when S/G level > 4%

QUESTION #24

Which ONE of the following electrical lineups is a normal lineup for the Switchyard?

A. ESF XFMR XNB01 energized by Safeguards XFMR "B" via ring bus breaker 52-3.

B. MTGY-CAL-7 transmission line energized by the main step-up XFMR's via switchyard breaker V53.

C. CAL-BLAN-1 transmission line energized by 345 KV SWYD Bus "A" via switchyard breaker V41.

D. 200 series site load XFMR's energized by Safeguards XFMR "A" via ring bus breaker 52-4.

QUESTION #25

A reactor coolant system leak develops in the "C" RCP thermal barrier. The CCW system is designed for this failure by isolating the thermal barriers on HIGH CCW _____.

A. Flow

B. Radiation

C. Pressure

D. Tank Level

QUESTION #26

The plant has experienced a loss of offsite power. All equipment functioned as designed. Five minutes later, NB0111, "A" D/G output breaker, trips open. Which ONE of the following caused NB0111 to open?

A. High lube oil temperature

B. Overcurrent

C. Low jacket water pressure

D. Overspeed

QUESTION #27

- NCP is running, 120 gpm letdown
- BGFT121, CVCS CHG HDR TO REGEN HX FLOW XMTR, fails.
- As a result, BGFCV124 closes.
- The NCP handswitch red light is lit
- BGHV8109, NCP Recirculation Valve, is open.

The following annunciators are received:

- CHARGING LINE FLOW LOW
- SEAL INJECTION TO RCP FLOW LOW
- NCP FLOW LOW

Which ONE of the following actions should be taken immediately?

A. Take manual control of BGFCV124 and open it.

B. Start a CCP and secure the NCP.

C. Open the seal injection target rocks

D. Isolate all letdown

QUESTION #28

Which ONE of the below NK01 bus electrical lineups meets the requirements for continuous operation while in MODE 1?

	NORM CHARGER NK21	ALT CHARGER NK25	BATTERY NK11
A.	Connected	Disconnected	Disconnected
B.	Disconnected	Connected from NG bus	Connected
C.	Disconnected	Connected from PG bus	Connected
D.	Disconnected	Disconnected	Connected

QUESTION #29

Compare the output of the reactor control unit, with rod control in auto, for the two conditions listed below:

- A 2% step change in turbine load at 90%.
- A 2% step change in turbine load at 40%.

Which ONE of the following describes the comparison of the signal output and the reason for the difference?

A. Larger at 90% due to the response of the Variable gain unit.

B. Larger at 90% due to the response of the Non-Linear gain unit.

C. Smaller at 90% due to the response of the Non-Linear gain unit.

D. Smaller at 90% due to the response of the Variable gain unit.

QUESTION #30

The plant is operating at 100% power. I&C has determined the "A" train ESFAS has a bad power supply that has to be replaced. The "A" train ESFAS will be downpowered using OTS-SA-00001.

Which ONE of the following actions prevent an inadvertent actuation from the "B" ESFAS train?

A. The cross trip block switch is placed in the BLOCK position.

B. The associated "B" bistables are placed in the BYPASS position.

C. The dual voltage power supply, 15 vdc/ 48 vdc, is placed in the OFF position.

D. The 48 vdc power supply is placed in the OFF position.

QUESTION #31

E-0, "Reactor Trip/Safety Injection", defines RCP trip criteria. When stopping all RCP's in a LOCA condition, E-0 directs that steam dumps be operated in the "steam pressure" mode.

Which one of the following is also required to be verified when stopping all RCP's per E-0?

A. MSIV's open.

B. Both CCP's in operation.

C. Either CCP or SI in operation.

D. AFW flow >300 Klbm/hr.

QUESTION #32

Which one of the following posted areas must be deposted before plant personnel may be permitted to enter?

A. CHRA, Caution High Radiation Area

B. DHRA, Danger High Radiation Area

C. DREA, Danger High Radiation Area Radiological Exclusion Area

D. VHRA, Very High Radiation Area

QUESTION #33

Which ONE of the following statements correctly describes the purpose of the interlocks associated with the RHR suction isolation valves (EJHV8701A/B and BBPV8702A/B) while placing RHR in the shutdown cooling mode?

A. Prevent draining the RWST to the containment sump.

B. Prevent overpressurization of the RHR system.

C. Prevents exceeding RHR system design temperature.

D. Prevent contamination of the RWST.

QUESTION #34

Plant conditions are as follows:

- At 0700, a loss of all offsite power occurred
- At 0710, a SI occurred due to stuck open S/G Safety
- All equipment operated as designed
- Restoration of instrument air to Containment is in progress.
- EFHV43 and EFHV44, ESW to 'A' and 'B' air compressors are closed.

Which ONE of the following has caused EFHV43 and EFHV44 to close?

A. Blackout load shed

B. LOCA load shed

C. Loss of instrument air

D. High D/P

QUESTION #35

A precaution and limitation in OTN-EG-00001, Component Cooling Water System, informs the operator that EGHV0069A/B (EG HS-69) and EGHV0070A/B (EG HS-70), CCW Supply/Return to Radwaste, must be opened simultaneously. The reason for this requirement is to:

A. Satisfy the system high flow interlock.

B. Satisfy the system low flow interlock.

C. Minimize potential of system water hammers.

D. Ensure proper flow is maintained to containment system loads.

QUESTION #36

During a surveillance test with the plant at 90% power, an instrument technician removes the instrument power fuses from N42 prior to bypassing channel N42 inputs. Assuming no operator actions the control rods will _____. (Select ONE of the following.)

A. drive IN at 72 spm then drive OUT as temperature DECREASES.

B. drive OUT at 72 spm then drive IN as temperature INCREASES.

C. be blocked from moving OUT in AUTO and MANUAL.

D be blocked from moving OUT in AUTO only.

QUESTION #37

The following conditions exist:

- "A" and "B" CCW Pumps are running.
- The Service Loop is being supplied by "B" CCW Train.
- "A" Component Cooling Water Radiation Monitor EGRE0009 has exceeded the Hi Hi ALARM setpoint.

Which ONE of the following automatic actions occur in addition to receiving an audible ALARM on the RM-11?

A. EGRV0009, CCW SRG TK A VENT CTRL VLV remains OPEN, EGRV0010, CCW SRG TK B VENT CTRL VLV remains OPEN.

B. EGRV0009, CCW SRG TK A VENT CTRL VLV remains OPEN, EGRV0010, CCW SRG TK B VENT CTRL VLV CLOSES.

C. EGRV0009, CCW SRG TK A VENT CTRL VLV CLOSES, EGRV0010, CCW SRG TK B VENT CTRL VLV remains OPEN.

D. EGRV0009, CCW SRG TK A VENT CTRL VLV CLOSES, EGRV0010, CCW SRG TK B VENT CTRL VLV CLOSES.

QUESTION #38

Which ONE of the following will result in a shift of Auxiliary Feedwater (AF) System suction from the Condensate Storage Tank to the Essential Service Water System ?

A. AFW pump suction pressure of 20 psia coincident with a loss of offsite power.

B. AFW pump suction pressure of 22 psia coincident with Lo-Lo level in ALL steam generators.

C. AFW pump suction pressure of 20 psia coincident with Pressurizer pressure of 1850 psig.

D. AFW pump suction pressure of 22 psia coincident with a phase B isolation.

QUESTION #39

Plant conditions are as follows:

- 100% Rx Power
- 588.3°F Tavg Loop 1
- 588.1°F Tavg Loop 2
- 588.4°F Tavg Loop 3
- 588.2°F Tavg Loop 4
- 585.4°F Tref

Which ONE of the following would occur if the Rod Control Selector Switch were placed in AUTO?

	Rod speed	Rod movement direction
A.	8 spm	IN
B.	48 spm	IN
C.	8 spm	OUT
D.	48 spm	OUT

QUESTION #40

Plant conditions are as follows:

- A LOCA outside of containment has occurred.
- No fluid is collecting in the containment recirc sump.
- The RWST is empty.
- All ECCS pumps have been stopped.

Which ONE of the following can be used to provide water to th ECCS pumps per ECA-1.1 ?

A. Condensate Storage Tank

B. Reactor Makeup Water Storage Tank

C. Spent Fuel Pool

D. Waste Collection Tank

QUESTION #41

Given the following conditions:

- The plant was operating normally at 100% power
- S/G A narrow range level rapidly decreases to 2%
- S/Gs B, C, and D narrow range levels are at 50%
- The reactor and turbine do NOT trip
- Auxiliary Feedwater pumps do NOT start
- An Anticipated Transient Without Trip [ATWS] condition is announced
- Control rods are manually inserted
- Power Range Instrumentation is decreasing at 10% per minute due to rod insertion

Which ONE of the following is the expected response of the ATWS Mitigating System (AMSAC)?

A. AMSAC will automatically trip the reactor which then causes a turbine trip.

B. AMSAC will trip the turbine and automatically start all AFW pumps.

C. AMSAC will not actuate since the required S/G low level logic has not been satisfied.

D. AMSAC is blocked from actuation since power level will be less than 30% power before the AMSAC time delay expires.

QUESTION #42

Which ONE of the following describes the functional relationship between the Feed Hdr/Steam Hdr ΔP, FW Reg Valve Position, and the FW Reg Bypass Valve Position, while increasing power from 10 - 20%?

	Feed Hdr /Steam Hdr ΔP	FW REG VALVE	FRV BYPASS VALVE
A.	Maintained constant at 150 psid	Throttled OPEN	Throttled OPEN
B.	Slowly lowered to 90 psid	Throttled OPEN	Throttled CLOSED
C.	Maintained constant at 150 psid	Remain CLOSED	Throttled OPEN
D.	Slowly lowered to 90 psid	Throttled OPEN	Throttled OPEN

QUESTION #43

The following conditions exist:

- Reactor Power is 60%
- 'A' RCP #1 Seal ΔP is 170 psid and decreasing 1 psid per minute
- 'A' RCP #1 Seal Leak-off flow is 3 gpm
- 'A' RCP Frame Vibration is 3 mils and increasing 1 mil/hr

Which one of the following is the proper operator action per OTO-BB-00002, Reactor Coolant Pump Off-Normal?

A. Reduce power to <48% and trip the affected RCP.

B. Trip the reactor and turbine, then trip the affected RCP.

C. Trip the affected RCP and be in Mode 3 within the next 6 hours.

D. Continue to monitor vibration on 'A' RCP.

QUESTION #44

The plant is responding to a safety injection and the crew is currently in E-1, Loss of Primary or Secondary Coolant, with the following plant conditions:

- RCS Pressure 1700 psig - Stable
- Core Exit TC 560°F Stable
- ECCS systems All Actuated as Required
- CTMT Pressure 10 psig Stable
- CTMT Temperature 195°F Slowly Decreasing
- CTMT Radiation 5E2 R/HR
- S/G Aux Feedflow 100 Klbm/hr to each S/G
- S/G Pressures 1100 psig - Stable
- RCPs All off

With these conditions the core decay heat is being removed primarily by:

A. Heat transfer from the RCS to the S/G's due to natural circulation.

B. Heat transfer from the RCS to the S/G's due to reflux boiling.

C. Injection of water from the RWST and removal of steam/water out from the break.

D. Injection of water from the RWST and removal of steam/water out the pressurizer PORV.

QUESTION #45

Which one of the following would violate the Technical Specification Safety Limit concerning Reactor Coolant System pressure?

A. Mode 1 - 2550 psig

B. Mode 2 - 2350 psig

C. Mode 3 - 2750 psig

D. Mode 4 - 2450 psig

QUESTION #46

NE01 ('A' Emergency Diesel) Room Supply Fan is being placed in the Pull-to-Lock position. Which ONE of the following is correct for the operability of NE01 while the Room Supply Fan is under the control of the Reactor Operator?

A. Placing NE01 Room Supply Fan in Pull-to-Lock will have NO effect on the operability of NE01.

B. NE01 should be declared inoperable when the Reactor Operator places it's supply fan in Pull-to-Lock.

C. NE01 should be declare. inoperable if outside air temperature exceeds 65°F.

D. NE01 should be declared inoperable if NE01 room temperature increases to 100°F.

QUESTION #47

A truck in the switchyard backs into the "B" Safeguards transformer causing a loss of the entire switchyard. "A" and "B" D/G's fail to start.

Which ONE of the following power supplies would be unavailable?

A. "A" MFP emergency oil pump power

B. RL01-RL06 board power

C. PA01 breaker control power

D. Main Turbine turning gear oil pump

QUESTION #48

The Containment Fan Coolers are running in fast speed when an SIS occurs. Which one of the following describes the expected response of the Fan Coolers?

A. They continue to run unless containment spray is initiated.

B. They trip and are restarted in slow speed by the LOCA sequencer.

C. They shift to slow speed after a 60 sec. delay.

D. They trip and are manually restarted in slow speed.

QUESTION #49

The plant conditions are as follows:

- 'A' S/G Tube Rupture
- Manual Safety Injection
- All equipment functioned as designed
- 'A' S/G atmospheric is OOS
- 'A' S/G pressure 1240 psig
- 'A' S/G level > NR level indication
- 'B', 'C', 'D' S/G levels < NR level indication
- RCS pressure 1240 psig
- PZR level 40%

Which ONE of the following should be implemented when the STA makes a pass through the CSF's ?

A. FR-H.2 Response to Steam Generator Overpressure

B. FR-H.3 Response to Steam Generator High Level

C. FR-H.4 Response to Loss of Normal Steam Release Capabilities

D. FR-H.5 Response to Steam Generator Low Level

QUESTION #50

Assuming 100% power and 75 gpm letdown. Which ONE of the following failures will result in a loss of makeup capability AND cause a reduction in Reactor Power if the Reactor Makeup Control system is in AUTO and NO operator action is taken?

A. Loss of instrument air to BGLCV112A

B. BGLT0112 fails high

C. BGLT0149 fails high

D. BGLT0185 fails high

QUESTION #51

Plant conditions are as follows:

- Mode 1
- 100% Reactor Power
- Tavg 588.4°F
- NCP is running with BGFCV124 in Auto
- Letdown flow is 125 gpm
- PZR level controller, BBLK459 is in Auto
- BBLT459 is the selected channel

BBLT459 fails HIGH. NO operator action is taken.

Which ONE of the following occurs in the plant due to BBLT459 failing?

A. The Reactor will immediately trip on PZR high level.

B. The Reactor will, after a period of time, trip on high PZR level.

C. The Reactor will, after a period of time, trip on low PZR level.

D. The Reactor does not trip due to PZR level.

QUESTION #52

Which one of the following actions occur on a high rad alarm (red) on the SG sample monitor, SJ-RE-02?

A. BM-FV-54, SG Blowdown Surge Tank Outlet Valve closes

B. BM-HV-65 thru 68, SG Sample Isolation Valves close

C. BM-HV-1 thru 4 SG B/D Containment Isolation Valves close

D. PBM01A, SG Blowdown Discharge Pump trips

QUESTION #53

E-3, "Steam Generator Tube Rupture", performs RCS depressurization to refill the pressurizer.

Which ONE of the following shows the preferred order for depressurization.

A. Normal Pressurizer Spray, Auxiliary Spray, Pressurizer PORV

B. Normal Pressurizer Spray, Pressurizer PORV, Auxiliary Spray

C. Pressurizer PORV, Auxiliary Spray, Normal Pressurizer Spray

D. Pressurizer PORV, Normal Pressurizer Spray, Auxiliary Spray

QUESTION #54

Using the attached graph, select the temperature combination at which the cooling tower bypass valves should be open.

	Basin Temperature	Ambient Dry Bulb Temperature
A.	40°F	25°F
B.	50°F	25°F
C.	70°F	10°F
D.	75°F	10°F

QUESTION #55

A high high shell level occurs in the 1A heater. Which ONE of the following is the response of Main Feedwater due to the high high level?

A. Main Feedwater temperature goes up.

B. Main Feedwater temperature goes down.

C. Main Feedwater flow goes up.

D. Main Feedwater flow goes down.

QUESTION #56

Callaway is in MODE 1. All systems are lined up in their normal configuration and operating properly. A component cooling water system leak has occurred.

The following conditions are noted by the Reactor Operator:

- The CCW surge tank level is 53% and DECREASING
- VCT level is 65% and INCREASING

Which ONE of the following leakage sources would result in these conditions?

A. CCW heat exchanger

B. Letdown heat exchanger

C. RHR heat exchanger

D. Seal water heat exchanger

QUESTION #57

Main Control Board annunciator window 62C, AREA RAD MON FAIL, has alarmed. The BOP determines it was caused by SDRE0035, New Fuel Storage Area Rad monitor. The CRS directs you to source check the monitor for a response.

Which ONE of the following will you use to perform a source check?

A. The green button

B. The yellow button

C. The red button

D. The white button

QUESTION #58

The plant is being cooled down per ES-7.2, Natural Circulation Cooldown, due to a sustained loss of all offsite power following a tornado.

The cooldown rate will be limited to less than _____ °F/hr while the RCS subcooling will be maintained greater than _____ °F more subcooled than instrument error.

A. 50 , 50

B. 100 , 100

C. 50 , 100

D. 100 , 50

QUESTION #59

The Control Room is being evacuated due to a fire in Panel KC008. You are the Reactor Operator and have been directed by the Shift Supervisor to perform your immediate actions. Which of the following locations will you initially go to when you leave the Control Room?

A. Front standard on the main turbine.

B. South (Train B) ESF Switchgear Room (CB-2000)

C. North HVAC Room (AB 2047)

D. Auxiliary Shutdown Panel

QUESTION #60

The following plant conditions exist:

- Reactor power 23%
- Gen MW 208
- CB D rods 130 steps
- Rod Control Automatic
- MFP Speed Control Automatic
- Main FRV Automatic

If turbine impulse pressure controlling channel, PT-505, fails HIGH, the rods in control bank D will _____. (Select ONE of the following.)

A. be inserted into the core (tripped) by a turbine trip signal

B. move in the outward direction

C. move in the inward direction

D. not move

QUESTION #61

Plant conditions are as follows:

- Mode 1
- 100% Reactor Power
- All Automatic controls in their normal condition
- BBTY411, Loop 1 Tavg, fails at 588.5°F
- A Reactor Trip occurs.

NO Operator Actions are taken. Which ONE of the following occurs in the plant?

A. Steam dumps will be closed. The RCS will cool down until main steam pressure reaches 615 psig. Then the MSIV's will CLOSE and the RCS will heat up again.

B. Steam dumps will be open. The RCS will cool down until main steam pressure reaches 1092 psig. Then the steam dumps will throttle to maintain this pressure.

C. Steam dumps will be open. The RCS will cool down until Tavg reaches 557°F. Then the steam dumps will throttle to maintain this temperature.

D. Steam dumps will be open. The RCS will cool down until Tavg reaches 550°F. Then the steam dumps will cycle closed and open to maintain this temperature.

QUESTION #62

A turbine runback can be caused by high stator cooling water _____ temperature or low stator cooling water _____ flow.

A. inlet; inlet

B. inlet; outlet

C. outlet; outlet

D. outlet; inlet

QUESTION #63

All reactor coolant pumps secured with the following conditions:

- RCS WR Pressure (BBPI405) 400
- RCS NR Pressure (BBPI406) 350
- Charging Header Pressure (BGPI120) 550
- VCT Pressure (BGPI115) 50 psig

Using the attached graph,

Which ONE of the below #1 seal leak-off flowrates is the MAXIMUM flow that would still allow starting reactor coolant pumps?

A. 1.0 gpm

B. 1.5 gpm

C. 2.0 gpm

D. 2.5 gpm

QUESTION #64

The following conditions exist:

- Safety Injection — Actuated
- Procedure in Effect — E-1 Loss of Reactor or Secondary Coolant
- RCS Core Exit Tc — 580°F
- RCS Cold Leg Temp — 560°F
- CTMT Pressure — 9 psig
- CTMT Temperature — 190°F
- CTMT Radiation — 1E3 R/HR

Using the provided attachment 2 from E-1, determine which ONE of the below combinations of RCS pressure and temperature would satisfy subcooling requirements.

	RCS WR Pressure	Core Exit TC
A.	1800 psig	590 °F
B.	1500 psig	570 °F
C.	1200 psig	550 °F
D.	1000 psig	500 °F

QUESTION #65

Plant conditions are as follows:

- 'A' Circ Pump lockout
- Setback in progress
- MCB annunciator 81D, Rod Bank Lo lit
- MCB annunciator 81C, Rod Bank LoLo lit

Which ONE of the following indications will meet the requirements for current plant conditions ?

A. 40 gpm flow indicated on BGFI183A, EMERG BORATE TO CCP A & B HDR FLOW IND A.

B. 40 gpm flow indicated on BGFY110B, BA TO BA BLENDING TEE FLOW BATCH COUNTER.

C. BGHIS5A, A BORIC ACID XFER PMP PBG02A HAND IND SW, red light lit.

D. BGHV8104, EMERG BORATE TO CCP A & B HDR ISO HV, red light lit

QUESTION #66

Which one of the following conditions would require action to be taken within 15 minutes to avoid violating the plant Technical Specifications?

A. The plant is at 40% power with AFD outside its specified target band.

B. The plant is at 2% power with Tavg at 550°.

C. The plant is at 40% power when 120-volt AC bus NN01 loses power.

D. The plant is at 2% power when SR channel N31 fails.

QUESTION #67

A reactor startup is in progress with IR power at 3x10-11 amps. The source range High Flux Trip has NOT been blocked. Which ONE of the following describes the Reactor Protection System response if a CONTROL POWER fuse blows on N-31 with the source range Level Trip Bypass Switch in the positions indicated?

	Level Trip Bypass: NORMAL	Level Trip Bypass: BYPASS
A.	no trip	no trip
B.	reactor trip	no trip
C.	no trip	reactor trip
D.	reactor trip	reactor trip

QUESTION #68

The plant is at 100% power with the following conditions:

- "C" CCW pump OOS
- "A" CCW Train in Service, "B" CCW Train in Standby
- NCP in Service with 120 gpm Letdown Flow

The "A" CCW pump trips due to unknown reasons.

Which ONE of the below includes required immediate actions?

A. Restart the "A" CCW pump, if pump fails to restart, then start either "B" or "D" CCW pump and transfer the service loop to the "B" CCW Train.

B. Start either "B" or "D" CCW pump then transfer the service loop to the "B" CCW Train.

C. Trip the Reactor Coolant Pumps and the Reactor, enter E-0, Reactor Trip / Safety Injection, then transfer the service loop to the "B" CCW Train.

D. Verify "B" CCW pump starts automatically then transfer the service loop to the "B" CCW Train.

QUESTION #69

A steam line has ruptured inside containment resulting in a reactor trip and safety injection. E-0, Reactor Trip and Safety Injection has been entered and the operating crew is in the progress of transitioning to E-1, Loss of Reactor or Secondary Coolant. While monitoring the CSF status trees, you determine that an ORANGE path exists for SUBCRITICALITY.

Which one of the following actions should be performed by the crew:

A. Continue current pass through the status trees, if no RED path is encountered then implement FR-S.1.

B. Complete the actions of E-1, then implement FR-S.1.

C. Immediately implement FR-S.1, then continue current pass through the status trees.

D. Implement FR-S.1 at the discretion of the Shift Supervisor.

QUESTION #70

The plant is operating at full power when a Loop 1 Wide Range Tc RTD fails HIGH. This event will have which one of the following effects on indicated subcooling on the 'B' Train Core Subcooling Monitor?

A. No effect since only core exit thermocouples provide input.

B. No effect since the Subcooling Monitor is bypassed with the reactor trip breakers closed.

C. Small decrease since the Subcooling Monitor uses the average of the Wide Range RTDs and the core exit thermocouples.

D. Large decrease since the Subcooling Monitor uses the highest reading Wide Range RTD or core exit thermocouple.

QUESTION #71

The plant is operating at 50% steady state power, with Tavg and Tref matched. Rods are withdrawn in manual continuously for 20 steps.

Which ONE of the following combinations includes indications that would be received in the control room?

	Tref/Tauct Annunciator	Rod Control Temp Error Indication	Turbine Load
A.	HI	Positive	Decreasing
B.	LO	Positive	Increasing
C.	HI	Negative	Increasing
D.	LO	Negative	Decreasing

QUESTION #72

A LOCA has occurred. ES1.2, Post LOCA Cooldown and Depressurization is in progress. Just prior to initiating the RCS cooldown, the low steamline pressure SI is blocked.

Which ONE of the following is the reason for blocking the low steamline SI ?

A. To prevent the MSIV's from auto closure on low steamline SI.

B. To unblock the steam line isolation from high rate signal.

C. To prevent any SI equipment from actuating.

D. To allow manual operation of SI equipment.

QUESTION #73

Which one of the following actions must be performed if the plant computer is down for 15 minutes?

A. Perform a heat balance.

B. Perform control room computer down logs.

C. Perform AFD monitor alarm inoperable surveillance.

D. Verify locally that area room temperatures are within specifications.

QUESTION #74

Callaway Plant is in Mode 3 cooling down for a Refueling outage. The Reactor Operator has been directed to decrease RCS pressure to 1950 psig. Which ONE of the following would the Reactor Operator have to set the Pressurizer Pressure Master Control, BBPK455A, to maintain the RCS at 1950 psig in Auto? Narrow Range PZR pressure range is from 1700 to 2500 psig.

A. 1.77 turns

B. 2.55 turns

C. 3.13 turns

D. 4.41 turns

QUESTION #75

The plant is operating at 100% power. The instrument air line to the "A" S/G FRV ruptures. The plant trips on S/G low level.

Which ONE of the following caused both main feed pumps to trip?

A. MFP discharge pressure high high

B. Trip of all condensate pumps

C. MFP overspeed

D. FWIS

QUESTION #76

During post LOCA cooldown and depressurization CCP's and SI pumps are stopped on alternate ECCS trains when possible.

Which one of the following describes the reason for alternating the ECCS trains?

A. Increase the probability of RCS injection flow if one ECCS train becomes inoperable.

B. Equalize flows on ECCS trains to maintain pump suction head.

C. Minimize primary leakage while ensuring adequate subcooling.

D. Equalize loading on the NB busses, since it is assumed that the diesels are supplying power.

QUESTION #77

The plant experienced a SI on low PZR press. RCS pressure is 1750 psig and decreasing. E-0, Reactor Trip or Safety Injection, Step 21 is in progress. PZR spray valve BBPCV455B is partially open and will not close in manual.

Which ONE of the following is the action to perform per E-0?

A. Trip the B RCP

B. Trip the D RCP

C. Trip the A and D RCP's

D. Trip the B and D RCP's

QUESTION #78

The plant is in MODE 6 with core reload in progress.

Which ONE of the below sets of conditions will allow fuel movement to continue with both Boric Acid Storage Tanks (BAT) drained?

	RWST Level	RWST Boron	RWST Temperature
A.	96,500 gal	2585	35 °F
B.	77,500 gal	2750	55 °F
C.	59,350 gal	2320	75 °F
D.	38,300 gal	2100	95 °F

QUESTION #79

Plant conditions are as follows:

- Rod H-8 in CB D was misaligned low.
- Rod H-8 was withdrawn 15 steps to align it with the other rods in CB D.
- The P/A converter AUTO/MAN switch is broke in the Auto position.

Which ONE of the following conditions occurs because of the P/A converter being in AUTO when rod H-8 was recovered?

A. Rod Control Non-Urgent Failure alarm when CB D rods initially moved in.

B. Rod Control Urgent Failure alarm when CB D initially moved in.

C. Rod Bank Lo alarm will be received with CB D actually above setpoint.

D. Rod Bank Lo alarm will be received with CB D actually below setpoint.

QUESTION #80

During the performance of ECA-3.2, SGTR with Loss of Reactor Coolant -Saturated Recovery Desired, tne current pass through the CSF's indicate a yellow path on Core Cooling requiring consideration of performing FR-C.3, Response to Saturated Core Cooling.

Which ONE of the following actions should be performed ?

A. Proceed immediately to FR-C.3.

B. Perform FR-C.3 in parallel with ECA-3.2.

C. Finish performing ECA-3.2.

D. Proceed immediately to ES-0.0, Rediagnosis.

QUESTION #81

The following conditions exist:

- SPENT FUEL POOL HI/LO Level Annunciator is received.
- The plant is at 100% power.
- Makeup to the SFP is required due to evaporation.
- SFP boron concentration is 2450 ppm.

Which ONE of the below sources would be used for makeup?

A. Blended Flow via CVCS

B. Refueling Water Storage Tank

C. Recycle Holdup Tanks

D. Reactor Makeup Water

QUESTION #82

Radwaste is discharging DMT "A". HBFV866, LRW DISCH FCV, automatically CLOSED.
Which ONE of the following could have caused HBFV866 to CLOSE automatically.

A. Service Water Radiation Monitor Hi Hi

B. Liquid Radwaste Discharge Flow High

C. Liquid Radwaste Discharge Flow Low

D. Dilution Water Flow Low

QUESTION #83

Plant conditions are as follows:

- RCS large break LOCA occurred
- Safety Injection on low pressurizer pressure
- All equipment function as designed
- Cold Leg Recirculation in Progress
- RCS Temperature is 325°F
- RCS Pressure is 35 psig
- E-1 Step 15 isolation of accumulators is in progress

Which ONE of the following actions is the preferred order of isolating the 'B' accumulator?

A. Close the isolation valve, open one of the vent valves, open the other vent valve

B. Open one of the vent valves, open the other vent valve, close the isolation valve

C. Close the isolation valve, open the vent valve

D. Open the vent valve, close the isolation valve

QUESTION #84

The following plant conditions exist:

- ANNUN 30A, NF039A LOCA Seq Actuated, LIT
- ANNUN 31A, NF039B LOCA Seq Actuated, LIT
- ANNUN 88C, Hi Ctmt Press SI Rx Trip, LIT
- Reactor Power 97%
- Gen MW 1200
- LCPG19 Open
- LCPG20 Open
- Control Rods Being manually inserted by the RO
- Turbine Stop Valves Open

As the Balance of Plant operator, which one of the following would be the first action you would take?

A. Manually runback the main turbine.

B. Manually trip the main turbine.

C. Manually open switchyard breakers V53 and V55.

D. Fast close the MSIVs.

QUESTION #85

A large steam line break occurs inside containment. A Safety Injection occurs on Containment Pressure. Containment pressure is 30 psig when step 14 of E-0, 'Check if CTMT Spray is Required', is performed.

Which ONE of the following is the reason for stopping all four RCP's ?

A. They are an unnecessary addition of heat to Containment.

B. All RCP cooling water flow is automatically isolated.

C. Air is too dense for the motor cooler fans to keep the motor cool.

D. Containment structural failure is imminent.

QUESTION #86

Which ONE of the following will initiate a Blowdown and Sample Process Isolation Signal (BSPIS)?

A. Blowdown surge tank level high.

B. Undervoltage on either NB bus.

C. High temperature at non-regen heat exchanger outlet.

D. Blowdown demineralizer high differential pressure.

QUESTION #87

An inadvertent SIS occurs. All systems actuate as designed.
Which ONE of the following can be reset by itself with no other signals being reset?

A. CPIS

B. CRVIS

C. SGBSIS

D. CISA

QUESTION #88

A slowly increasing RCS level during mid-loop operations could be a symptom of _____.

A. air entrainment into the RHR system.

B. nozzle dam leakby into the RCS system.

C. high differential pressure between the Containment and Fuel Building.

D. pressurizer nitrogen overpressure too high.

QUESTION #89

The plant is in Mode 1 at 25% reactor power. Which one of the following would be cause to enter E-0, Reactor Trip or Safety Injection?

A. 'A' Steam Generator level is at 10% on all channels and the reactor has not tripped.

B. The main turbine stop valves have closed and the reactor has not tripped.

C. Pressurizer level channel 459 is at 98% and the reactor has not tripped.

D. 'C' RCP breaker has just tripped open and the reactor has not tripped.

QUESTION #90

The plant is in Mode 6 with refueling in progress.

Which ONE of the following is the ventilation lineup for Containment?

A. Mini purge supply and exhaust in service.

B. Shutdown purge supply and exhaust in service.

C. Mini purge exhaust in service with supply through the equipment hatch.

D. Shutdown purge exhaust in service with supply through the equipment hatch.

QUESTION #91

Which ONE of the below sets of valve positions would maintain their associated systems OPERABLE to perform their intended function for MODE 1 operation?

	EMHV8814A SI Pump A Recirc Iso	BNV8717 RHR to RWST	EJHV8840 RHR Train A/B Hot Leg Recirc
A.	CLOSED	CLOSED	CLOSED
B.	CLOSED	OPEN	OPEN
C.	OPEN	OPEN	OPEN
D.	OPEN	CLOSED	CLOSED

QUESTION #92

The plant is responding to a loss of offsite and onsite power.

During implementation of ECA-0.0, Loss of All A.C., the AC supply breakers to the ESW pumps are:

A. Placed in Pull-to-Lock on the MCB so they are under positive operator control.

B. Manually closed locally since there is no closing power to the MCB handswitch.

C. Placed in Normal-After-Stop on the MCB for start when the DG is started locally.

D. Verified closed locally prior to starting DG or reenergizing the N8 bus.

QUESTION #93

A plant startup is in progress. Power level is 1E-7 amps. The Reactor is tripped wh n PA02 is deenergized by Relay Test.

Which ONE of the following is the approximate length of time before the Source Range NI's automatically energize ?

A. 2 minutes

B. 5 minutes

C. 10 minutes

D. 15 minutes

QUESTION #94

With the plant in MODE 3 the MCB handswitch for the Reactor Trip Breakers is rotated to the CLOSE position.

Which ONE of the below conditions would prevent the reactor trip breakers from closing?

A. Pressurizer Level at 95%

B. RCS Pressure at 1800 psig

C. Pressurizer Level at 17%

D. RCS Pressure at 2400 psig

QUESTION #95

The reactor is exactly critical at 10E-8 amps when the "A" S/G PORV fails open. Assuming NO operator action and NO reactor trip, which ONE of the following best describes the values of Tavg and nuclear power for the resulting new steady state conditions?

A. Final Tavg is greater than initial Tavg. Final reactor power is above the POAH.

B. Final Tavg is greater than initial Tavg. Final reactor power is at the POAH.

C. Final Tavg is less than initial Tavg. Final reactor power is above the POAH.

D. Final Tavg is less than initial Tavg. Final reactor power is at the POAH.

QUESTION #96

The plant is in MODE 2 commencing warmup of the main turbine.

Which ONE of the following could be a direct result of a loss of Vital AC Instrument Bus NN02.

A. Charging Pump Suction Swaps to the RWST.

B. Source Range Hi Flux Reactor Trip.

C. Intermediate Range High Flux Reactor Trip.

D. Idle Component Cooling Water Pump Start.

QUESTION #97

Which ONE of the following parameters can be used to distinguish between a primary and secondary leak?

A. RCS Tavg

B. Pressurizer Level

C. Containment Pressure

D. Pressurizer Pressure

QUESTION #98

- FR-C.1 is in progress.
- S/G's have been depressurized to 120 psig.
- All RCP's are stopped.

Which ONE of the below is the reason for stopping the RCP's?

A. Reduce the heat input to the RCS.

B. Normal PZR spray flow is unnecessary.

C. Prevent cavitation from N2 from the accumulators.

D. Prevent damage to Number 1 seal.

QUESTION #99

FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, is in progress due to a steam leak which has been isolated.

Which ONE of the following conditions is acceptable using Attachment 7 for RCS Post-Soak Cooldown Limitations during recovery from the PTS condition ?

A. RCS cold legs = 200°F. RCS wide range pressure = 0 psig.

B. RCS cold legs = 250°F. RCS wide range pressure = 300 psig

C. RCS cold legs = 300°F. RCS wide range pressure = 400 psig.

D. RCS cold legs = 400°F. RCS wide range pressure = 300 psig.

QUESTION #100

A fire is reported in PG24, Pressurizer Variable Heater, Load Center.

This is an example of a _____ ____ fire and would be extinguished _____.

A. Class B, by pre-action sprinklers.

B. Class C, by halon.

C. Class B, by halon.

D. Class C, by pre-action sprinklers.