

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.: 50-313; 50-368
License Nos.: APF-6
Report No.: 50-313/98-301; 50-368/98-301
Licensee: Entergy Operations, Inc.
Facility: Arkansas Nuclear One, Units 1 and 2
Location: Junction of Hwy. 64W and Hwy. 333 South
Russellville, Arkansas
Dates: August 31 through September 4, 1998
Inspector(s): Michael E. Murphy, Chief Examiner
Howard F. Bundy, Senior Reactor Engineer, Examiner/Inspector
Ryan E. Lantz, Reactor Engineer, Examiner/ Inspector
Steve L. McCrory, Senior Reactor Engineer, Examiner/Inspector
Tom O. McKernon, Senior Reactor Engineer, Examiner/Inspector
Approved By: John L. Pellet, Chief, Operations Branch
Division of Reactor Safety

ATTACHMENTS:

Attachment 1: Supplemental Information
Attachment 2: Final Written Examinations and Answer Keys

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EXECUTIVE SUMMARY

Arkansas Nuclear One, Unit 2
NRC Inspection Report 50-368/98-301

NRC examiners evaluated the competency of eight senior operator and six reactor operator license applicants for issuance of operating licenses at the Arkansas Nuclear One, Unit 2. The licensee developed the initial examinations using NUREG-1021, Interim Revision 8, January 1997. NRC examiners reviewed, and approved the examinations. The initial written examinations were administered to all nine applicants on August 28, 1998, by facility proctors in accordance with the guidance in NUREG-1021, Interim Revision 8. The NRC examiners administered the operating tests on August 31 through September 4, 1998.

Operations

- All 14 (6 reactor operators and 8 senior operators) license applicants passed their examinations. The applicants exhibited good oversight and peer checking and effective communications (Sections 04.1, 04.2).
- The operating test material was inadequate for administration as submitted (Section 05.1).
- The facility staff's highly responsive revision and replacement of the examination material precluded any affect on the examination administration schedule. No significant changes to examination materials were required as a result of administration (Section 05.1).

Report Details

Summary of Plant Status

The plant operated at essentially 100 percent power on both units for the duration of this inspection.

I. Operations

04 Operator Knowledge and Performance

04.1 Initial Written Examination

a. Inspection Scope

On August 28, 1998, the facility licensee proctored the administration of the written examinations approved by the NRC to six individuals who had applied for initial reactor operator licenses, three individuals who had applied for initial instant senior operator licenses, and five individuals who had applied for initial upgrade senior operator licenses. The licensee proposed grades for the written examinations and evaluated the results for question validity and generic weaknesses. The examiners reviewed the licensee's results.

b. Observations and Findings

The minimum passing score was 80 percent. The candidates' scores for the written examination ranged from 83 to 94 percent. The overall average score was 88.6 percent. The licensee's post-administration analysis identified that Questions 83 and 86, common to both the reactor operator and senior operator examinations, were missed by more than 50 percent of the applicants. Analysis indicated this was due to a failure to include specific information on the subject in the license class training program. The licensee initiated a training evaluation action request to ensure the information will be included in future license class training programs. No broad training or knowledge weaknesses were identified during review of applicant performance on the administered examinations. There were no post-examination comments or changes to the written examination.

c. Conclusions

All 14 applicants passed the written examinations. No broad knowledge or training weaknesses were identified as a result of evaluation of the graded examinations.

04.2 Initial Operating Test

a. Inspection Scope

The examination team administered the various portions of the operating examination to the 14 applicants on August 31 through September 3, 1998. Each applicant participated in the appropriate number of dynamic simulator scenarios. Each reactor operator and instant senior operator applicant received a walk-through test, which consisted of ten system and four administrative areas. The upgrade senior operator applicants were tested in five system and four administrative areas.

b. Observations and Findings

All applicants passed all portions of the operating test. Overall, the applicants performed very well in the dynamic simulator scenarios with good oversight and peer checking, and effective communications noted by the examiners. The applicants displayed good knowledge of technical specifications and facility abnormal and emergency procedures. The applicants performed well on the walk-through and administrative sections of the examination.

c. Conclusions

All 14 applicants passed the operating tests. The applicants exhibited good oversight, peer checking and effective communications.

05 **Operator Training and Qualification**

05.1 Initial Licensing Examination Development

The facility licensee developed the initial licensing examination in accordance with guidance provided in NUREG-1021, "Operating Licensing Examination Standards," Interim Revision 8, dated January 1997.

05.1.1 Examination Outline

a. Inspection Scope

The facility licensee submitted the initial examination outlines on May 4, 1998. The chief examiner reviewed the submittal against the requirements of NUREG-1021, Interim Revision 8.

b. Observations and Findings

The chief examiner determined that the initial examination outlines satisfied NRC requirements.

c. Conclusions

The licensee submitted an adequate examination outline.

05.1.2 Examination Package

a. Inspection Scope

The draft examinations were transmitted by the licensee to the NRC on July 2, 1998. The licensee submitted the completed final examination package on August 21, 1998. The chief examiner reviewed the examinations against the requirements of NUREG-1021, Interim Revision 8.

b. Observations and Findings

The draft written examination contained 134 questions, 66 of which were common to both the reactor operator and senior reactor operator examinations. All of the questions were developed for this examination. The draft examination was considered technically valid, to discriminate at the proper level, and responsive to the outline submitted by the licensee on May 4, 1998. The written examination was considered adequate for administration as submitted.

The draft operating test consisted of four sets of administrative topics, two sets of control room systems and facility walk-through tests, and six integrated plant operation scenarios. Review of the submitted material identified extensive problems with format and quality. For example, the job performance measurements provided for the administrative topics area were not formatted to present the step by step actions expected or the acceptance standards applicable to the actions (e.g., JPM-CCWSA). None of the Day 2 JPMs specified a radiation controlled area entry, which is required. The wrong topic was applied in one area of all four sets and several topic area questions were presented as multiple choice instead of the short answer format of the administration test (e.g., A.1-1, A.1-2, A.3-4, A.2-8; and others). Numerous prescribed questions required extensive revision or replacement because they did not meet the predominant open reference requirements (e.g., both questions of JPM RCP020); one job performance measurement had to be replaced and a second one revised to meet the proper discriminatory level. All of the scenarios required extensive revision to insure the application of the proper transients and events as defined in the NRC Examination Standards. The operating test was inadequate for administration as submitted.

The facility staff responded with prompt and efficient revisions and resubmitted the final examination material in a timely manner, eliminating any affect on the examination schedule.

c. Conclusions

The operating test material was inadequate for administration as submitted by the licensee. However, the facility staff's highly responsive revision and replacement of the examination material precluded any affect on the examination administration schedule. No significant changes to examination materials were required as a result of administration.

05.1.3 Licensing Conditions

a. Inspection Scope

The chief examiner reviewed the final applications as submitted by the facility for the license applicants against the requirements of NUREG-1021, Interim Revision 8.

b. Observations and Findings

The chief examiner verified that the facility licensee properly identified the required five significant reactivity manipulations on the reactor operator and senior operator, instant, applications. The chief examiner also verified that the facility had properly documented these manipulations and that they were significant in accordance with NRC Information Notice 97-67.

c. Conclusions

The facility's program was adequate to ensure that initial applicants for reactor operator licenses met licensing conditions for performance of significant reactivity manipulations.

05.2 Simulation Facility Performance

a. Inspection Scope

The examiners observed simulator performance with regard to fidelity during the examination validation and administration.

b. Observations and Findings

The simulator performance was excellent. No fidelity problems were noted. The licensee's simulator support staff was very efficient and greatly enhanced the examination schedule. Turn around times between scenarios and job performance measurements were very fast. This reduced time between scenarios and helped ease applicant stress levels.

c. Conclusions

The simulator and simulator staff supported the examinations well. No fidelity issues were identified.

V. Management Meetings

X1 Exit Meeting Summary

The examiners presented the inspection results to members of the licensee management at the conclusion of the inspection on September 4, 1998. The licensee acknowledged the findings presented.

The licensee did not identify as proprietary any information or materials examined during this inspection.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

B. Bement, U-2 Plant Manager
M. Blanchard, U-2 Simulator Instructor
R. Byford, Operations Training
S. Cotton, Training/EP Director
J. Giles, Operations Training Supervisor
J. Hatman, Simulator Instructor
L. McLerran, Simulator Supervisor
T. Russell, U-2 Operations Manager
D. Sealock, Simulator Supervisor
G. Woolf, Simulator Instructor

NRC

K. Kennedy, Senior Resident Inspector

INSPECTION PROCEDURES USED

NUREG-1021, NUREG-1021, "Operating Licensing Examination Standards," Interim Revision 8,
January 1997"

ATTACHMENT 2

FINAL WRITTEN EXAMINATIONS AND ANSWER KEYS

**U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination**

Applicant Information

Name:	Region: IV
Date:	Facility/Unit: ANO - UNIT 2
License Level: RO	Reactor Type: CE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected four hours after the examination starts.

Applicant Certification

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

Applicant's Signature

Results

Examination Value	_____ 100 _____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 1

QID: 0069

Rev: 000

Point: 1.00

A small Main Feedwater line break downstream of Main Feedwater Check valve (2FW-5A) at full power will depressurize the affected Steam Generator and start an uncontrolled cooldown when:

- A. The reactor trips on low Steam Generator level.
- B. The main feedwater isolation valve is closed to "A" Steam Generator.
- C. Main Feedwater and Emergency Feedwater to "A" Steam Generator is secured.
- D. The "A" Steam Generator level drops below 50% Wide Range level.

QUESTION: 2

QID: 0007

Rev: 000

Point: 1.00

Which one (1) of the following methods is used to verify the position of a FULLY OPEN manually-operated valve?

- A. Operate the handwheel to close the valve fully and then reopen the valve to a lightly backseated open position.
 - B. Operate the handwheel approximately one (1) turn toward the closed direction and then back to a fully open position.
 - C. Operate the handwheel toward the open direction; if the handwheel does not move, the valve is fully open.
 - D. Operate the handwheel toward the open direction until the valve is backseated open one-half turn.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 3

QID: 0005

Rev: 001

Point: 1.00

A plant startup is in progress and the following conditions exist:

- * The reactor is critical at 5E-5% power.
- * Tave is at 545 degrees F.
- * A rod control failure causes the selected control bank of rods to step out five (5) steps before being stopped by the operator.
- * No reactor trip occurs.

Which one of the following describes the effect that this event will have on reactor parameters over the next minute?

- A. Reactor Power will rise, Tave will be unaffected.
- B. Reactor Power and Tave will both rise.
- C. Reactor Power will be unaffected, Tave will rise.
- D. Reactor Power will rise, the response of Tave will depend upon core life.

QUESTION: 4

QID: 0004

Rev: 000

Point: 1.00

Which one of the following alarms requires entry into OP 2203.020 (High Reactor Coolant Activity)?

- A. Annunciator 2K11-A10, "SEC SYS RADIATION HI".
 - B. Annunciator 2K12-A1, "LETDOWN RADIATION HI/LO".
 - C. Annunciator 2K11-C10, "PROC LIQUID RADIATION HI/LO".
 - D. Annunciator 2K10-A6, "CNTMT RADIATION HI".
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 5

QID: 0011

Rev: 000

Point: 1.00

Which one (1) of the following conditions requires the affected Reactor Coolant Pump (RCP) to be tripped?

- A. Seal Bleedoff Temperature reaches 180 degrees F.
- B. Motor Winding Temperature reaches 180 degrees F.
- C. Vapor Seal Pressure reaches 750 psia.
- D. Component Cooling Water Flow is lost for over 10 minutes.

QUESTION: 6

QID: 0015

Rev: 000

Point: 1.00

Given the following:

- * Two (2) CEAs failed to insert on a Reactor Trip from full power.
- * RCS Pressure is 1800 psia.
- * HPSI Pump 2P89A is running.

Which one (1) of the following Emergency Boration methods should be selected if VCT Outlet valve (2CV-4873-1) is open and will NOT close from the Main Control Board?

- A. Open Boric Acid Gravity Feed valves (2CV-4921-1 and 2CV-4922-1).
 - B. Open RWT to Charging Pump Suction valve (2CV-4950-2).
 - C. Open Emergency Borate valve (2CV-4916-2) and start BAM Pump.
 - D. Open CVCS to HPSI Train valve (2CVC-115).
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 7

QID: 0016

Rev: 000

Point: 1.00

Given the following plant conditions:

- * The plant has tripped from 100% power.
- * 2202.001, Standard Post Trip Actions, has been entered.
- * The Main Turbine did NOT automatically trip.

Which one (1) of the following actions should be performed per 2202.001, Standard Post Trip Actions?

- A. Manually close the MSIVs from the control room.
- B. Manually open the Generator output breakers.
- C. Manually trip the Generator Exciter Field breaker.
- D. Manually trip the Turbine at control panel 2C01.

QUESTION: 8

QID: 0018

Rev: 000

Point: 1.00

Given the following:

- * The reactor has tripped from 100% power.
- * Pressurizer pressure is 1275 psia and DECREASING.
- * Pressurizer level is 3%.
- * CETS indicate 450 degrees F.
- * All required ESFAS Actuation have actuated.

Which one (1) of the following is the MINIMUM operator action for the above conditions per 2202.001, Standard Post Trip Actions?

- A. De-energize the pressurizer backup heaters and reduce auxiliary spray to less than 165 gpm.
 - B. Secure pressurizer spray and energize ALL heaters.
 - C. Stop one (1) RCP in each RCS loop.
 - D. Stop ALL RCPs.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 9

QID: 0021

Rev: 000

Point: 1.00

Which one (1) of the following is best to determine the Steam Generator (SG) to be isolated when a tube rupture occurs in BOTH Steam Generators?

- A. Water Levels.
- B. Feedwater Flow Rates.
- C. Radiation Levels.
- D. Boron Concentrations.

QUESTION: 10

QID: 0023

Rev: 000

Point: 1.00

Which one (1) of the following Refueling conditions requires boration per Technical Specification 3.9.1, Refueling Operations?

- A. RCS boron concentration is 2250 ppm.
 - B. 1/M plot is a horizontal line after fuel movement has ceased.
 - C. RCS temperature is 68 degrees F.
 - D. Keff is less than 0.95.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 11

QID: 0027

Rev: 000

Point: 1.00

Given the following:

- * The RCS has a stuck open Pressurizer Safety valve.
- * The reactor tripped and safety injection has actuated.
- * The RCS has rapidly depressurized to saturation conditions.
- * Pressurizer level initially dropped and then began to rise rapidly.

Which one (1) of the following characterizes the relationship between pressurizer level and RCS inventory and the reason for these conditions?

- A. Level is NOT an accurate indication of inventory. RCS voiding may result in a rapidly increasing pressurizer level.
- B. Level is NOT an accurate indication of inventory. The cold calibrated pressurizer level channels indicate high during high temperature, low pressure conditions.
- C. Level is an accurate indication of inventory. Voiding would occur first in the pressurizer steam space due to the high temperature of the pressurizer walls.
- D. Level is an accurate indication of inventory. RCP flow would sweep any voids from the RCS to the pressurizer steam space and out the safety.

QUESTION: 12

QID: 0028

Rev: 001

Point: 1.00

Given the following:

- * Reactor power is 10%.
- * A main turbine roll to 1800 rpm is in progress.
- * Condenser vacuum has begun degrading.
- * Annunciators 2K03-A3/A4 "2E11A/B Pressure Hi) are actuated.

Which one (1) of the following immediate actions should be taken by the Crew?

- A. Reduce turbine speed to stabilize condenser vacuum.
- B. Raise Tave to reduce SDBCS load.
- C. Trip the turbine before exceeding 7 inches Hg absolute.
- D. Observe the vacuum trend to determine if the turbine must be tripped over the next five (5) minutes.

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 13

QID: 0030

Rev: 000

Point: 1.00

Which one (1) of the following describes the effect on the source range nuclear instruments if excessive voids are formed in the core due to inadequate core cooling?

- A. Count rates would decrease due to more moderation within the core causing less fast neutron leakage.
- B. Count rates would decrease due to less moderation within the core inserting negative reactivity to decrease the shutdown power level.
- C. Count rates would increase due to less moderation within the core causing more fast neutron leakage.
- D. Count rates would increase due to more moderation within the core inserting positive reactivity to increase the shutdown power level.

QUESTION: 14

QID: 0031

Rev: 000

Point: 1.00

Given the following conditions:

- * The plant is in Refueling Operations with core alterations in progress.
- * Steam Generator secondary manways are removed.
- * The Steam Generator primary side manways are open with nozzle dams installed.
- * Both LPSI and Spray Pumps are operable.

Which one (1) of the following maintenance activities requires a suspension of core alterations and movement of irradiated fuel in Containment?

- A. Testing the automatic isolation of the Containment Purge valves.
 - B. One (1) LPSI Pump is taken out of service to test breaker over-current settings.
 - C. Starting to perform the eddy current testing of the steam generators.
 - D. Steamline safety valves are removed for bench testing of lift setpoint.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 15

QID: 0036

Rev: 000

Point: 1.00

Which one (1) of the following describes the application of CAUTIONs in Emergency Operating Procedures (EOPS)?

- A. Only apply to the continuous action steps of that procedure.
- B. Apply to ALL steps following the CAUTION statement.
- C. Apply to the entire procedure in which the CAUTION is listed.
- D. Apply to the step immediately following the CAUTION.

QUESTION: 16

QID: 0037

Rev: 001

Point: 1.00

Which one (1) of the following would require development of a Temporary Alteration package? (Reference material provided)

- A. Performing a channel calibration in which the procedure requires installing jumpers to electrically bypass automatic actuation.
 - B. A blank flange is installed on a tagged out line while rerouting the line under an approved Job Order.
 - C. Connecting cables from 480V Motor Control Center (MCC) to a temporary power panel for outage maintenance support.
 - D. Maintenance technicians installing a temporary drain hose to support changing oil in a pump.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 17

QID: 0038

Rev: 000

Point: 1.00

While performing a Technical Specification Surveillance Test, an unacceptable condition occurs. Which one (1) of the following is the required action?

- A. Continue the test to the next logical hold point while recording data as required and then inform the Shift Superintendent.
- B. Immediately notify the Shift Superintendent.
- C. Record data as observed and allow Shift Superintendent to compare parameter with acceptance criteria upon completion of the test.
- D. Record data as observed and note the out-of-spec parameter in the comments section.

QUESTION: 18

QID: 0043

Rev: 000

Point: 1.00

Cutting and welding in the Auxiliary Building were completed at 1410. Which one (1) of the following is the EARLIEST time the fire watch can be secured?

- A. 1420.
 - B. 1430.
 - C. 1440.
 - D. 1510.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 19

QID: 0044

Rev: 001

Point: 1.00

A Maintenance Contractor assigned to the Refueling Team has been assigned the task of breaking the incore detector flanges. Given the following information on dose history and dose rate, what is his stay time for the job?

- Committed Dose Equivalent --- 0.75 REM
- Deep Dose Equivalent --- 0.8 REM
- Lens Dose Equivalent --- 0.2 REM
- Committed Effective Dose Equivalent --- 0.2 REM
- Dose Rate at Flanges --- 0.9 R/HR

- A. 1.0 hour.
- B. 2.0 hours.
- C. 3.0 hours.
- D. 4.0 hours.

QUESTION: 20

QID: 0045

Rev: 000

Point: 1.00

Which one (1) of the following is the required MAXIMUM interval between performing safety function status checks per 2202.004, Loss of Coolant Accident?

- A. Perform every 5 minutes.
 - B. Perform every 10 minutes.
 - C. Perform every 15 minutes.
 - D. Perform every 30 minutes.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 21

QID: 0046

Rev: 000

Point: 1.00

Given the following conditions:

- * The MSIVs must be tagged in the OPEN position for repacking in MODE 6.
- * The Instrument Air supply isolation valve will be tagged CLOSED.

Which one (1) of the following items should be included in the MINIMUM Personnel Protective equipment tagging requirements?

- A. Lift the leads on the MSIS solenoid valves.
- B. Place the Control Room handswitches for the MSIVs to OPEN.
- C. Open the vent on the valve operator.
- D. Install locking pins for MSIVs.

QUESTION: 22

QID: 0049

Rev: 001

Point: 1.00

Which of the following parameters determine the Pressurizer Level Setpoint Program?

- A. Main Steam flow.
 - B. RCS flow.
 - C. RCS Thot.
 - D. RCS Tave.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 23

QID: 0052

Rev: 001

Point: 1.00

Given the following conditions:

- * A small feedline break inside containment has resulted in containment temperature increasing from 100 degrees F to 160 degrees F and containment pressure increasing from 14.5 to 17.0 psia.

Which one (1) of the following describes how and the reason why the increase in containment temperature will affect the indicated pressurizer level?

- A. Indicated level will be LOWER than actual level because of the elevated containment pressure.
 - B. Indicated level will be HIGHER than actual level because the reference leg fluid density decreases.
 - C. Indicated level will be HIGHER than actual level because of the elevated containment pressure.
 - D. Indicated level will be LOWER than actual level because the reference leg fluid density decreases.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 24

QID: 0053

Rev: 000

Point: 1.00

Given the following conditions:

- * The plant is in HOT SHUTDOWN.
- * Safety Injection Tank parameters are as follows:

SIT	LEVEL(%)	PRESSURE	BORON (PPM)
2T2A	80	605	2300
2T2B	81	610	2400
2T2C	82	615	2500
2T2D	83	620	2600

Which one (1) of the Safety Injection Tanks (SITS) will prevent entry in HOT STANDBY per Technical Specifications?

- A. 2T2A.
- B. 2T2B.
- C. 2T2C.
- D. 2T2D.

QUESTION: 25

QID: 0059

Rev: 000

Point: 1.00

Given the following Main Feedwater Pump operating parameters exist for one (1) minute:

- * Suction pressure is 200 psig.
- * Suction flow is 2700 gpm.
- * Bearing temperature is 170 degrees F.
- * Bearing oil pressure is 15 psig.

Which one (1) of the following conditions will automatically trip the Main Feedwater Pump?

- A. Suction pressure.
- B. Suction flow.
- C. Bearing temperature.
- D. Bearing oil pressure.

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 26

QID: 0060

Rev: 000

Point: 1.00

Which one (1) of the following describes the effect of a Waste Gas Decay Tank pressure increasing to 400 psig?

- A. A rupture disc will relieve pressure to Containment.
- B. A rupture disc will relieve pressure to the Waste Gas Surge Tank.
- C. A rupture disc will unisolate a relief valve and relieve pressure to Containment.
- D. A rupture disc will unisolate a relief valve and relieve pressure to the Waste Gas Surge Tank.

QUESTION: 27

QID: 0061

Rev: 000

Point: 1.00

Which one (1) of the following Area Radiation Monitors has Technical Specification operability requirements?

- A. 2RITS-8903, 354 Aux Bldg VCT Access Area monitor.
 - B. 2RITS-8912, 404 Containment SW End Refueling Deck monitor.
 - C. 2RITS-8916, 404 Spent Fuel Pool General Area monitor.
 - D. 2RITS-8917, 354 Aux Bldg Hot Lab Sample Room Area monitor.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 28

QID: 0062

Rev: 001

Point: 1.00

Which one (1) of the following actions confirms that a Process Liquid radiation monitoring instrument with a normal background reading is functional from the detector to the meter?

- A. Placing the selector switch in HV (High Voltage) and insuring detector voltage is correct.
- B. Placing the selector switch in LEVEL CAL, checking the high alarm setpoint and valve isolation.
- C. Placing the selector switch in CHECK SOURCE, observing an increasing meter reading and valve isolation.
- D. Removing the high-voltage power cable and observing the count rate decreasing to a lower value.

QUESTION: 29

QID: 0063

Rev: 000

Point: 1.00

Which one (1) of the following describes the purpose of the thermocouples in the incore detector strings?

- A. Temperature compensation for the Reactor Vessel Level Monitoring System.
 - B. Indication of core coolant outlet temperature.
 - C. Coolant temperature data to the excore nuclear instruments for density correction.
 - D. Mapping of core temperature for calibration of RTDs.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 30

QID: 0066

Rev: 000

Point: 1.00

Which one (1) of the following fuel handling events is addressed in 2502.001, Fuel Shuffle?

- A. A spent fuel assembly is damaged while being withdrawn from the core.
- B. A new fuel assembly is found with the motion sensors tripped during fuel receipt inspection.
- C. The Reactor goes critical while a fuel assembly is being inserted into the core.
- D. A CEA is hanging from the upper guide structure during the removal of the upper guide structure.

QUESTION: 31

QID: 0067

Rev: 000

Point: 1.00

A Loss of Offsite Power has occurred and both Emergency Diesel Generators and AAC Generator have failed to start automatically or manually. If power interruption is expected to exceed _____ minutes, then Vital Inverters 2Y13 and 2Y24 are to be secured?

- A. 15 minutes.
- B. 30 minutes.
- C. 60 minutes.
- D. 120 minutes.

QUESTION: 32

QID: 0002

Rev: 000

Point: 1.00

The plant is at 75% power when a new Letdown Demineralizer is placed in service. Which one of the following will occur if the boric acid saturation of this demineralizer is incomplete?

- A. Tave will increase.
 - B. Tave will decrease.
 - C. Lithium concentration will go up.
 - D. Letdown flowrate will decrease.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 33

QID: 0071

Rev: 000

Point: 1.00

Which of the following describes the reason for the requirement to have a Hot Leg vent path for a Loss of Shutdown Cooling when the Steam Generator nozzle dams are installed?

- A. To prevent steam formation in the hot leg from causing an erroneously high Reactor Vessel level indication.
- B. To prevent steam formation in the Reactor Vessel head from pressurizing the RCS, leading to core uncover.
- C. To prevent steam formation in the hot leg which will ultimately collapse, causing severe water hammer.
- D. To prevent the loss of RCS inventory caused by lifting a Low Temperature Overpressure Protection (LTOP) relief valve.

QUESTION: 34

QID: 0072

Rev: 000

Point: 1.00

While operating at power, significant current oscillations (100 amps) are observed on 480V bus 2B5. Annunciator 2K12-B3, "CHARGING PUMP HEADER FLOW LOW" actuates and shortly thereafter, Charging Pump 2P36A trips on overcurrent. Which of the following actions should be taken?

- A. Start an alternate charging pump after verifying its suction and discharge path.
 - B. Restart Charging Pump 2P36A after resetting the overcurrent trip.
 - C. Secure letdown and initiate an investigation for the loss of Charging Pump 2P36A.
 - D. Secure letdown, start an alternate charging pump, then restore letdown.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 35

QID: 0073

Rev: 000

Point: 1.00

All of the following allow termination of Safety Injection after a small break LOCA except?

- A. Subcooled margin 50 degrees F.
- B. Pressurizer Level 35% and dropping slowly.
- C. RVLMS level 2 wet.
- D. Steam Generator Level 23% NR.

QUESTION: 36

QID: 0077

Rev: 000

Point: 1.00

If a fire in the Cable Spreading Room burns for 45 minutes before it is extinguished, which of the following will still be reliable indication for RCS pressure?

- A. Safety Parameter Display System (SPDS) point P4624-2.
- B. Pressurizer Pressure Control Channel Indicator P4626A.
- C. Pressurizer Pressure Safety Channel Indicator 2P4626-1B.
- D. Pressurizer Pressure Low Range Pressure Indicator 2P4623-1.

QUESTION: 37

QID: 0078

Rev: 000

Point: 1.00

Immediately upon confirmation of a fire, the dedicated Board Operator is responsible for all of the following actions EXCEPT:

- A. Making preliminary reportability verification.
 - B. Notify person reporting the fire to evacuate all non-fire brigade personnel from the area.
 - C. Obtaining pertinent information from the person confirming the alarm.
 - D. Ensure the SS/CRS is notified.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 38

QID: 0079

Rev: 000

Point: 1.00

Which of the following Reactor Trip Circuit Breakers would indicate open on a loss of 120V Vital AC bus 2RS-1?

- A. Breakers 1 and 5.
- B. Breakers 2 and 7.
- C. Breakers 3 and 6.
- D. Breakers 4 and 8.

QUESTION: 39

QID: 0081

Rev: 000

Point: 1.00

Which of the following reflects the primary concern of the operators after a major steam line break upstream of the MSIV in which the affected Steam Generator blows dry?

- A. Ensure the RC'S reheats back to normal operating temperature within Tech Spec heatup limits.
- B. Maintain subcooling margin between 30F and 200F.
- C. Energize all pressurizer heaters to re-establish saturated conditions in the pressurizer.
- D. Re-establish all safety injection flow.

QUESTION: 40

QID: 0089

Rev: 000

Point: 1.00

Which of the following describes a condition that prevents the Refueling Machine from entering the upender zone?

- A. Fuel Hoist Box is latched.
 - B. Hoist is at Hoist Up limit.
 - C. Spreader is fully retracted.
 - D. Upender is completely horizontal.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 41

QID: 0090

Rev: 000

Point: 1.00

Which of the following devices is used for detecting Pressurizer Code Safety lift?

- A. Heated junction thermocouple.
- B. Resistive Temperature device.
- C. Accelerometers.
- D. Proximity device.

QUESTION: 42

QID: 0093

Rev: 000

Point: 1.00

Which of the following is the correct response if an EDG is paralleled to the grid and the governor and voltage control hand switches are both taken to Raise/Increase?

- A. KW increases and EDG speed increases.
- B. Reactive load increases and KW increases.
- C. Indicated output voltage increases and reactive load increases.
- D. EDG speed increases and indicated output voltage increases.

QUESTION: 43

QID: 0094

Rev: 000

Point: 1.00

Which of the following describes 4160V breaker operation if DC control power is lost?

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

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 44

QID: 0095

Rev: 001

Point: 1.00

The output of the Vital 120VAC Inverters is considered to be uninterruptible because:

- A. Auctioneered AC power supplies are provided to the rectifier section.
- B. Inverter input is auctioneered between the rectifier output and a DC Battery Bus supply.
- C. An internal battery is auctioneered with the rectifier output.
- D. The static transfer switch automatically transfers to AC alternate source.

QUESTION: 45

QID: 0097

Rev: 000

Point: 1.00

A cooldown to Mode 5 using the Steam Dump and Bypass Control System is in progress.

Plant conditions are as follows:

- * Steam Generator A & B pressures are 745 psia.
- * Reactor Coolant System temperature is 508F.
- * Pressurizer pressure is 2100 psia and level is 33%.
- * RCPs 2P32A, B and C are operating.
- * Charging Pumps 2P36A and 2P36B are operating and Letdown is in automatic control.

Select the action which should be performed to prevent an inadvertent Engineered Safety Features Actuation (ESFAS).

- A. Reset the Pressurizer low pressure trip setpoints.
 - B. Raise Pressurizer level to 50%.
 - C. Bypass the Pressurizer low pressure trip.
 - D. Reset the Steam Generator low pressure trip setpoints.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 46

QID: 0099

Rev: 001

Point: 1.00

Following a single channel CPC trip, how can the operator quickly determine if the trip signal is due to an auxiliary trip?

- A. By obtaining the CEAC Trip Buffer Report.
- B. By observing a trip light without the associated pretrip light.
- C. By obtaining the trip TRA report.
- D. By observing that Diverse Scram System (DSS) Trouble annunciator has actuated.

QUESTION: 47

QID: 0101

Rev: 000

Point: 1.00

The motor thermal overloads for 2CV-5015-1 (High Pressure Safety Injection valve) are bypassed on.....

- A. RAS to ensure the valve can be auto opened and overridden closed.
- B. SIAS to ensure the valve can be manually opened only.
- C. SIAS to ensure the valve can be opened.
- D. SIAS to ensure the valve can be closed.

QUESTION: 48

QID: 0102

Rev: 000

Point: 1.00

The RCS High Point Vents are required to be operable in Modes 1, 2, 3 and 4 to:

- A. Limit combustible mixtures.
 - B. Prevent steam or non-condensables from interfering with natural circulation.
 - C. Equalize pressure between the Pressurizer and Reactor Vessel head.
 - D. Ensure that hot leg injection reaches the core.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 49

QID: 0104

Rev: 001

Point: 1.00

An EFAS 1 signal will be present for which of the following? (consider each answer separately).

- A. SG "A" Level = 20% NR & Press = 600 psia SG "B" Level = 26.5% NR & Press = 600 psia.
- B. SG "A" Level = 30% NR & Press = 700 psia SG "B" Level = 25% NR & Press = 680 psia.
- C. SG "A" Level = 15% NR & Press = 200 psia SG "B" Level = 20% NR & Press = 400 psia.
- D. SG "A" Level = 5% NR & Press = 500 psia SG "B" Level = 10% NR & Press = 370 psia.

QUESTION: 50

QID: 0105

Rev: 001

Point: 1.00

Which of the following events is in progress for the given conditions?

- RCS pressure, temperature, power, and inventory stable.
 - Steam Generator pressure and levels stable.
 - Containment temperature, pressure and humidity rising rapidly.
 - Containment Sump indicates a 150 gpm increase.
- A. RCS leak in Containment.
 - B. Main Steam Leak in Containment.
 - C. CCW leak in Containment.
 - D. Main Feedwater leak in Containment.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 51

QID: 0106

Rev: 000

Point: 1.00

With Hot and Cold leg injection in progress, which of the following temperature indications should be used to monitor RCS temperature?

- A. Average Core Exit Thermocouples.
- B. Hot leg safety channel.
- C. Cold leg safety channel.
- D. Hot leg control channel..

QUESTION: 52

QID: 0110

Rev: 000

Point: 1.00

The following conditions exist:

- * A feedline break has occurred inside containment.
- * Containment pressure is 18.5 psia.
- * Containment radiation is normal.
- * PZR pressure is 1825 psia.
- * RWT level is 92%.
- * SG pressures are (SG"A") 925 psia, (SG"B") 580 psia.
- * SG levels are (SG"A") 22% NR, (SG"B") 10% NR

All of the following actuation signals should have occurred with the exception of:

- A. SIAS
 - B. MSIS
 - C. EFAS 1
 - D. CSAS
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 53

QID: 0114

Rev: 000

Point: 1.00

Which of the following is the reason for preventing the start of the fourth Reactor Coolant Pump until RCS temperature is greater than 500 degrees Farenheight?

- A. To prevent exceeding RCS heatup rate limits.
- B. To prevent excessive RCP starting currents.
- C. To limit Steam Generator tube stresses.
- D. To limit core uplift.

QUESTION: 54

QID: 0115

Rev: 000

Point: 1.00

A cooldown and depressurization is in progress. RCS pressure is currently at 1100 psia and seal pressures for RCP 2P32B are:

- * Vapor 40 psia.
- * Upper 40 psia.
- * Middle 530 psia.

Which RCP seal has failed?

- A. Lower seal.
 - B. Middle seal.
 - C. Upper seal.
 - D. Vapor seal.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 55

QID: 0116

Rev: 000

Point: 1.00

While performing a reactor startup, which of the following indicates the EARLIEST time that you should anticipate criticality?

- A. When the shutdown banks are being withdrawn.
- B. When the first regulating group is being withdrawn.
- C. When the 1/M plot indicates criticality within the next 100 inches.
- D. When inside the window of five to seven doublings.

QUESTION: 56

QID: 0118

Rev: 000

Point: 1.00

The CBOR is withdrawing CEA's in the Manual Sequential mode during a Reactor Startup. Regulating Group 4 has just started outward motion from 0.0 inches. At what Regulating Group 4 position should Regulating Group 5 start outward motion?

- A. 50 inches.
 - B. 75 inches.
 - C. 100 inches.
 - D. 125 inches.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 57

QID: 0121

Rev: 000

Point: 1.00

Fuel is being reloaded into the Reactor Vessel when the Shift Supervisor informs you that one startup channel neutron flux monitor has failed. Which of the following describes the required action?

- A. Fuel reload may continue provided backup boron samples are taken every four (4) hours.
- B. Fuel reload may continue provided the inoperable channel is returned to operable status within four (4) hours.
- C. Suspend core alterations until boron sampling has been initiated every twelve (12) hours for 36 hours.
- D. Suspend core alterations until the inoperable channel is returned to operable status.

QUESTION: 58

QID: 0124

Rev: 000

Point: 1.00

Which of the following best describes the condition in which the ANO overtime working hour policy applies?

- A. a person working in training performing simulator operations.
 - B. a person working on a procedure revision for a quality related system.
 - C. a person working on a non-safety related system or component.
 - D. a person working on safety-related system or component.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 59

QID: 0125

Rev: 000

Point: 1.00

A Waste Control Operator is required to complete a valve lineup in an area where the radiation level is 50 mrem/hour. The operator's current Total Effective Dose Equivalent (TEDE) is 1730 mrem. What is the maximum time he can work in this area and not exceed his Administrative Dose Control Level (ADCL)?

- A. 1 hour.
- B. 5 hours.
- C. 10 hours.
- D. 25 hours.

QUESTION: 60

QID: 0127

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Unit operating at 100% power.
- * Channel "D" upper detector of excore safety channel monitors fails HIGH.

Which one (1) of the following describes the expected response of Channel "D" Reactor Protection System to this failure? (No other failures are present)

- A. High Local Power Density and Low DNBR trips without pre-trips.
 - B. High Log Power, High Local Power Density and Low DNBR trips and pre-trips.
 - C. High Log Power, High Local Power Density and Low DNBR trips without pre-trips.
 - D. High Linear Power, High Local Power Density and Low DNBR trips and pretrips.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 61

QID: 0129

Rev: 000

Point: 1.00

Given the following conditions:

- * Pressurizer Level Control System master controller is in AUTO REMOTE.
- * Level Control is selected to Channel 2.
- * Heater Low Level Cutout is selected to BOTH.
- * Reference leg of 2LT-4627-2 develops a leak.

WHICH ONE of the following describes the response of the Pressurizer Level Control System?

- A. Backup charging pump starts, heaters energize, letdown flow decreases.
- B. Backup charging pump starts, heaters cutout, letdown flow decreases.
- C. Backup charging pump gets a stop signal, heaters energize, letdown flow increases.
- D. Backup charging pump gets a stop signal, heaters do not change state, letdown flow increases.

QUESTION: 62

QID: 0130

Rev: 000

Point: 1.00

An accident has occurred that results in the following indications which have been tracked for the past FIVE minutes:

- * RCS Pressure:-----1650 psia and stable.
- * RCS Cold Leg Temperatures: ----- 540, 542, 538, 542 degrees F.
- * Pressurizer Level: ----- 20% and decreasing.
- * Margin To Saturation ----- 67degrees F.
- * Containment Pressure ----- 18.9 psia.
- * RCPs: ----- All running.

Which one of the following describes the operator action required to respond to these conditions?
Assume all automatic actions have occurred correctly.

- A. Stop the RCPs since the SIAS has isolated CCW flow to the RCPs.
- B. Stop the RCPs since the CIAS has isolated CCW flow to the RCPs.
- C. Trip two RCPs since SIAS has actuated.
- D. Override and restore CCW Flow to RCPs.

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 63**QID: 0133****Rev: 000****Point: 1.00**

Which one of the following DC electrical sources supplies control power to Emergency Diesel Generator #1?

- A. 2D23
- B. 2D24
- C. Battery Eliminator 2D35.
- D. Rectified exciter output.

QUESTION: 64**QID: 0135****Rev: 000****Point: 1.00**

Assuming two Atmospheric Dump valves are out of service. Which one of the following best approximates the remaining total steam flow capacity of the Steam Dump and Bypass Control System?

- A. 25%
- B. 30%
- C. 40%
- D. 50%

QUESTION: 65**QID: 0138****Rev: 000****Point: 1.00**

All of the following components/subsystems can be discharged into the Quench Tank EXCEPT:

- A. RCP Vapor Seal Leakoff.
 - B. Pressurizer Vent.
 - C. RCP Control Bleedoff relief.
 - D. Reactor Vessel Head Vent.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 66

QID: 0141

Rev: 000

Point: 1.00

While performing a natural circulation cooldown following a Steam Generator Tube Rupture, pressurizer level is varying by large amounts inconsistent with the cooldown and depressurization of the RCS. Which one of the following statements correctly describes the cause of wide deviations from the expected pressurizer level?

- A. Pressurizer level instrument reference leg flashing.
- B. Automatic operation of charging pumps.
- C. Contraction of the RCS during the cool down.
- D. Voiding in the Reactor Vessel Head area.

QUESTION: 67

QID: 0143

Rev: 000

Point: 1.00

Assuming ANO-2 was operating at 100% power initially and given the following data:

- * SG "A" Pressure ----- 700 psia
- * SG "B" Pressure ----- 750 psia
- * SG "A" Level ----- 15%
- * SG "B" Level ----- 24%
- * Cold Leg "A" Temperature ----- 503F
- * Cold Leg "B" Temperatures ----- 510F
- * Containment Temperature ----- 200F
- * Containment Pressure ----- 17.3 psia

Which one (1) of the following components should NOT have received an ESFAS signal to actuate?
(Assume Reactor tripped on Steam Generator Low Pressure)

- A. Emergency Feedwater Pump Turbine Steam Supply valve (2CV-0340-2).
 - B. Main Feedwater Block valve (2CV-1024-1).
 - C. Service Water To CCW Hx Supply valve (2CV-1530-1).
 - D. Main Steam Isolation valve (2CV-1010-1).
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 68

QID: 0144

Rev: 000

Point: 1.00

The reactor is critical at $10E-4\%$ power when charging pump suction inadvertently swaps from the VCT to the RWT. This occurs for approximately 10 minutes, then is stopped by the operators. Which one (1) of the following describes the comparative effect that this will have on letdown flow?

- A. It will decrease the most at BOL.
- B. It will decrease the most at EOL.
- C. It will increase the most at BOL.
- D. It will not be significantly affected.

QUESTION: 69

QID: 0146

Rev: 000

Point: 1.00

With a Control Element Assembly misaligned less than 19 inches, Technical Specifications allow the operator one hour to take corrective action. The one hour time limit will:

- A. preclude a decrease of available shutdown margin.
- B. minimize the effects of Xenon redistribution.
- C. preclude large effects on power distribution.
- D. preserve assumed worth of an ejected rod.

QUESTION: 70

QID: 0149

Rev: 001

Point: 1.00

Verification of Containment Spray System operation is required when Refueling Water Tank level decreases to $< 6\%$ during a Loss of Coolant Accident in order to:

- A. provide long term post-accident core cooling.
 - B. remove iodine from the containment atmosphere.
 - C. provide mixing of the sodium hydroxide.
 - D. provide flow to reduce electrolytic corrosion.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 71

QID: 0150

Rev: 000

Point: 1.00

Which one (1) of the following reactor trips protects against an uncontrolled CEA Withdrawal from a subcritical condition? (Assume no operator action is taken)

- A. Hi Linear Power.
- B. Lo DNBR.
- C. Hi LPD.
- D. Hi Log Power.

QUESTION: 72

QID: 0178

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Mode 6
- * Fuel movement in progress.
- * 2RITS-8905 (Elevation 354' Radiation Monitor by Equipment Hatch fails low.

Which of the following actions should be performed?

- A. Suspend all fuel movement.
 - B. Evacuate the Containment Building.
 - C. Verify portable radiation monitor on Main Refueling Bridge is operable.
 - D. Verify 2RITS-8909 (Personnel Hatch Rad Monitor) is operable
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 73

QID: 0153

Rev: 000

Point: 1.00

Following the determination that a CEA in Shutdown Bank "A" is misaligned by four (4) inches and mechanically bound, shutdown margin is calculated to be 4.9%. Which one (1) of the following actions should be taken?

- A. Continue plant operation without restriction.
- B. Reduce power to less than or equal to 81%.
- C. Start a plant shutdown and be in Mode 3 within 6 hours.
- D. Initiate Emergency Boration.

QUESTION: 74

QID: 0157

Rev: 000

Point: 1.00

The unit is at 50% power during a ramp to full power, when a reactor and turbine trip occur. Which one (1) of the following statements describes the immediate response of the atmospheric dump valves (ADVs) and Bypass Control valves?

- A. ADVs receive a "quick-open" signal and bypass valves modulate to control main steam pressure.
 - B. Bypass valves and one ADV receive "quick open" signal then modulate to control main steam pressure.
 - C. ADVs modulate to control RCS temperature and bypass valves receive a "quick-open" signal.
 - D. Reactor trip blocks all "quick open" signals then ADVs and bypass valves receive modulate signal from the master controller to control RCS temperature.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 75

QID: 0158

Rev: 000

Point: 1.00

When a manual reactor trip is attempted and the reactor does NOT trip after depressing the manual trip pushbuttons, 2202.001, Standard Post Trip Actions procedure contingency actions require the power supply to the CEDM MG Sets to be de-energized. Which of the following will accomplish this action from the control room?

- A. Open 480V Load Center 2B3 and 2B4 feeder breakers (2B-312 and 2B-412).
- B. Open 480V Load Center 2B7 and 2B8 feeder breakers (2B-712 and 2B-812).
- C. Open 480V MCC 2B31 and 2B41 feeder breakers (2B-321 and 2B-421)
- D. Open 480V MCC 2B71 and 2B81 feeder breakers (2B-732 and 2B-823).

QUESTION: 76

QID: 0159

Rev: 001

Point: 1.00

Which of the following pressurizer heater banks are powered by 480V Vital Power?

- A. Proportional heaters banks #1 and #2, backup heaters #1 and #2.
 - B. Backup heaters banks #1, #2, #3, #4.
 - C. Proportional heater banks #1 and #2.
 - D. Backup heaters banks #1 and #2.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 77

QID: 0160

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Plant shutdown and cooldown just completed from 100% power.
- * Shutdown Cooling has JUST been established.
- * A Loss of Instrument Air occurs.

Which of the following describes the Shutdown Cooling System response?

- A. All SDC flow is lost.
- B. SDC heat removal is lost.
- C. SDC flow is degraded.
- D. No significant effect.

QUESTION: 78

QID: 0161

Rev: 000

Point: 1.00

Given the following conditions:

- * A small break Loss of Coolant Accident is in progress.
- * RCS pressure is 1600 psia.
- * Containment pressure is 16 psia and slowly increasing.
- * Containment Hi Range Radiation Monitors read 13 R/Hr and increasing.
- * No operator actions have been performed.

Which one (1) of the following actions should be performed?

- A. Isolate letdown.
 - B. Manually actuate SIAS.
 - C. Manually actuate CIAS.
 - D. Manually actuate CSAS.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 79

QID: 0162

Rev: 000

Point: 1.00

Why does OP 2202.006, Loss of Feedwater require the operators to feed the Steam Generators using the EFW system flow at less than 150 gpm for five minutes when narrow range level is less than 48%?

- A. To minimize the amount of shrinkage to the steam generator level.
- B. To minimize the possibility of water hammer in the emergency feedwater system.
- C. To minimize the possibility of damage to the steam generator feed ring.
- D. To ensure the most reliable source of feedwater is used to restore steam generator level.

QUESTION: 80

QID: 0164

Rev: 000

Point: 1.00

Which is the maximum temperature expected as measured downstream of a leaking Pressurizer Code Safety valve on 2T1-4694, Quench Tank Temperature indicated on 2C04?

- A. 212 degrees F.
 - B. 300 degrees F.
 - C. 375 degrees F.
 - D. 650 degrees F.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 81

QID: 0165

Rev: 001

Point: 1.00

Given the following conditions:

- * Unit is operating at 100% power.
- * Current reactor coolant system leakage is as follows:
 - * Pressure boundary leakage --- 0.0 gpm
 - * Identified valve packing leakage --- 4.6 gpm
 - * Leakage to "B" Steam Generator --- 0.3 gpm
 - * Other Leakage --- 0.7 gpm

Which one of the following is true for LCO 3.4.6.2, Reactor Coolant System Operational leakage?

- A. Met, based on total leakage.
- B. Not met, based on unidentified leakage.
- C. Met, based on total identified leakage.
- D. Not met, based on primary-to-secondary leakage.

QUESTION: 82

QID: 0168

Rev: 000

Point: 1.00

Which of the following describes the effect of a loss of green DC Bus, 2D26 will have on the operation of Emergency Feedwater Pump 2P7A?

- A. All 2P7A discharge valves to both Steam generators will fail open.
 - B. All 2P7A discharge valves to both Steam generators will fail closed.
 - C. 2P7A will overspeed.
 - D. 2P7A will go to minimum speed.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 83

QID: 0169

Rev: 000

Point: 1.00

The following plant conditions exist:

- * CCW Pump 2P33A is supplying Loop I CCW.
- * CCW Pump 2P33B is supplying Loop II CCW.
- * CCW Pump 2P33C is tagged out for maintenance.
- * 2K12-F6, PUMP 2P33A/B/C LOCKED, is actuated.

Which of the following describes what would happen to the CCW Loop Crossover valves if 2P33A Tripped?

- A. Loop I Crossover valves automatically open and Loop II Crossover valves automatically close.
- B. Loop I Crossover valves automatically open and Loop II Crossover valves stay open so that 2P33B can supply both loops.
- C. The Control Board operator will have to manually open the Loop I Crossover valves and throttle closed Loop II Crossover valves to balance loop flows.
- D. The Loop I and Loop II Crossover valves will remain in the position they were in prior to 2P33A trip.

QUESTION: 84

QID: 0170

Rev: 000

Point: 1.00

What would the initial primary plant temperature and pressure response be for a 100% turbine load rejection?

- A. RCS temperature and pressure constant due to SDBCS valves opening to controlling SG pressure.
 - B. RCS temperature and pressure constant due to main spray valves opening.
 - C. RCS temperature and pressure increasing even with SDBCS valves and main spray valves opening.
 - D. RCS temperature and pressure decreasing due to SDBCS valves and main spray valves opening.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 85

QID: 0171

Rev: 000

Point: 1.00

Why are Service Water Pump 2P4B Disconnect Switches on 2A5 interlocked such that only one disconnect and its associated breaker can be closed at the same time?

- A. To prevent exceeding the disconnect switch current limits.
- B. To provide ESFAS input to 2P4B trip circuitry.
- C. To provide train separation of 2P4B power supplies.
- D. To prevent simultaneous operation of cross-over valves.

QUESTION: 86

QID: 0173

Rev: 001

Point: 1.00

Given the following plant conditions:

- * Full power Mode 1.
- * Circ Water Pump 2P3A trips.

Which of the following best describes why turbine load must be reduced for the given conditions?

- A. Prevent condenser overpressurization.
 - B. Prevent cavitation of Circ Water Pump 2P3B.
 - C. Prevent exceeding 40F circ water delta T across condensers.
 - D. Prevent exhaust hood temperature from exceeding 200F.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 87

QID: 0174

Rev: 000

Point: 1.00

The 90% limit switch on the MSIVs (2CV-1010A and 2CV-1060A) causes the:

- A. Exercise valve (2HS-1011 and 2HS-1061) green light to illuminate.
- E. Exercise valve(s) to open to prevent inadvertent MSIV closure.
- C. Intermediate position indication on the MSIV hand-switches (2HS-1010-1 and 2HS-1060-2).
- D. MSIV bypass valve to close when opening the MSIV.

QUESTION: 88

QID: 0175

Rev: 000

Point: 1.00

What effect would a decreasing Spent Fuel Pool Level from Elevation 401' 6" to Elevation 401' 1" have on the operation of the Spent Fuel System or the working area adjacent to the Spent Fuel Pool?

- A. Complete loss of NPSH to SFP cooling pumps.
 - B. Humidity levels will increase to greater than Tech Spec limit.
 - C. Boron concentration will decrease.
 - D. Radiation levels will increase.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 89

QID: 0176

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Mode 5
- * Equipment hatch is to be opened

Which of the following actions should be used to properly align the Containment Purge System?

- A. Place Purge Supply Fan, 2VSF-2, in HAND then secure Purge Exhaust Fan, 2VEF-15.
- B. Place Purge Exhaust Fan, 2VEF-15, in HAND then secure Purge Supply Fan, 2VSF-2.
- C. Manually close one Purge Exhaust Damper, then secure Purge Exhaust Fan, 2VEF-15.
- D. Manually close one Purge Supply Damper, then secure Purge Supply Fan, 2VSF-2.

QUESTION: 90

QID: 0177

Rev: 000

Point: 1.00

Which of the following describes why full power Containment Pressure is maintained between 13.9 psia and 14.2 psia?

- A. Prevent exceeding design limits on Containment for a large break LOCA.
 - B. Prevent exceeding design limits on Containment for an Excessive Steam Demand event.
 - C. Ensure a cushion exists for a Loss of Service Water.
 - D. Ensure a cushion exists for a Loss of Chilled Water.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 91

QID: 0151

Rev: 000

Point: 1.00

Given the following conditions:

- * Unit initially at 100% power.
- * CEA 46 (Regulating Group 6 CEA) drops fully into the core.
- * Crew lowers main turbine load to match Tave with Tref.
- * Power is reduced by 24% over the next hour.
- * After stabilization at 76% power, dilution is used to maintain temperature constant while repairs are made.

Which one (1) of the following is correct concerning shutdown margin?

- A. Adequate margin existed throughout the event.
- B. Inadequate margin exists because of the dilution.
- C. Inadequate margin exists because CEA 46 is unavailable for insertion.
- D. Adequate margin exists because power was not lowered to less than 30%.

QUESTION: 92

QID: 0179

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Full Power Operations
- * Condensate Pumps 2P2A, 2P2B and 2P2C running
- * Condensate Pump 2P2A trips

Which of the following automatic actions should occur?

- A. Heater Drain Pump 2P8A will auto start.
 - B. Condensate Pump 2P2D will auto start.
 - C. Recirculation valve for Condensate Pump 2P2B will auto close.
 - D. Main Feed Water Pump 2P1A will trip on low suction flow.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 93

QID: 0180

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Mode 5
- * Pressurizer Manway removed
- * LPSI Pump 2P60A through Shutdown Cooling Heat Exchanger 2E35A
- * High alarm actuated on Radiation Monitor 2RITS-1453 (SW From SDN Ht Exch 2E-35A)

Which of the following actions would be required?

- A. Secure 2P60A, close SDC RCS Isolation MOVs and start RCPs for RCS heat removal via SGs.
- B. Secure 2P60A, close SDC RCS Isolation MOVs and steam both SGs in Natural Circulation for heat removal.
- C. Align SW and RCS to 2E35B and isolate SW and RCS to 2E35A.
- D. Start Containment Spray Pump 2P35B and align to 2E35B and secure 2P60A and isolate SW and RCS to 2E35A.

QUESTION: 94

QID: 0181

Rev: 000

Point: 1.00

Given the following conditions:

- * Mode 3 post trip from full power.
- * EFAS signal present with EFW Pumps 2P7A and 2P7B running.
- * 2P75 feeding SG's via 2CV-0762 (AFW to EFW).

Which of the following describes why flow should be limited to 1200 gpm for the given conditions?

- A. Limit flow velocities.
 - B. Prevent binding of EFW block valves.
 - C. Prevent thermal shock to SGs.
 - D. Prevent AFW pump runout.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 95

QID: 0182

Rev: 000

Point: 1.00

Which of the following indications will be observed on a Loss of Inverter 2Y-11 (Red)?

- A. Half Leg Trip.
- B. Reactor Trip.
- C. All Red ESFAS components will actuate.
- D. NO Red ESFAS components will actuate.

QUESTION: 96

QID: 0183

Rev: 000

Point: 1.00

Given the following conditions:

- * Mode 2 operations.
- * Reactor Power 5E-5% and stable.
- * Annunciator 2K04-G9, MSSV Valve Open actuates and will not clear.
- * No operator actions taken.

Which of the following conditions will result in the highest power for the conditions given above?

- A. Initial CEA height.
 - B. Initial RCS Tave.
 - C. BOL Core.
 - D. EOL Core.
-
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 97

QID: 0188

Rev: 000

Point: 1.00

Given the following conditions:

- * Reactor has tripped from full power.
- * 110 gpm SGTR.
- * 60 gpm LOCA.
- * RCS cooldown and depressurization in progress.
- * RCS pressure 1200 psia.
- * RVLMS level 4 indicates wet.
- * RCS Thot 530F

Which of the following actions should be performed for the above conditions?

- A. Stop depressurization until RVLMS level 1 indicates wet.
- B. Stop cooldown.
- C. Secure one (1) RCP in each loop.
- D. Open Reactor Vessel High Point vents to Containment Atmosphere.

QUESTION: 98

QID: 0190

Rev: 000

Point: 1.00

Which of the following describes why RCS pressure is maintained within 100 psia of RCP NPSH during a primary to secondary leak of 20 gpm?

- A. Ensures margin to saturation is greater than 50F.
 - B. To minimize RCS Break flow.
 - C. Ensures seal injection can be maintained.
 - D. Prevents lifting primary code safeties.
-

ANO UNIT 2 - INITIAL RO EXAM

QUESTION: 99

QID: 0191

Rev: 001

Point: 1.00

Which of the following describes the status of Pressurizer Pressure Fisher-Porter controller, 2PIC-4626A after a temporary loss of power?

- A. Automatic mode of operation.
- B. Manual mode of operation.
- C. Minimum Output on controller.
- D. Maximum Output on controller.

QUESTION: 100

QID: 0194

Rev: 0

Point: 1.00

While performing Shift Turnover Checklist Modes 1-4 (1015.016B), you find no power indicated for Control Room Emergency Filtration Fan (2VSF-9). Which of the following actions would be the most appropriate for this situation?

- A. Leave the 2VSF-9 operability status on the checklist blank until you complete the remainder of the checklist.
 - B. Both the Unit 1 and Unit 2 Shift Superintendent should be immediately notified.
 - C. Place the Control Room Ventilation in the Emergency Mode by closing supply and exhaust dampers and starting 2VUC-27A or 2VUC-27B.
 - D. Designate 2VSF-9 operability not applicable (N/A) on check list if Unit 1 VSF-9 is operable because only one fan can be operated at a time.
-

ANO UN 2 - INITIAL RO EXAM ANSWER KEY

QUESTION: 1	QID: 0069	Point: 1.00
C. Main Feedwater and Emergency Feedwater to "A" Steam Generator is secured.		
QUESTION: 2	QID: 0007	Point: 1.00
B. Operate the handwheel approximately one (1) turn toward the closed direction and then back to a fully open position.		
QUESTION: 3	QID: 0005	Point: 1.00
A. Reactor power will rise, Tave will be unaffected.		
QUESTION: 4	QID: 0004	Point: 1.00
B. Annunciator 2K12-A1, "LETDOWN RADIATION HI/LO".		
QUESTION: 5	QID: 0011	Point: 1.00
D. Component Cooling Water Flow is lost for over 10 minutes.		
QUESTION: 6	QID: 0015	Point: 1.00
C. Open Emergency Borate valve (2CV-4916-2) and start BAM Pump.		
QUESTION: 7	QID: 0016	Point: 1.00
D. Manually trip the Turbine at control panel 2C01.		
QUESTION: 8	QID: 0018	Point: 1.00
C. Stop one (1) RCP in each RCS loop.		
QUESTION: 9	QID: 0021	Point: 1.00
C. Radiation Levels.		
QUESTION: 10	QID: 0023	Point: 1.00
A. RCS boron concentration is 2250 ppm.		
QUESTION: 11	QID: 0027	Point: 1.00
A. Level is NOT an accurate indication of inventory. RCS voiding may result in a rapidly increasing pressurizer level.		
QUESTION: 12	QID: 0028	Point: 1.00
C. Trip the turbine before exceeding 7 inches Hg absolute.		
QUESTION: 13	QID: 0030	Point: 1.00
C. Count rates would increase due to less moderation within the core causing more fast neutron leakage.		
QUESTION: 14	QID: 0031	Point: 1.00
D. Steamline safety valves are removed for bench testing of lift setpoint.		
QUESTION: 15	QID: 0036	Point: 1.00
D. Apply to the step immediately following the CAUTION.		

ANO UNIT 2 - INITIAL RO EXAM ANSWER KEY

QUESTION: 16	QID: 0037	Point: 1.00
C. Connecting cables from 480V Motor Control Center (MCC) to a temporary power panel for out-of-maintenance support.		
QUESTION: 17	QID: 0038	Point: 1.00
B. Immediately notify the Shift Superintendent.		
QUESTION: 18	QID: 0043	Point: 1.00
C. 1440.		
QUESTION: 19	QID: 0044	Point: 1.00
A. 1 hour.		
QUESTION: 20	QID: 0045	Point: 1.00
C. Perform every 15 minutes.		
QUESTION: 21	QID: 0046	Point: 1.00
D. Install locking pins for MSIVs.		
QUESTION: 22	QID: 0049	Point: 1.00
D. RCS Tave.		
QUESTION: 23	QID: 0052	Point: 1.00
B. Indicated level will be HIGHER than actual level because the reference leg fluid density decreases.		
QUESTION: 24	QID: 0053	Point: 1.00
A. 2T2A.		
QUESTION: 25	QID: 0059	Point: 1.00
A. Suction pressure.		
QUESTION: 26	QID: 0060	Point: 1.00
D. A rupture disc will unisolate a relief valve and relieve pressure to the Waste Gas Surge Tank.		
QUESTION: 27	QID: 0061	Point: 1.00
C. 2RITS-8916, 404 Spent Fuel Pool General Area monitor.		
QUESTION: 28	QID: 0062	Point: 1.00
C. Placing the selector switch in CHECK SOURCE, observing an increasing meter reading and valve isolation.		
QUESTION: 29	QID: 0063	Point: 1.00
B. Indication of core coolant outlet temperature.		
QUESTION: 30	QID: 0066	Point: 1.00
A. A spent fuel assembly is damaged while being withdrawn from the core.		

ANO UNIT 2 - INITIAL RO EXAM ANSWER KEY

QUESTION: 31	QID: 0067	Point: 1.00
D. 120 minutes.		
QUESTION: 32	QID: 0002	Point: 1.00
A. Tave will increase.		
QUESTION: 33	QID: 0071	Point: 1.00
B. To prevent steam formation in the Reactor Vessel head from pressurizing the RCS, leading to core uncover.		
QUESTION: 34	QID: 0072	Point: 1.00
A. Start an alternate charging pump after verifying its suction path.		
QUESTION: 35	QID: 0073	Point: 1.00
B. Pressurizer Level 35% and dropping slowly.		
QUESTION: 36	QID: 0077	Point: 1.00
A. Safety Parameter Display System (SPDS) point P4624-2.		
QUESTION: 37	QID: 0078	Point: 1.00
A. Making preliminary reportability verification.		
QUESTION: 38	QID: 0079	Point: 1.00
A. Breakers 1 and 5.		
QUESTION: 39	QID: 0081	Point: 1.00
B. Maintain subcooling margin between 30F and 200F.		
QUESTION: 40	QID: 0089	Point: 1.00
D. U-pender is completely horizontal.		
QUESTION: 41	QID: 0090	Point: 1.00
C. Accelerometers.		
QUESTION: 42	QID: 0093	Point: 1.00
B. Reactive load increases and KW increases.		
QUESTION: 43	QID: 0094	Point: 1.00
A. Breakers will remain in their "as is" condition and operation would only be possible by local manual means.		
QUESTION: 44	QID: 0095	Point: 1.00
B. Inverter input is auctioneered between the rectifier output and a DC Battery Bus supply.		
QUESTION: 45	QID: 0097	Point: 1.00
D. Reset the Steam Generator low pressure trip setpoints.		

ANO UNIT 2 - INITIAL RO EXAM ANSWER KEY

QUESTION: 46	QID: 0098	Point: 1.00
B. By observing a trip light without the associated pretrip light.		
QUESTION: 47	QID: 0101	Point: 1.00
C. SIAS to ensure the valve can be opened.		
QUESTION: 48	QID: 0102	Point: 1.00
B. Prevent steam or non-condensables from interfering with natural circulation.		
QUESTION: 49	QID: 0104	Point: 1.00
D. SG "A" Level = 5% NR & Press = 500 psia SG "B" Level = 10% NR & Press = 370 psia.		
QUESTION: 50	QID: 0105	Point: 1.00
D. Main Feedwater Leak in Containment.		
QUESTION: 51	QID: 0106	Point: 1.00
A. Average Core Exit Thermocouples.		
QUESTION: 52	QID: 0110	Point: 1.00
D. CSAS		
QUESTION: 53	QID: 0114	Point: 1.00
D. To limit core uplift.		
QUESTION: 54	QID: 0115	Point: 1.00
C. Upper seal.		
QUESTION: 55	QID: 0116	Point: 1.00
A. When the shutdown banks are being withdrawn.		
QUESTION: 56	QID: 0118	Point: 1.00
C. 100 inches.		
QUESTION: 57	QID: 0121	Point: 1.00
D. Suspend core alterations until the inoperable channel is returned to operable status.		
QUESTION: 58	QID: 0124	Point: 1.00
D. a person working on safety-related system or component.		
QUESTION: 59	QID: 0125	Point: 1.00
B. 5 hours.		
QUESTION: 60	QID: 0127	Point: 1.00
D. High Linear Power, High Local Power Density and Low DNBR trips and pretrips.		
QUESTION: 61	QID: 0129	Point: 1.00
C. Backup charging pump gets a stop signal, heaters energize, letdown flow increases.		

ANO UNIT 2 - INITIAL RO EXAM ANSWER KEY

QUESTION: 62	QID: 0130	Point: 1.00
D. Override and restore CCW Flow to RCPs.		
QUESTION: 63	QID: 0133	Point: 1.00
A. 2D23		
QUESTION: 64	QID: 0135	Point: 1.00
D. 50%		
QUESTION: 65	QID: 0138	Point: 1.00
A. RCP Vapor Seal Leakoff.		
QUESTION: 66	QID: 0141	Point: 1.00
D. Voiding in the Reactor Vessel Head area.		
QUESTION: 67	QID: 0143	Point: 1.00
A. Emergency Feedwater Pump Turbine Steam Supply valve (2CV-0340-2).		
QUESTION: 68	QID: 0144	Point: 1.00
D. It will not be significantly affected.		
QUESTION: 69	QID: 0146	Point: 1.00
B. minimize the effects of Xenon redistribution.		
QUESTION: 70	QID: 0149	Point: 1.00
A. provide long term post-accident core cooling.		
QUESTION: 71	QID: 0150	Point: 1.00
D. Hi Log Power.		
QUESTION: 72	QID: 0178	Point: 1.00
C. Verify portable radiation monitor on Main Refueling Bridge is operable.		
QUESTION: 73	QID: 0153	Point: 1.00
D. Initiate Emergency Boration.		
QUESTION: 74	QID: 0157	Point: 1.00
B. Bypass valves and one ADV receive "quick open" then modulate to control main steam pressure.		
QUESTION: 75	QID: 0158	Point: 1.00
B. Open 480V Load Center 2B7 and 2B8 feeder breakers (2B-712 and 2B-812).		
QUESTION: 76	QID: 0159	Point: 1.00
C. Proportional heater banks #1 and #2.		

ANO UNIT 2 - INITIAL RO EXAM ANSWER KEY

QUESTION: 77	QID: 0160	Point: 1.00
B. SDC heat removal is lost.		
QUESTION: 78	QID: 0161	Point: 1.00
C. Manually actuate CIAS.		
QUESTION: 79	QID: 0162	Point: 1.00
C. To minimize the possibility of damage to the steam generator feed ring.		
QUESTION: 80	QID: 0164	Point: 1.00
B. 300 degrees F.		
QUESTION: 81	QID: 0165	Point: 1.00
D. Not met, based on primary-to-secondary leakage.		
QUESTION: 82	QID: 0168	Point: 1.00
C. 2P7A will overspeed.		
QUESTION: 83	QID: 0169	Point: 1.00
D. The Loop I and Loop II Crossover valves will remain in the position they were in prior to 2P33A trip.		
QUESTION: 84	QID: 0170	Point: 1.00
C. RCS temperature and pressure increasing even with SDBCS valves and main spray valves opening.		
QUESTION: 85	QID: 0171	Point: 1.00
C. To provide train separation of 2P4B power supplies.		
QUESTION: 86	QID: 0173	Point: 1.00
D. Prevent exhaust hood temperature from exceeding 200F.		
QUESTION: 87	QID: 0174	Point: 1.00
A. Exercise valve (2HS-1011 and 2HS-1061) green light to illuminate.		
QUESTION: 88	QID: 0175	Point: 1.00
D. Radiation levels will increase.		
QUESTION: 89	QID: 0176	Point: 1.00
B. Place Purge Exhaust Fan, 2VEF-15, in HAND then secure Purge Supply Fan, 2VSF-2.		
QUESTION: 90	QID: 0177	Point: 1.00
D. Ensure a cushion exists for a Loss of Chilled Water.		
QUESTION: 91	QID: 0151	Point: 1.00
A. Adequate margin existed throughout the event.		

ANO UNIT 2 - INITIAL RO EXAM ANSWER KEY

QUESTION: 92	QID: 0179	Point: 1.00
B. Condensate Pump 2P2D will auto start.		
QUESTION: 93	QID: 0180	Point: 1.00
C. Align SW and RCS to 2E35B and isolate SW and RCS to 2E35A.		
QUESTION: 94	QID: 0181	Point: 1.00
A. Limit flow velocities.		
QUESTION: 95	QID: 0182	Point: 1.00
A. Half Leg Trip.		
QUESTION: 96	QID: 0183	Point: 1.00
D. EOL Core.		
QUESTION: 97	QID: 0188	Point: 1.00
A. Stop depressurization until RVLMS level 1 indicates wet.		
QUESTION: 98	QID: 0190	Point: 1.00
B. To minimize RCS Break flow.		
QUESTION: 99	QID: 0191	Point: 1.00
B. Manual mode of operation.		
QUESTION: 100	QID: 0194	Point: 1.00
B. Both the Unit 1 and Unit 2 Shift Superintendent should be immediately notified.		

**U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination**

Applicant Information

Name:	Region: IV
Date:	Facility/Unit: ANC - UNIT 2
License Level: SRO	Reactor Type: CE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected four hours after the examination starts.

Applicant Certification

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

Applicant's Signature

Results

Examination Value	_____ 100 _____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

ANO UNIT 2 - SRO EXAM

QUESTION: 1

QID: 0002 Rev: 000

Point: 1.00

The plant is at 75% power when a new Letdown Demineralizer is placed in service. Which one of the following will occur if the boric acid saturation of this demineralizer is incomplete?

- A. Tave will increase.
- B. Tave will decrease.
- C. Lithium concentration will go up.
- D. Letdown flowrate will decrease.

QUESTION: 2

QID: 0003 Rev: 000

Point: 1.00

The following sequence of events occurs:

- * A Safety Injection Actuation Signal (SIAS) has started all ECCS pumps.
- * The diesels are running normally.
- * 5 minutes after the SIAS, offsite power is lost.

WHICH ONE (1) of the following describes the expected response of the ECCS pumps to the Loss of Offsite Power?

- A. All ECCS pumps restart when their train's EDG output breaker closes.
 - B. The LOCA Sequencer will restart the ECCS Pumps.
 - C. ECCS pumps will restart in time delayed sequence.
 - D. The SIAS will have to be reset and the pumps started by operator action.
-
-

ANO UNIT 2 - SRO EXAM

QUESTION: 3

QID: 0004 Rev: 000

Point: 1.00

Which one of the following alarms requires entry into OP 2203.020 (High Reactor Coolant Activity)?

- A. Annunciator 2K11-A10, "SEC SYS RADIATION HI".
- B. Annunciator 2K12-A1, "LETDOWN RADIATION HI/LO".
- C. Annunciator 2K11-C10, "PROC LIQUID RADIATION HI/LO".
- D. Annunciator 2K10-A6, "CNTMT RADIATION HI".

QUESTION: 4

QID: 0005 Rev: 001

Point: 1.00

A plant startup is in progress and the following conditions exist:

- * The reactor is critical at 5E-5% power.
- * Tave is at 545 degrees F.
- * A rod control failure causes the selected control bank of rods to step out five (5) steps before being stopped by the operator.
- * No reactor trip occurs.

Which one of the following describes the effect that this event will have on reactor parameters over the next minute?

- A. Reactor Power will rise, Tave will be unaffected.
 - B. Reactor Power and Tave will both rise.
 - C. Reactor Power will be unaffected, Tave will rise.
 - D. Reactor Power will rise, the response of Tave will depend upon core life.
-
-

ANO UNIT 2 - SRO EXAM

QUESTION: 5 QID: 0010 Rev: 000 Point: 1.00

Which one (1) of the following states the basis for maintaining at least one OPERABLE containment isolation valve in each penetration in MODES 1 through 4?

- A. Ensures release of radioactive materials is restricted to specified pathways.
- B. Limits total containment leakage volume so as to NOT exceed the value assumed in the safety analysis.
- C. Ensure containment atmosphere is isolated from the outside environment in the event of radioactive release or pressurization.
- D. Provides assurance the containment atmosphere is isolated within the time frames assumed in the safety analysis.

QUESTION: 6 QID: 0011 Rev: 000 Point: 1.00

Which one (1) of the following conditions requires the affected Reactor Coolant Pump (RCP) to be tripped?

- A. Seal Bleedoff Temperature reaches 180 degrees F.
 - B. Motor Winding Temperature reaches 180 degrees F.
 - C. Vapor Seal Pressure reaches 750 psia.
 - D. Component Cooling Water Flow is lost for over 10 minutes.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 7

QID: 0012 Rev: 000

Point: 1.00

While performing a reactor start-up, criticality is achieved with Group 5 @ 120 inches withdrawn. Which one of the following actions must be taken as a result of this?

- A. Emergency borate until adequate shutdown margin is demonstrated.
- B. Stop all further outward rod motion, begin a normal boration and recalculate ECP.
- C. Stop all further outward rod motion and contact Reactor Engineering for support.
- D. Fully insert the control and shutdown banks and recalculate the ECP.

QUESTION: 8

QID: 0018 Rev: 000

Point: 1.00

Given the following:

- * The reactor has tripped from 100% power.
- * Pressurizer pressure is 1275 psia and DECREASING.
- * Pressurizer level is 3%.
- * CETS indicate 450 degrees F.
- * All required ESFAS Actuation have actuated.

Which one (1) of the following is the MINIMUM operator action for the above conditions per 2202.001, Standard Post Trip Actions?

- A. De-energize the pressurizer backup heaters and reduce auxiliary spray to less than 165 gpm.
 - B. Secure pressurizer spray and energize ALL heaters.
 - C. Stop one (1) RCP in each RCS loop.
 - D. Stop ALL RCPs.
-
-

ANO UNIT 2 - SRO EXAM

QUESTION: 9

QID: 0020

Rev: 000

Point: 1.00

Given the following plant conditions:

- * A small break LOCA is in progress and SIAS has actuated.
- * All systems and automatic actions are operating as expected.

Which one (1) of the following is the reason for maintaining a secondary heat sink?

- A. To ensure removal of RCS heat since two (2) RCPs are still running.
- B. RCS pressure may remain so high that cooling from the injection flow alone is inadequate.
- C. Reflux boiling is the primary means of heat removal prior to voiding in the hot legs.
- D. To provide an alternative method of RCS pressure control.

QUESTION: 10

QID: 0021

Rev: 000

Point: 1.00

Which one (1) of the following is best to determine the Steam Generator (SG) to be isolated when a tube rupture occurs in BOTH Steam Generators?

- A. Water Levels.
 - B. Feedwater Flow Rates.
 - C. Radiation Levels.
 - D. Boron Concentrations.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 11

QID: 0025

Rev: 000

Point: 1.00

Given the following:

- * A Loss of Offsite Power has occurred.
- * Both EDGs started and energized their respective 4160V ESF Buses.
- * Breaker 2A301, 480V ESF Bus 2B5 feeder breaker is tripped on overcurrent.

Which one (1) of the following is the requirement for stopping 2DG1 based on the above conditions?

- A. Immediately.
- B. Within three (3) minutes.
- C. When jacket water temperature from the engine reaches 170 degrees F.
- D. When lube oil temperature from engine indicates 190 degrees F.

QUESTION: 12

QID: 0027

Rev: 000

Point: 1.00

Given the following:

- * The RCS has a stuck open Pressurizer Safety valve.
- * The reactor tripped and safety injection has actuated.
- * The RCS has rapidly depressurized to saturation conditions.
- * Pressurizer level initially dropped and then began to rise rapidly.

Which one (1) of the following characterizes the relationship between pressurizer level and RCS inventory and the reason for these conditions?

- A. Level is NOT an accurate indication of inventory. RCS voiding may result in a rapidly increasing pressurizer level.
- B. Level is NOT an accurate indication of inventory. The cold calibrated pressurizer level channels indicate high during high temperature, low pressure conditions.
- C. Level is an accurate indication of inventory. Voiding would occur first in the pressurizer steam space due to the high temperature of the pressurizer walls.
- D. Level is an accurate indication of inventory. RCP flow would sweep any voids from the RCS to the pressurizer steam space and out the safety.

ANO UNIT 2 - SRO EXAM

QUESTION: 13

QID: 0028

Rev: 001

Point: 1.00

Given the following:

- * Reactor power is 10%.
- * A main turbine roll to 1800 rpm is in progress.
- * Condenser vacuum has begun degrading.
- * Annunciators 2K03-A3/A4 "2E11A/B Pressure Hi) are actuated.

Which one (1) of the following immediate actions should be taken by the Crew?

- A. Reduce turbine speed to stabilize condenser vacuum.
- B. Raise Tave to reduce SDBCS load.
- C. Trip the turbine before exceeding 7 inches Hg absolute.
- D. Observe the vacuum trend to determine if the turbine must be tripped over the next five (5) minutes.

QUESTION: 14

QID: 0031

Rev: 000

Point: 1.00

Given the following conditions:

- * The plant is in Refueling Operations with core alterations in progress.
- * Steam Generator secondary manways are removed.
- * The Steam Generator primary side manways are open with nozzle dams installed.
- * Both LPSI and Spray Pumps are operable.

Which one (1) of the following maintenance activities requires a suspension of core alterations and movement of irradiated fuel in Containment?

- A. Testing the automatic isolation of the Containment Purge valves.
 - B. One (1) LPSI Pump is taken out of service to test breaker over-current settings.
 - C. Starting to perform the eddy current testing of the steam generators.
 - D. Steamline safety valves are removed for bench testing of lift setpoint.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 15

QID: 0033

Rev: 000

Point: 1.00

Which one (1) of the following is the reason that Hot Leg Injection is NOT established before two (2) hours following a Loss of Coolant Accident (LOCA)?

- A. Boron precipitation is not a problem before two (2) hours due to the large steam flow through the break.
- B. To avoid possible entrainment of SI flow through the break due to a substantial amount of steam flow present before two (2) hours.
- C. Cold Leg flow is needed for two (2) hours to ensure boron is "washed" to top of core.
- D. To allow time for vessel head cooling to prevent the possibility of void formation in the vessel head which would reduce core cooling.

QUESTION: 16

QID: 0034

Rev: 000

Point: 1.00

Following a dropped Control Element Assembly (CEA), Reactor Power is required to be reduced to less than or equal to 80% by boration within one (1) hour. Which one (1) of the following parameters is the Technical Specification basis for this requirement?

- A. Samarium Redistribution.
 - B. Axial Shape Index.
 - C. Fuel Integrity.
 - D. Quadrant Power Tilt.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 17**QID: 0036 Rev: 000****Point: 1.00**

Which one (1) of the following describes the application of CAUTIONs in Emergency Operating Procedures (EOPS)?

- A. Only apply to the continuous action steps of the procedure.
- B. Apply to ALL steps following the CAUTION statement.
- C. Apply to the entire procedure in which the CAUTION is listed.
- D. Apply to the step immediately following the CAUTION.

QUESTION: 18**QID: 0037 Rev: 001****Point: 1.00**

Which one (1) of the following would require development of a Temporary Alteration package? (Reference material provided)

- A. Performing a channel calibration in which the procedure requires installing jumpers to electrically bypass automatic actuation.
 - B. A blank flange is installed on a tagged out line while rerouting the line under an approved Job Order.
 - C. Connecting cables from 480V Motor Control Center (MCC) to a temporary power panel for outage maintenance support.
 - D. Maintenance technicians installing a temporary drain hose to support changing oil in a pump.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 19**QID: 0038 Rev: 000****Point: 1.00**

While performing a Technical Specification Surveillance Test, an unacceptable condition occurs. Which one (1) of the following is the required action?

- A. Continue the test to the next logical hold point while recording data as required and then inform the Shift Superintendent.
- B. Immediately notify the Shift Superintendent.
- C. Record data as observed and allow Shift Superintendent to compare parameter with acceptance criteria upon completion of the test.
- D. Record data as observed and note the out-of-spec parameter in the comments section.

QUESTION: 20**QID: 0040 Rev: 000****Point: 1.00**

Which one (1) of the following is an example of an INTENT procedure change?

- A. Minor alterations to the purpose for clarification.
 - B. Changing a tolerance to an operating parameter.
 - C. Changing a valve number to correct a typo.
 - D. Changing a step into two (2) substeps for clarification.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 21**QID: 0042 Rev: 000****Point: 1.00**

Given the following conditions:

- * The plant is in Power Operation.
- * You are performing the duties of Control Room Supervisor.
- * You have been on shift for twelve (12) hours.
- * All the shifts are manned to MINIMUM composition per Technical Specifications.
- * Your relief is not on site for shift turnover.

Which one (1) of the following describes the requirements regarding shift composition and required action in this situation?

- A. Cannot drop below the minimum due to a relief being absent. Remain on watch until relieved.
- B. Cannot drop below minimum unless individual will exceed sixteen (16) hours on watch. Turnover your watchstation to the oncoming Shift Engineer and depart.
- C. May be one (1) less than the minimum for two (2) hours. Turn over your watchstation to the oncoming Shift Engineer.
- D. May be one (1) less than the minimum while attempting to contact the absent individual. Turnover your watchstation to an inactive SRO and attempt to contact the absent individual.

QUESTION: 22**QID: 0043 Rev: 000****Point: 1.00**

Cutting and welding in the Auxiliary Building were completed at 1410. Which one (1) of the following is the EARLIEST time the fire watch can be secured?

- A. 1420.
 - B. 1430.
 - C. 1440.
 - D. 1510.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 23**QID: 0044****Rev: 001****Point: 1.00**

A Maintenance Contractor assigned to the Refueling Team has been assigned the task of breaking the incore detector flanges. Given the following information on dose history and dose rate, what is his stay time for the job?

- Committed Dose Equivalent — 0.75 REM
- Deep Dose Equivalent — 0.8 REM
- Lens Dose Equivalent — 0.2 REM
- Committed Effective Dose Equivalent — 0.2 REM
- Dose Rate at Flanges — 0.9 R/HR

- A. 1.0 hour.
- B. 2.0 hours.
- C. 3.0 hours.
- D. 4.0 hours.

QUESTION: 24**QID: 0045****Rev: 000****Point: 1.00**

Which one (1) of the following is the required MAXIMUM interval between performing safety function status checks per 2202.004, Loss of Coolant Accident?

- A. Perform every 5 minutes.
 - B. Perform every 10 minutes.
 - C. Perform every 15 minutes.
 - D. Perform every 30 minutes.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 25

QID: 0046

Rev: 000

Point: 1.00

Given the following conditions:

- * The MSIVs must be tagged in the OPEN position for repacking in MODE 6.
- * The Instrument Air supply isolation valve will be tagged CLOSED.

Which one (1) of the following items should be included in the MINIMUM Personnel Protective equipment tagging requirements?

- A. Lift the leads on the MSIS solenoid valves.
- B. Place the Control Room handswitches for the MSIVs to OPEN.
- C. Open the vent on the valve operator.
- D. Install locking pins for MSIVs.

QUESTION: 26

QID: 0049

Rev: 001

Point: 1.00

Which of the following parameters determine the Pressurizer Level Setpoint Program?

- A. Main Steam flow.
 - B. RCS flow.
 - C. RCS Thot.
 - D. RCS Tave.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 27

QID: 0052

Rev: 001

Point: 1.00

Given the following conditions:

- * A small feedline break inside containment has resulted in containment temperature increasing from 100 degrees F to 160 degrees F and containment pressure increasing from 14.5 to 17.0 psia.

Which one (1) of the following describes how and the reason why the increase in containment temperature will affect the indicated pressurizer level?

- A. Indicated level will be LOWER than actual level because of the elevated containment pressure.
- B. Indicated level will be HIGHER than actual level because the reference leg fluid density decreases.
- C. Indicated level will be HIGHER than actual level because of the elevated containment pressure.
- D. Indicated level will be LOWER than actual level because the reference leg fluid density decreases.

QUESTION: 28

QID: 0056

Rev: 000

Point: 1.00

Given the following conditions:

- * A reactor startup is in progress.
- * Reactor criticality has just been achieved.
- * An inadvertent reactivity addition results in a three (3) DPM Startup Rate.

Which one (1) of the following RPS trips will provide protection in this condition?

- A. High Log Power Trip.
 - B. Variable Overpower Trip.
 - C. High Pressurizer Pressure Trip.
 - D. High DNBR Trip.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 29 QID: 0061 Rev: 000 Point: 1.00

Which one (1) of the following Area Radiation Monitors has Technical Specification operability requirements?

- A. 2RITS-8903, 354 Aux Bldg VCT Access Area monitor.
- B. 2RITS-8912, 404 Containment SW End Refueling Deck monitor.
- C. 2RITS-8916, 404 Spent Fuel Pool General Area monitor.
- D. 2RITS-8917, 354 Aux Bldg Hot Lab Sample Room Area monitor.

QUESTION: 30 QID: 0066 Rev: 000 Point: 1.00

Which one (1) of the following fuel handling events is addressed in 10.22.001, Fuel Shuffle?

- A. A spent fuel assembly is damaged while being withdrawn from the core.
- B. A new fuel assembly is found with the motion sensors tripped during fuel receipt inspection.
- C. The Reactor goes critical while a fuel assembly is being inserted into the core.
- D. A CEA is hanging from the upper guide structure during the removal of the upper guide structure.

QUESTION: 31 QID: 0067 Rev: 000 Point: 1.00

A Loss of Offsite Power has occurred and both Emergency Diesel Generators and AAC Generator have failed to start automatically or manually. If power interruption is expected to exceed _____ minutes, then Vital Inverters 2Y13 and 2Y24 are to be secured?

- A. 15 minutes.
- B. 30 minutes.
- C. 60 minutes.
- D. 120 minutes.

ANO UNIT 2 - SRO EXAM

QUESTION: 32

QID: 0069

Rev: 000

Point: 1.00

A small Main Feedwater line break downstream of Main Feedwater Check valve (2FW-5A) at full power will depressurize the affected Steam Generator and start an uncontrolled cooldown when:

- A. The reactor trips on low Steam Generator level.
- B. The main feedwater isolation valve is closed to "A" Steam Generator.
- C. Main Feedwater and Emergency Feedwater to "A" Steam Generator is secured.
- D. The "A" Steam Generator level drops below 50% Wide Range level.

QUESTION: 33

QID: 0070

Rev: 001

Point: 1.00

Standard Post Trip Actions, 2202.001, Contingency Step 2.A.2 directs the operator to open the feeder breakers to 480 VAC Load Center busses 2B7 and 2B8 for ten (10) seconds and then reclose them. The purpose of reclosing the feeder breakers is to:

- A. Restore power to the CEDMCS in order to verify that all CEAs have fully inserted.
 - B. Re-energize the 2B7 and 2B8 busses before the under voltage relays strip the individual loads from the busses.
 - C. Restore power to the Pressurizer backup heaters.
 - D. Restore power to Component Cooling Water Pump 2P33C and 480V MCCs.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 34

QID: 0071

Rev: 000

Point: 1.00

Which of the following describes the reason for the requirement to have a Hot Leg vent path for a Loss of Shutdown Cooling when the Steam Generator nozzle dams are installed?

- A. To prevent steam formation in the hot leg from causing an erroneously high Reactor Vessel level indication.
- B. To prevent steam formation in the Reactor Vessel head from pressurizing the RCS, leading to core uncover.
- C. To prevent steam formation in the hot leg which will ultimately collapse, causing severe water hammer.
- D. To prevent the loss of RCS inventory caused by lifting a Low Temperature Overpressure Protection (LTOP) relief valve.

QUESTION: 35

QID: 0072

Rev: 000

Point: 1.00

While operating at power, significant current oscillations (100 amps) are observed on 480V bus 2B5. Annunciator 2K12-B3, "CHARGING PUMP HEADER FLOW LOW" actuates and shortly thereafter, Charging Pump 2P36A trips on overcurrent. Which of the following actions should be taken?

- A. Start an alternate charging pump after verifying its suction and discharge path.
 - B. Restart Charging Pump 2P36A after resetting the overcurrent trip.
 - C. Secure letdown and initiate an investigation for the loss of Charging Pump 2P36A.
 - D. Secure letdown, start an alternate charging pump, then restore letdown.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 36

QID: 0077 Rev: 000

Point: 1.00

If a fire in the Cable Spreading Room burns for 45 minutes before it is extinguished, which of the following will still be reliable indication for RCS pressure?

- A. Safety Parameter Display System (SPDS) point P4624-2.
- B. Pressurizer Pressure Control Channel Indicator P4626A.
- C. Pressurizer Pressure Safety Channel Indicator 2P4626-1B.
- D. Pressurizer Pressure Low Range Pressure Indicator 2P4623-1.

QUESTION: 37

QID: 0078 Rev: 000

Point: 1.00

Immediately upon confirmation of a fire, the dedicated Board Operator is responsible for all of the following actions EXCEPT:

- A. Making preliminary reportability verification.
- B. Notify person reporting the fire to evacuate all non-fire brigade personnel from the area.
- C. Obtaining pertinent information from the person confirming the alarm.
- D. Ensure the SS/CRS is notified.

QUESTION: 38

QID: 0079 Rev: 000

Point: 1.00

Which of the following Reactor Trip Circuit Breakers would indicate open on a loss of 120V Vital AC bus 2RS-1?

- A. Breakers 1 and 5.
 - B. Breakers 2 and 7.
 - C. Breakers 3 and 6.
 - D. Breakers 4 and 8.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 39

QID: 0081 Rev: 000

Point: 1.00

Which of the following reflects the primary concern of the operators after a major steam line break upstream of the MSIV in which the affected Steam Generator blows dry?

- A. Ensure the RCS reheats back to normal operating temperature within Tech Spec heatup limits.
- B. Maintain subcooling margin between 30F and 200F.
- C. Energize all pressurizer heaters to re-establish saturated conditions in the pressurizer.
- D. Re-establish all safety injection flow.

QUESTION: 40

QID: 0084 Rev: 000

Point: 1.00

The plant is at normal operating temperature and pressure when the Loop II Component Cooling Water Surge Tank level starts increasing. Select which of the following components could be causing this level increase. (Assume normal equipment conditions)

- A. Spent fuel pool heat exchanger.
- B. RCP seal cooler heater exchanger.
- C. Startup and Blowdown Demineralizer Sample Cooler.
- D. Main Chiller A.

QUESTION: 41

QID: 0089 Rev: 000

Point: 1.00

Which of the following describes a condition that prevents the Refueling Machine from entering the upender zone?

- A. Fuel Hoist Box is latched.
 - B. Hoist is at Hoist Up limit.
 - C. Spreader is fully retracted.
 - D. Upender is completely horizontal.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 42**QID: 0092 Rev: 000****Point: 1.00**

With an inoperable Liquid Radwaste Discharge Radiation Monitor (2RITS-2330), all of the following are required to perform a discharge from the Waste Condensate Tanks EXCEPT:

- A. Obtain and analyze independent samples from the Waste Condensate Tank.
- B. Perform an independent verification of discharge valve lineup.
- C. Perform an independent verification of proper Unit 1 Circ Water flow.
- D. Perform an independent verification of release rate calculation.

QUESTION: 43**QID: 0093 Rev: 000****Point: 1.00**

Which of the following is the correct response if an EDG is paralleled to the grid and the governor and voltage control hand switches are both taken to Raise/Increase?

- A. KW increases and EDG speed increases.
- B. Reactive load increases and KW increases.
- C. Indicated output voltage increases and reactive load increases.
- D. EDG speed increases and indicated output voltage increases.

QUESTION: 44**QID: 0094 Rev: 000****Point: 1.00**

Which of the following describes 4160V breaker operation if DC control power is lost?

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

ANO UNIT 2 - SRO EXAM

QUESTION: 45

QID: 0095

Rev: 001

Point: 1.00

The output of the Vital 120VAC Inverters is considered to be uninterruptible because:

- A. Auctioneered AC power supplies are provided to the rectifier section.
- B. Inverter input is auctioneered between the rectifier output and a DC Battery Bus supply.
- C. An internal battery is auctioneered with the rectifier output.
- D. The static transfer switch automatically transfers to AC alternate source.

QUESTION: 46

QID: 0096

Rev: 000

Point: 1.00

The reactor trips from 100% power. The control room operators verify that the reactor is tripped and immediately note that the turbine has not tripped and the generator breakers remain closed. If left unresolved this malfunction will cause:

- A. An uncontrolled cool down of the RCS, resulting in less shutdown margin.
 - B. Main turbine blade heating, possibly resulting in damage to the main turbine rotor and shaft.
 - C. A loss of condenser vacuum, resulting in the loss of condenser steam dumps.
 - D. An increase in RCS pressure, possibly resulting in the Pressurizer safety valves lifting.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 47

QID: 0097

Rev: 000

Point: 1.00

A cooldown to Mode 5 using the Steam Dump and Bypass Control System is in progress.

Plant conditions are as follows:

- * Steam Generator A & B pressures are 745 psia
- * Reactor Coolant System temperature is 508F.
- * Pressurizer pressure is 2100 psia and level is 33%.
- * RCPs 2P32A, B and C are operating.
- * Charging Pumps 2P36A and 2P36B are operating and Letdown is in automatic control.

Select the action which should be performed to prevent an inadvertent Engineered Safety Features Actuation Signal (ESFAS).

- A. Reset the Pressurizer low pressure trip setpoints.
- B. Raise Pressurizer level to 50%.
- C. Bypass the Pressurizer low pressure trip.
- D. Reset the Steam Generator low pressure trip setpoints.

QUESTION: 48

QID: 0099

Rev: 001

Point: 1.00

Following a single channel CPC trip, how can the operator quickly determine if the trip signal is due to an auxiliary trip?

- A. By obtaining the CEAC Trip Buffer Report.
 - B. By observing a trip light without the associated pretrip light.
 - C. By obtaining the trip TRA report.
 - D. By observing that Diverse Scram System (DSS) Trouble annunciator has actuated.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 49**QID: 0103 Rev: 001****Point: 1.00**

When cooling down the plant per OP 2102.010, Plant Cooldown, when are the Low Temperature Over Pressure Protection Relief Valves (LTOPs) required to be aligned to service?

- A. Prior to closing the Safety Injection Tank's Isolation valves.
- B. Prior to entering Mode 4.
- C. Prior to placing both Letdown Flow Control valves in service.
- D. Between 275 and 270 degrees F RCS Temperature.

QUESTION: 50**QID: 0104 Rev: 001****Point: 1.00**

An EFAS 1 signal will be present for which of the following? (consider each answer separately).

- A. SG "A" Level = 20% NR & Press = 600 psia SG "B" Level = 26.5% NR & Press = 600 psia.
 - B. SG "A" Level = 30% NR & Press = 700 psia SG "B" Level = 25% NR & Press = 680 psia.
 - C. SG "A" Level = 15% NR & Press = 200 psia SG "B" Level = 20% NR & Press = 400 psia.
 - D. SG "A" Level = 5% NR & Press = 500 psia SG "B" Level = 10% NR & Press = 370 psia.
-
-

ANO UNIT 2 - SRO EXAM

QUESTION: 51

QID: 0105 Rev: 001

Point: 1.00

Which of the following events is in progress for the given conditions?

- RCS pressure, temperature, power, and inventory stable.
- Steam Generator pressure and levels stable.
- Containment temperature, pressure and humidity rising rapidly.
- Containment Sump indicates a 150 gpm increase.

- A. RCS leak in Containment.
- B. Main Steam Leak in Containment.
- C. CCW leak in Containment.
- D. Main Feedwater leak in Containment.

QUESTION: 52

QID: 0107 Rev: 000

Point: 1.00

Which of the following could be an indication of core uncover? (Assume instruments are accurate)

CET Temperature equal to:

- A. 550 degrees Farenheight with RCS Pressure equal to 1100 psia.
 - B. 570 degrees Farenheight with RCS Pressure equal to 1300 psia.
 - C. 590 degrees Farenheight with RCS Pressure equal to 1350 psia.
 - D. 610 degrees Farenheight with RCS Pressure equal to 1700 psia.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 53

QID: 0110 Rev: 000

Point: 1.00

The following conditions exist:

- * A feedline break has occurred inside containment.
- * Containment pressure is 18.5 psia.
- * Containment radiation is normal.
- * PZR pressure is 1825 psia.
- * RWT level is 92%.
- * SG pressures are (SG"A") 925 psia, (SG"B") 580 psia.
- * SG levels are (SG"A") 22% NR, (SG"B") 10% NR

All of the following actuation signals should have occurred with the exception of:

- A. SIAS
- B. MSIS
- C. EFAS 1
- D. CSAS

QUESTION: 54

QID: 0111 Rev: 001

Point: 1.00

The plant is in Mode 3 with Pressurize Level Control System and Letdown in automatic. The CBOR notes letdown flow rising. Which of the following is a possible cause?

- A. Loss of Instrument Air to Letdown Backpressure Regulating Valve.
 - B. The selected Pressurizer Level Control Channel has failed high.
 - C. Volume Control Tank Level has dropped to less than 10%.
 - D. SDBCS controller setpoint has failed low.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 55

QID: 0114 Rev: 000

Point: 1.00

Which of the following is the reason for preventing the start of the fourth Reactor Coolant Pump until RCS temperature is greater than 500 degrees Fahrenheit?

- A. To prevent exceeding RCS heatup rate limits.
- B. To prevent excessive RCP starting currents.
- C. To limit Steam Generator tube stresses.
- D. To limit core uplift.

QUESTION: 56

QID: 0115 Rev: 000

Point: 1.00

A cooldown and depressurization is in progress. RCS pressure is currently at 1100 psia and seal pressures for RCP 2P32B are:

- * Vapor 40 psia.
- * Upper 40 psia.
- * Middle 530 psia.

Which RCP seal has failed?

- A. Lower seal.
 - B. Middle seal.
 - C. Upper seal.
 - D. Vapor seal.
-
-

ANO UNIT 2 - SRO EXAM

QUESTION: 57**QID: 0121 Rev: 000****Point: 1.00**

Fuel is being reloaded into the Reactor Vessel when the Shift Supervisor informs you that one startup channel neutron flux monitor has failed. Which of the following describes the required action?

- A. Fuel reload may continue provided backup boron samples are taken every four (4) hours.
- B. Fuel reload may continue provided the inoperable channel is returned to operable status within four (4) hours.
- C. Suspend core alterations until boron sampling has been initiated every twelve (12) hours for 36 hours.
- D. Suspend core alterations until the inoperable channel is returned to operable status.

QUESTION: 58**QID: 0123 Rev: 000****Point: 1.00**

Which of the following best describes how far back in the Station Log an oncoming Shift Superintendent must review, prior to shift turnover, if that individual has not been on shift for 30 days?

- A. since the last shift watch that was stood.
 - B. three days.
 - C. one week.
 - D. two weeks.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 59

QID: 0124 Rev: 000

Point: 1.00

Which of the following best describes the condition in which the ANO overtime working hour policy applies?

- A. a person working in training performing simulator operations.
- B. a person working on a procedure revision for a quality related system.
- C. a person working on a non-safety related system or component.
- D. a person working on safety-related system or component.

QUESTION: 60

QID: 0125 Rev: 000

Point: 1.00

A Waste Control Operator is required to complete a valve lineup in an area where the radiation level is 50 mrem/hour. The operator's current Total Effective Dose Equivalent (TEDE) is 1730 mrem. What is the maximum time he can work in this area and not exceed his Administrative Dose Control Level (ADCL)?

- A. 1 hour.
 - B. 5 hours.
 - C. 10 hours.
 - D. 25 hours.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 61

QID: 0127 Rev: 000

Point: 1.00

Given the following plant conditions:

- * Unit operating at 100% power.
- * Channel "D" upper detector of excore safety channel monitors fails HIGH.

Which one (1) of the following describes the expected response of Channel "D" Reactor Protection System to this failure? (No other failures are present)

- A. High Local Power Density and Low DNBR trips without pre-trips.
- B. High Log Power, High Local Power Density and Low DNBR trips and pre-trips.
- C. High Log Power, High Local Power Density and Low DNBR trips without pre-trips.
- D. High Linear Power, High Local Power Density and Low DNBR trips and pretrips.

QUESTION: 62

QID: 0128 Rev: 001

Point: 1.00

Given the following conditions:

- * Unit is operating at 100% power.
- * Action statement 3.6.2.1 states, "with one containment spray system inoperable, restore the inoperable spray system to OPERABLE status within 72 hours or be in a least HOT STANDBY within the next 6 hours....."
- * Containment Spray System "A" becomes INOPERABLE at 1200 on 11/10.
- * Containment Spray System "B" becomes INOPERABLE at 1100 on 11/12.
- * Containment Spray System "A" becomes OPERABLE at 1130 on 11/12.

Which of the following identifies the time and date for restoration of Containment Spray "B" before plant shutdown must be commenced?

- A. 1200 on 11/12.
 - B. 1200 on 11/11
 - C. 1100 on 11/15.
 - D. 1130 on 11/15.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 63

QID: 0131

Rev: 000

Point: 1.00

2202.001 "Standard Post Trip Actions" step 7.E states, "Check RCS Tave 540 degrees F to 555 degrees F". Which one of the following describes the basis for this step?

- A. Ensures RCS heat removal through the steam generators.
- B. Demonstrates proper operation of the reactor regulating system.
- C. Demonstrates proper operation of the safety injection system.
- D. Maintains adequate SDM given a positive moderator temperature coefficient.

QUESTION: 64

QID: 0134

Rev: 000

Point: 1.00

Which one of the following states the required action(s) for pressurizer pressure reaching 2790 psia when operating at full power?

- A. Restore to within limits within 15 minutes or be in HOT SHUTDOWN within the next six (6) hours.
 - B. Restore to within limits within one (1) hour or be in HOT SHUTDOWN within the next six (6) hours.
 - C. Be in Hot Standby with RCS Pressure within its limit within one (1) hour.
 - D. Perform an engineering evaluation on the out-of-limits condition within 24 hours.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 65**QID: 0135****Rev: 000****Point: 1.00**

Assuming two Atmospheric Dump valves are out of service. Which one of the following best approximates the remaining total steam flow capacity of the Steam Dump and Bypass Control System?

- A. 25%
- B. 30%
- C. 40%
- D. 50%

QUESTION: 66**QID: 0136****Rev: 001****Point: 1.00**

Given the following conditions:

- Unit is operating at 100% power.
- E-bar is 5.3 microcuries/gram.
- RCS sample shows specific activity of 25 microcuries/gram.

Which one of the following states the required action(s) for this condition?

- A. Restore RCS activity to within limits within 1 hour or be in at least hot standby in the following six (6) hours.
 - B. Be in at least HOT STANDBY with T-ave less than 500 degrees F within six (6) hours.
 - C. No actions required due to LCO conditions being satisfied.
 - D. Perform sampling of RCS activity within the next six (6) hours.
-
-

ANO UNIT 2 - SRO EXAM

QUESTION: 67**QID: 0138 Rev: 000****Point: 1.00**

All of the following components/subsystems can be discharged into the Quench Tank EXCEPT:

- A. RCP Vapor Seal Leakoff.
- B. Pressurizer Vent.
- C. RCP Control Bleedoff relief.
- D. Reactor Vessel Head Vent.

QUESTION: 68**QID: 0140 Rev: 001****Point: 1.00**

Which one of the following is a condition requiring emergency boration according to AOP 2203.032, Emergency Boration?

- A. CEA Group P inserted to 138 inches withdrawn with Unit at 90% power.
- B. Loss of all CEA Reed Switch Position indication at 5% power.
- C. Reactor critical and CEAs inserted below the Transient Insertion Limits.
- D. Loss of Plant Monitoring System computer during a reactor startup.

QUESTION: 69**QID: 0141 Rev: 000****Point: 1.00**

While performing a natural circulation cooldown following a Steam Generator Tube Rupture, pressurizer level is varying by large amounts inconsistent with the cooldown and depressurization of the RCS. Which one of the following statements correctly describes the cause of wide deviations from the expected pressurizer level?

- A. Pressurizer level instrument reference leg flashing.
 - B. Automatic operation of charging pumps.
 - C. Contraction of the RCS during the cool down.
 - D. Voiding in the Reactor Vessel Head area.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 70

QID: 0146 Rev: 000

Point: 1.00

With a Control Element Assembly misaligned less than 19 inches, Technical Specifications allow the operator one hour to take corrective action. The one hour time limit will:

- A. preclude a decrease of available shutdown margin.
- B. minimize the effects of Xenon redistribution.
- C. preclude large effects on power distribution.
- D. preserve assumed worth of an ejected rod.

QUESTION: 71

QID: 0149 Rev: 001

Point: 1.00

Verification of Containment Spray System operation is required when Refueling Water Tank level decreases to < 6% during a Loss of Coolant Accident in order to:

- A. provide long term post-accident core cooling.
- B. remove iodine from the containment atmosphere.
- C. provide mixing of the sodium hydroxide.
- D. provide flow to reduce electrolytic corrosion.

QUESTION: 72

QID: 0153 Rev: 000

Point: 1.00

Following the determination that a CEA in Shutdown Bank "A" is misaligned by four (4) inches and mechanically bound, shutdown margin is calculated to be 4.9%. Which one (1) of the following actions should be taken?

- A. Continue plant operation without restriction.
 - B. Reduce power to less than or equal to 81%.
 - C. Start a plant shutdown and be in Mode 3 within 6 hours.
 - D. Initiate Emergency Boration.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 91

QID: 0154 Rev: 000

Point: 1.00

The following plant conditions exist:

- * Plant is in Mode 3.
- * Trip from 100% power occurred five (5) minutes ago.
- * CEAs 40 and 41 are stuck fully withdrawn.
- * Charging pump trips on a loss of suction pressure.
- * Operators unable to start other charging pumps.

Which one (1) of the following operator actions is procedurally required under these conditions?

- A. Lower RCS pressure and emergency borate via HPSI.
- B. Emergency borate via gravity feed suction path.
- C. Lower RCS temperature and initiate SIAS.
- D. Use auxiliary spray and emergency borate.

QUESTION: 74

QID: 0156 Rev: 000

Point: 1.00

The following conditions exist:

- * A small break Loss of Coolant Accident has occurred.
- * High Pressure Safety Injection (HPSI) Pump 2P89A has tripped on over current.
- * The crew has aligned and started HPSI Pump 2P89C. (Red Power)
- * Two charging pumps are running.
- * Pressurizer pressure is 1500 psia and steady.
- * HPSI Pumps 2P89B and 2P89C have been stopped upon meeting SI Termination Criteria.

The CBOR reports that Pressurizer Level is now 20% and slowly dropping. Determine which one (1) of the following actions is appropriate.

- A. Start HPSI Pump 2P89B and throttle open enough HPSI Injection valves to raise Pressurizer level to greater than 28%.
- B. Start HPSI Pump 2P89B and the third Charging Pump and fully open all HPSI Injection valves.
- C. Start HPSI Pumps 2P89B and 2P89C and fully open enough HPSI Injection valves to raise Pressurizer level to greater than 28%.
- D. Start HPSI Pumps 2P89B and 2P89C and fully open all HPSI Injection valves.

ANO UNIT 2 - SRO EXAM

QUESTION: 75

QID: 0157

Rev: 000

Point: 1.00

The unit is at 50% power during a ramp to full power, when a reactor and turbine trip occur. Which one (1) of the following statements describes the immediate response of the atmospheric dump valves (ADV) and Bypass Control valves?

- A. ADVs receive a "quick-open" signal and bypass valves modulate to control main steam pressure.
- B. Bypass valves and one ADV receive "quick open" signal then modulate to control main steam pressure.
- C. ADVs modulate to control RCS temperature and bypass valves receive a "quick-open" signal.
- D. Reactor trip blocks all "quick open" signals then ADVs and bypass valves receive modulate signal from the master controller to control RCS temperature.

QUESTION: 76

QID: 0160

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Plant shutdown and cooldown just completed from 100% power.
- * Shutdown Cooling has JUST been established.
- * A Loss of Instrument Air occurs.

Which of the following describes the Shutdown Cooling System response?

- A. All SDC flow is lost.
 - B. SDC heat removal is lost.
 - C. SDC flow is degraded.
 - D. No significant effect.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 77

QID: 0161

Rev: 000

Point: 1.00

Given the following conditions:

- * A small break Loss of Coolant Accident is in progress.
- * RCS pressure is 1600 psia.
- * Containment pressure is 16 psia and slowly increasing.
- * Containment Hi Range Radiation Monitors read 13 R/Hr and increasing.
- * No operator actions have been performed.

Which one (1) of the following actions should be performed?

- A. Isolate letdown.
- B. Manually actuate SIAS.
- C. Manually actuate CIAS.
- D. Manually actuate CSAS.

QUESTION: 78

QID: 0164

Rev: 000

Point: 1.00

Which is the maximum temperature expected as measured downstream of a leaking Pressurizer Code Safety valve on 2TI-4694, Quench Tank Temperature indicated on 2C04?

- A. 212 degrees F.
 - B. 300 degrees F.
 - C. 375 degrees F.
 - D. 650 degrees F.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 79

QID: 0167

Rev: 000

Point: 1.00

Given the following conditions:

- * Safety Injection actuated.
- * Emergency Diesel Generator 2DG1 Trouble Alarm actuates.
- * Emergency Diesel Generator 2DG1 trips.

Which one of the following identifies the cause of the 2DG1 trip?

- A. Loss of Field.
- B. Phase Differential.
- C. Antimotoring.
- D. Crankcase pressure high.

QUESTION: 80

QID: 0168

Rev: 000

Point: 1.00

Which of the following describes the effect of a loss of green DC Bus, 2D26 will have on the operation of Emergency Feedwater Pump 2P7A?

- A. All 2P7A discharge valves to both Steam generators will fail open.
 - B. All 2P7A discharge valves to both Steam generators will fail closed.
 - C. 2P7A will overspeed.
 - D. 2P7A will go to minimum speed.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 81

QID: 0169 Rev: 000

Point: 1.00

The following plant conditions exist:

- * CCW Pump 2P33A is supplying Loop I CCW.
- * CCW Pump 2P33B is supplying Loop II CCW.
- * CCW Pump 2P33C is tagged out for maintenance.
- * 2K12-F6, PUMP 2P33A/B/C LOCKED, is actuated.

Which of the following describes what would happen to the CCW Loop Crossover valves if 2P33A Tripped?

- A. Loop I Crossover valves automatically open and Loop II Crossover valves automatically close.
- B. Loop I Crossover valves automatically open and Loop II Crossover valves stay open so that 2P33B can supply both loops.
- C. The Control Board operator will have to manually open the Loop I Crossover valves and throttle closed Loop II Crossover valves to balance loop flows.
- D. The Loop I and Loop II Crossover valves will remain in the position they were in prior to 2P33A trip.

QUESTION: 82

QID: 0170 Rev: 000

Point: 1.00

What would the initial primary plant temperature and pressure response be for a 100% turbine load rejection?

- A. RCS temperature and pressure constant due to SDBCS valves opening to controlling SG pressure.
 - B. RCS temperature and pressure constant due to main spray valves opening.
 - C. RCS temperature and pressure increasing even with SDBCS valves and main spray valves opening.
 - D. RCS temperature and pressure decreasing due to SDBCS valves and main spray valves opening.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 83

QID: 0173

Rev: 001

Point: 1.00

Given the following plant conditions:

- * Full power Mode 1.
- * Circ Water Pump 2P3A trips.

Which of the following best describes why turbine load must be reduced for the given conditions?

- A. Prevent condenser overpressurization.
- B. Prevent cavitation of Circ Water Pump 2P3B.
- C. Prevent exceeding 40F circ water delta T across condensers.
- D. Prevent exhaust hood temperature from exceeding 200F.

QUESTION: 84

QID: 0174

Rev: 000

Point: 1.00

The 90% limit switch on the MSIVs (2CV-1010A and 2CV-1060A) causes the:

- A. Exercise valve (2HS-1011 and 2HS-1061) green light to illuminate.
 - B. Exercise valve(s) to open to prevent inadvertent MSIV closure.
 - C. Intermediate position indication on the MSIV hand-switches (2HS-1010-1 and 2HS-1060-2).
 - D. MSIV bypass valve to close when opening the MSIV.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 35**QID: 0175 Rev: 000****Point: 1.00**

What effect would a decreasing Spent Fuel Pool Level from Elevation 401' 6" to Elevation 401' 1" have on the operation of the Spent Fuel System or the working area adjacent to the Spent Fuel Pool?

- A. Complete loss of NPSH to SFP cooling pumps.
- B. Humidity levels will increase to greater than Tech Spec limit.
- C. Boron concentration will decrease
- D. Radiation levels will increase.

QUESTION: 86**QID: 0176 Rev: 000****Point: 1.00**

Given the following plant conditions:

- * Mode 5
- * Equipment hatch is to be opened

Which of the following actions should be used to properly align the Containment Purge System?

- A. Place Purge Supply Fan, 2VSF-2, in HAND then secure Purge Exhaust Fan, 2VEF-15.
 - B. Place Purge Exhaust Fan, 2VEF-15, in HAND then secure Purge Supply Fan, 2VSF-2.
 - C. Manually close one Purge Exhaust Damper, then secure Purge Exhaust Fan, 2VEF-15.
 - D. Manually close one Purge Supply Damper, then secure Purge Supply Fan, 2VSF-2.
-
-

ANO UNIT 2 - SRO EXAM

QUESTION: 87

QID: 0179

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Full Power Operations
- * Condensate Pumps 2P2A, 2P2B and 2P2C running
- * Condensate Pump 2P2A trips

Which of the following automatic actions should occur?

- A. Heater Drain Pump 2P8A will auto start.
- B. Condensate Pump 2P2D will auto start.
- C. Recirculation valve for Condensate Pump 2P2B will auto close.
- D. Main Feed Water Pump 2P1A will trip on low suction flow.

QUESTION: 88

QID: 0180

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Mode 5
- * Pressurizer Manway removed
- * LPSI Pump 2P60A through Shutdown Cooling Heat Exchanger 2E35A
- * High alarm actuated on Radiation Monitor 2RITS-1453 (SW From SDN Ht Exch 2E-35A)

Which of the following actions would be required?

- A. Secure 2P60A, close SDC RCS Isolation MOVs and start RCPs for RCS heat removal via SGs.
 - B. Secure 2P60A, close SDC RCS Isolation MOVs and steam both SGs in Natural Circulation for heat removal.
 - C. Align SW and RCS to 2E35B and isolate SW and RCS to 2E35A.
 - D. Start Containment Spray Pump 2P35B and align to 2E35B and secure 2P60A and isolate SW and RCS to 2E35A.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 89

QID: 0181

Rev: 000

Point: 1.00

Given the following conditions:

- * Mode 3 post trip from full power.
- * EFAS signal present with EFW Pumps 2P7A and 2P7E running.
- * 2P75 feeding SG's via 2CV-0762 (AFW to EFW).

Which of the following describes why flow should be limited to 1200 gpm for the given conditions?

- A. Limit flow velocities.
- B. Prevent binding of EFW block valves.
- C. Prevent thermal shock to SGs.
- D. Prevent AFW pump runout.

QUESTION: 90

QID: 0182

Rev: 000

Point: 1.00

Which of the following indications will be observed on a Loss of Inverter 2Y-11 (Red)?

- A. Half Leg Trip.
 - B. Reactor Trip.
 - C. All Red ESFAS components will actuate.
 - D. NO Red ESFAS components will actuate.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 73

QID: 0183

Rev: 000

Point: 1.00

Given the following conditions:

- * Mode 2 operations.
- * Reactor Power 5E-5% and stable.
- * Annunciator 2K04-G9, MSSV Valve Open actuates and will not clear.
- * No operator actions taken.

Which of the following conditions will result in the highest power for the conditions given above?

- A. Initial CEA height.
- B. Initial RCS Tave.
- C. BOL Core.
- D. EOL Core.

QUESTION: 92

QID: 0184

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Mode 6.
- * Fuel assembly in mast over upender.
- * CEA change tool jammed in personnel hatch.

Which of the following actions must be performed for the above conditions?

- A. No actions required.
 - B. Evacuate Containment Building.
 - C. Move fuel assembly to Spent Fuel Pool.
 - D. Suspend fuel movement in Spent Fuel Pool.
-
-

ANO UNIT 2 - SRO EXAM

QUESTION: 93

QID: 0185

Rev: 000

Point: 1.00

Given the following plant conditions:

- * RCS pressure 1000 psia.
- * RCS CET's 556F.
- * Tcold 544F and increasing rapidly.
- * Loss of Offsite Power
- * SIAS actuated.
- * CCAS actuated.
- * 2DG1 tripped on overspeed.
- * HPSI Pump 2P89C aligned to Red bus.

Which of the following actions should be performed for the above conditions?

- A. Open ECCS vents (2CV-4698-1 and 2CV-4740-2).
- B. Open LTOP relief isolations (2CV-4731-2, 2CV-4741-1 and 2CV-4730-1).
- C. Swap HPSI Pump 2P89A to Green bus.
- D. Depressurize using auxiliary spray to dump SITs.

QUESTION: 94

QID: 0186

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Loss of Offsite Power for two (2) hours.
- * 3C gpm LOCA in progress.
- * Mode 3
- * MSIS reset.
- * Steam Generator levels 23% narrow range.

Which of the following should be utilized to cool the core from the control room for the above conditions?

- A. Use upstream AOVs (2CV-1001 and 2CV-1051).
- B. Use upstream MOVs (2CV-1002 and 2CV-1052).
- C. Use downstream AOVs (2CV-0301 and 2CV-0305).
- D. Go to HR-4 and utilize once through cooling.

ANO UNIT 2 - SRO EXAM

QUESTION: 95

QID: 0187

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Full power operation.
- * Instrument Air Header Pressure decreases to 60 psig.
- * Instrument Air Header Cross-tie valves 2CV-3004 and 2CV-3015 are opened.
- * Instrument Air Header Pressure continues to decrease to 30 psig.
- * Report from Unit 1 that their Instrument Air pressure is 50 psig.

Which of the following actions would apply?

- A. Bypass Instrument Air Dryers.
- B. Crosstie Instrument Air and Service Air Systems.
- C. Open coalescing prefilter bypass.
- D. Close crosstie valves 2CV-3004 and 2CV-3015.

QUESTION: 96

QID: 0188

Rev: 000

Point: 1.00

Given the following conditions:

- * Reactor has tripped from full power.
- * 110 gpm SGTR.
- * 60 gpm LOCA.
- * RCS cooldown and depressurization in progress.
- * RCS pressure 1200 psia.
- * RVLMS level 4 indicates wet.
- * RCS Thot 530F

Which of the following actions should be performed for the above conditions?

- A. Stop depressurization until RVLMS level 1 indicates wet.
 - B. Stop cooldown.
 - C. Secure one (1) RCP in each loop.
 - D. Open Reactor Vessel High Point vents to Containment Atmosphere.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 97

QID: 0189

Rev: 001

Point: 1.00

Given the following plant conditions:

- * SGTR in progress.
- * 2RITS-8907 (Elv 372 Corridor by EDGs) reads 4 mr/hr.
- * 2RITS-8911 (Elv 386 by HP Office) reads 6 mr/hr.
- * 2RITS-8924 (Elv 354 CCW Pump Room) reads 11mr/hr.
- * HP unevaluated Turbine Building air sample reads 10E-10 microcuries/cc.
- * HP unevaluated Outside air sample reads 1E-20 microcuries/cc.
- * Projected dose at site boundary is .5 mr/hr.

Which of the following actions should be performed for the given condition?

- A. Declare a General Emergency (GE) and evacuate all personnel in the ten (10) mile radius.
- B. Declare a Site Area Emergency (SAE) and evacuate all personnel within the five (5) mile radius.
- C. Declare an Alert and perform a Plant Evacuation.
- D. Declare an (NUE) and perform a localized evacuation of the CCW pump room.

QUESTION: 98

QID: 0190

Rev: 000

Point: 1.00

Which of the following describes why RCS pressure is maintained within 100 psia of RCP NPSH during a primary to secondary leak of 20 gpm?

- A. Ensures margin to saturation is greater than 50F.
 - B. To minimize RCS Break flow.
 - C. Ensures seal injection can be maintained.
 - D. Prevents lifting primary code safeties.
-

ANO UNIT 2 - SRO EXAM

QUESTION: 99

QID: 0192

Rev: 000

Point: 1.00

Given the following plant conditions:

- * Plant power at 100%.
- * Group 6 CEAs at 150" withdrawn.
- * RSPT #1 for CEA 46 update to CEAC #1 reads 140".
- * RSPT #1 for CEA 46 next update to CEAC #1 reads 150"

What alarm would be actuated from CEAC #1?

- A. CEAC #1 CEA Deviation.
- B. CEAC #1 Failure.
- C. CEAC INOP light on CPC/CEAC Operator's Module.
- D. CEAC #1 Sensor Failure.

QUESTION: 100

QID: 0193

Rev: 000

Point: 1.00

A large feedwater line break upstream of check valve 2FW-5A has occurred. What post trip operator actions are required?

- A. Trip all MFW and Condensate pumps and close all FW block valves.
 - B. Verify MSIS automatically actuated.
 - C. Verify EFW not feeding "A" SG.
 - D. Verify EFW not feeding "B" SG.
-

ANO UNIT 2 - SRO EXAM ANSWER KEY

QUESTION: 1	QID: 0002	Point: 1.00
A. Tave will increase.		
QUESTION: 2	QID: 0003	Point: 1.00
C. ECCS pumps will restart in time delayed sequence.		
QUESTION: 3	QID: 0004	Point: 1.00
B. Annunciator 2K12-A1, "LETDOWN RADIATION HI/LO".		
QUESTION: 4	QID: 0005	Point: 1.00
A. Reactor power will rise, Tave will be unaffected.		
QUESTION: 5	QID: 0010	Point: 1.00
C. Ensure containment atmosphere is isolated from the outside environment in the event of radioactive release or pressurization.		
QUESTION: 6	QID: 0011	Point: 1.00
D. Component Cooling Water Flow is lost for over 10 minutes.		
QUESTION: 7	QID: 0012	Point: 1.00
A. Emergency borate until adequate shutdown margin is demonstrated.		
QUESTION: 8	QID: 0018	Point: 1.00
C. Stop one (1) RCP in each RCS loop.		
QUESTION: 9	QID: 0020	Point: 1.00
B. RCS pressure may remain so high that cooling from the injection flow alone is inadequate.		
QUESTION: 10	QID: 0021	Point: 1.00
C. Radiation Levels.		
QUESTION: 11	QID: 0025	Point: 1.00
B. Within three (3) minutes.		
QUESTION: 12	QID: 0027	Point: 1.00
A. Level is NOT an accurate indication of inventory. RCS voiding may result in a rapidly increasing pressurizer level.		
QUESTION: 13	QID: 0028	Point: 1.00
C. Trip the turbine before exceeding 7 inches Hg absolute.		
QUESTION: 14	QID: 0031	Point: 1.00
D. Steamline safety valves are removed for bench testing of lift setpoint.		
QUESTION: 15	QID: 0033	Point: 1.00
B. To avoid possible entrainment of SI flow through the break due to a substantial amount of steam flow present before two (2) hours.		

ANO UNIT 2 - SRO EXAM ANSWER KEY

QUESTION: 16	QID: 0034	Point: 1.00
C. Fuel Integrity.		
QUESTION: 17	QID: 0036	Point: 1.00
D. Apply to the step immediately following the CAUTION.		
QUESTION: 18	QID: 0037	Point: 1.00
C. Connecting cables from 480V Motor Control Center (MCC) to a temporary power panel for outage maintenance support.		
QUESTION: 19	QID: 0038	Point: 1.00
B. Immediately notify the Shift Superintendent.		
QUESTION: 20	QID: 0040	Point: 1.00
B. Changing a tolerance to an operating parameter.		
QUESTION: 21	QID: 0042	Point: 1.00
A. Cannot drop below the minimum due to a relief being absent. Remain on watch until relieved.		
QUESTION: 22	QID: 0043	Point: 1.00
C. 1440.		
QUESTION: 23	QID: 0044	Point: 1.00
A. 1 hour.		
QUESTION: 24	QID: 0045	Point: 1.00
C. Perform every 15 minutes.		
QUESTION: 25	QID: 0046	Point: 1.00
D. Install locking pins for MSIVs.		
QUESTION: 26	QID: 0049	Point: 1.00
D. RCS Tave.		
QUESTION: 27	QID: 0052	Point: 1.00
B. Indicated level will be HIGHER than actual level because the reference leg fluid density decreases.		
QUESTION: 28	QID: 0056	Point: 1.00
A. High Log Power Trip.		
QUESTION: 29	QID: 0061	Point: 1.00
C. 2RITS-8916, 404 Spent Fuel Pool General Area monitor.		
QUESTION: 30	QID: 0066	Point: 1.00
A. A spent fuel assembly is damaged while being withdrawn from the core.		

ANO UNIT 2 - SRO EXAM ANSWER KEY

QUESTION: 31	QID: 0067	Point: 1.00
D. 120 minutes.		
QUESTION: 32	QID: 0069	Point: 1.00
C. Main Feedwater and Emergency Feedwater to "A" Steam Generator is secured.		
QUESTION: 33	QID: 0070	Point: 1.00
D. Restore power to Component Cooling Water Pump 2P33C and 480V MCCs.		
QUESTION: 34	QID: 0071	Point: 1.00
B. To prevent steam formation in the Reactor Vessel head from pressurizing the RCS, leading to core uncover.		
QUESTION: 35	QID: 0072	Point: 1.00
A. Start an alternate charging pump after verifying its suction path.		
QUESTION: 36	QID: 0077	Point: 1.00
A. Safety Parameter Display System (SPDS) point P4624-2.		
QUESTION: 37	QID: 0078	Point: 1.00
A. Making preliminary reportability verification.		
QUESTION: 38	QID: 0079	Point: 1.00
A. Breakers 1 and 5.		
QUESTION: 39	QID: 0081	Point: 1.00
B. Maintain subcooling margin between 30F and 200F.		
QUESTION: 40	QID: 0084	Point: 1.00
B. RCP seal cooler heater exchanger.		
QUESTION: 41	QID: 0089	Point: 1.00
D. Upender is completely horizontal.		
QUESTION: 42	QID: 0092	Point: 1.00
C. Perform an independent verification of proper Unit 1 Circ Water Flow.		
QUESTION: 43	QID: 0093	Point: 1.00
B. Reactive load increases and KW increases.		
QUESTION: 44	QID: 0094	Point: 1.00
A. Breakers will remain in their "as is" condition and operation would only be possible by local manual means.		
QUESTION: 45	QID: 0095	Point: 1.00
B. Inverter input is auctioneered between the rectifier output and a DC Battery Bus supply.		

ANO UNIT 2 - SRO EXAM ANSWER KEY

QUESTION: 46	QID: 0096	Point: 1.00
A. An uncontrolled cool down of the RCS, resulting in less shutdown margin.		
QUESTION: 47	QID: 0097	Point: 1.00
D. Reset the Steam Generator low pressure trip setpoints.		
QUESTION: 48	QID: 0099	Point: 1.00
B. By observing a trip light without the associated pretrip light.		
QUESTION: 49	QID: 0103	Point: 1.00
D. Between 275 and 270 degrees F RCS Temperature.		
QUESTION: 50	QID: 0104	Point: 1.00
D. SG "A" Level = 5% NR & Press = 500 psia SG "B" Level = 10% NR & Press = 370 psia.		
QUESTION: 51	QID: 0105	Point: 1.00
D. Main Feedwater Leak in Containment.		
QUESTION: 52	QID: 0107	Point: 1.00
C. 590 degrees Farenheight with RCS Pressure equal to 1350 psia.		
QUESTION: 53	QID: 0110	Point: 1.00
D. CSAS		
QUESTION: 54	QID: 0111	Point: 1.00
B. The selected Pressurizer Level Control Channel has failed high.		
QUESTION: 55	QID: 0114	Point: 1.00
D. To limit core uplift.		
QUESTION: 56	QID: 0115	Point: 1.00
C. Upper seal.		
QUESTION: 57	QID: 0121	Point: 1.00
D. Suspend core alterations until the inoperable channel is returned to operable status.		
QUESTION: 58	QID: 0123	Point: 1.00
C. one week.		
QUESTION: 59	QID: 0124	Point: 1.00
D. a person working on safety-related system or component.		
QUESTION: 60	QID: 0125	Point: 1.00
B. 5 hours.		
QUESTION: 61	QID: 0127	Point: 1.00
D. High Linear Power, High Local Power Density and Low DNBR trips and pretrips.		

ANO UNIT 2 - SRO EXAM ANSWER KEY

QUESTION: 62	QID: 0128	Point: 1.00
B. 1200 on 11/13.		
QUESTION: 63	QID: 0131	Point: 1.00
A. Ensures RCS heat removal through the steam generators.		
QUESTION: 64	QID: 0134	Point: 1.00
C. Be in Hot Standby with RCS Pressure within its limit within one (1) hour.		
QUESTION: 65	QID: 0135	Point: 1.00
D. 50%		
QUESTION: 66	QID: 0136	Point: 1.00
B. Be in at least HOT STANDBY with T-ave less than 500 degrees F within 6 hours.		
QUESTION: 67	QID: 0138	Point: 1.00
A. RCP Vapor Seal Leakoff.		
QUESTION: 68	QID: 0140	Point: 1.00
C. Reactor critical and CEAs inserted below the Transient Insertion Limits.		
QUESTION: 69	QID: 0141	Point: 1.00
D. Voiding in the Reactor Vessel Head area.		
QUESTION: 70	QID: 0146	Point: 1.00
B. minimize the effects of Xenon redistribution.		
QUESTION: 71	QID: 0149	Point: 1.00
A. provide long term post-accident core cooling.		
QUESTION: 72	QID: 0153	Point: 1.00
D. Initiate Emergency Boration.		
QUESTION: 91	QID: 0154	Point: 1.00
A. Lower RCS pressure and emergency borate via HPSI.		
QUESTION: 74	QID: 0156	Point: 1.00
D. Start HPSI Pumps 2P89B and 2P89C and fully open all HPSI Injection valves.		
QUESTION: 75	QID: 0157	Point: 1.00
B. Bypass valves and one ADV receive "quick open" then modulate to control main steam pressure.		
QUESTION: 76	QID: 0160	Point: 1.00
B. SDC heat removal is lost.		

ANO UNIT 2 - SRO EXAM ANSWER KEY

QUESTION: 77	QID: 0161	Point: 1.00
C. Manually actuate CIAS.		
QUESTION: 78	QID: 0164	Point: 1.00
B. 300 degrees F.		
QUESTION: 79	QID: 0167	Point: 1.00
B. Phase Differential.		
QUESTION: 80	QID: 0168	Point: 1.00
C. 2P7A will overspeed.		
QUESTION: 81	QID: 0169	Point: 1.00
D. The Loop I and Loop II Crossover valves will remain in the position they were in prior to 2P33A trip.		
QUESTION: 82	QID: 0170	Point: 1.00
C. RCS temperature and pressure increasing even with SDBCS valves and main spray valves opening.		
QUESTION: 83	QID: 0173	Point: 1.00
D. Prevent exhaust hood temperature from exceeding 200F.		
QUESTION: 84	QID: 0174	Point: 1.00
A. Exercise valve (2HS-1011 and 2HS-1061) green light to illuminate.		
QUESTION: 85	QID: 0175	Point: 1.00
D. Radiation levels will increase.		
QUESTION: 86	QID: 0176	Point: 1.00
B. Place Purge Exhaust Fan, 2VEF-15, in HAND then secure Purge Supply Fan, 2VSF-2.		
QUESTION: 87	QID: 0179	Point: 1.00
B. Condensate Pump 2P2D will auto start.		
QUESTION: 88	QID: 0180	Point: 1.00
C. Align SW and RCS to 2E35B and isolate SW and RCS to 2E35A.		
QUESTION: 89	QID: 0181	Point: 1.00
A. Limit flow velocities.		
QUESTION: 90	QID: 0182	Point: 1.00
A. Half Leg Trip.		
QUESTION: 73	QID: 0183	Point: 1.00
D. EOL Core.		

ANO UNIT 2 - SRO EXAM ANSWER KEY

QUESTION: 92	QID: 0184	Point: 1.00
C. Move fuel assembly to Spent Fuel Pool.		
QUESTION: 93	QID: 0185	Point: 1.00
A. Open ECCS vents (2CV-4698-1 and 2CV-4740-2).		
QUESTION: 94	QID: 0186	Point: 1.00
B. Use upstream MOVs (2CV-1002 and 2CV-1052).		
QUESTION: 95	QID: 0187	Point: 1.00
D. Close crossie valves 2CV-3004 and 2CV-3015.		
QUESTION: 96	QID: 0188	Point: 1.00
A. Stop depressurization until RVLMS level 1 indicates wet.		
QUESTION: 97	QID: 0189	Point: 1.00
C. Declare an Alert and perform a Plant Evacuation.		
QUESTION: 98	QID: 0190	Point: 1.00
B. To minimize RCS Break flow.		
QUESTION: 99	QID: 0192	Point: 1.00
D. CEAC #1 Sensor Failure.		
QUESTION: 100	QID: 0193	Point: 1.00
A. Trip all MFW and Condensate pumps and close all FV block valves.		