October 5, 1998

NOTE TO: NRC DOCUMENT CONTROL DESK
MAIL STOP O-5-D-24

FROM: Virgil Curley , LICENSING ASSISTANT
OPERATING LICENSING BRANCH _ REGION I

SUBJECT: OPERATOR LICENSING EXAMINATION ADMINISTERED ON
August 17-21, 1998, AT Beaver Valley 2
DOCKET NO. 50-412

ON August 17-21, 1998 OPERATOR LICENSING EXAMINATIONS WERE ADMINISTERED AT THE REFERENCED FACILITY. ATTACHED YOU WILL FIND THE FOLLOWING INFORMATION FOR PROCESSING THROUGH NUDOCS AND DISTRIBUTION TO THE NRC STAFF, INCLUDING THE NRC PDR.

Item #1 a) FACILITY SUBMITTED OUTLINE AND INITIAL EXAM SUBMITTAL DESIGNATED FOR DISTRIBUTION UNDER RIDS CODE A070.

b) AS GIVEN OPERATING EXAMINATION, DESIGNATED FOR DISTRIBUTION UNDER RIDS CODE A070.

Item #2 EXAMINATION REPORT WITH THE AS GIVEN WRITTEN EXAMINATION ATTACHED, DESIGNATED FOR DISTRIBUTION UNDER RIDS CODE IE42.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

September 18, 1998

Mr. J. E. Cross
President
Generation Group
Duquesne Light Company
Post Office Box 4
Shippingport, Pennsylvania 15077

SUBJECT: BEAVER VALLEY UNIT 2 SENIOR REACTOR OPERATOR INITIAL EXAMINATION REPORT NO. 50-334/98-301 and 50-412/98-301 (OL)

Dear Mr. Cross:

This report transmits the findings of the senior reactor operator (SRO) licensing operating examination, conducted by NRC examiners, during the week of August 17-21, 1998 at the Beaver Valley Unit 2 Nuclear Power Plant. The report also transmits the results of inspections performed during the week of August 3-6, 1998. Based on the results, all four SRO applicants passed all portions of the examination. At the conclusion, Mr. T. Kenny discussed the preliminary findings with members of your staff.

The examination addressed areas important to public health and safety and was developed and administered under interim Revision 8 to the Examiner Standards (NUREG-1021). All portions of the examination were developed by Beaver Valley Power Station (BVPS), while the NRC provided oversight and final approval prior to it's administration. BVPS training personnel administered the, NRC-approved, written portion of the examination, while the operating portion was administered by the NRC.

Several restart and enhancement items were inspected with no adverse findings.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

IE42

No reply to this letter is required, however, if you have any questions, please contact me at 610-337-5183.

Sincerely,

Richard J. Conte, Chief
Operator Licensing and
Human Performance Branch
Division of Reactor Safety

Docket No. 50-334; 50-412

Enclosure: Initial Examination Report No. 50-334/98-301 and
50-412/98-301 (OL) w/Attachments 1 and 2

cc w/encl; w/o Attachments 1-2:
Sushil C. Jain, Senior Vice President, Nuclear Services Group
R. Brandt, Vice President, Nuclear Operations Group and Plant Manager
R. LeGrand, Vice President, Operations Support Group
B. Tuite, General Manager, Nuclear Operations Unit
W. Kline, Manager, Nuclear Engineering Department
M. Pergar, Acting Manager, Quality Services Unit
S. Hobbs, Director, Safety & Licensing Department
J. Macdonald, Manager, System and Performance Engineering
J. A. Hultz, Manager, Projects and Support Services, FirstEnergy
M. Clancy, Mayor, Shippingport, PA
Commonwealth of Pennsylvania
State of Ohio
State of West Virginia

cc w/encl and Attachments 1-2:
K. Beatty, General Manager, Nuclear Support

Distribution w/encl and Attachments 1-2:
DRS Master Examination File
PUBLIC
Nuclear Safety Information Center (NSIC)
V. Curley, DRS

Distribution w/encl; w/o Attachments 1-2:
Region I Docket Room (with concurrences)
J. Wiggins, DRS
L. Nicholson, DRS
R. Conte, DRS
T. Kenny, Chief Examiner, DRS
N. Perry, DRP
D. Haverkamp, DRP
W. Axelson, DRA
NRC Resident Inspector
DRS OL Facility File
DRS File

Distribution w/encl; w/o Attachments 1-2 **(VIA E-MAIL)**:
D. Brinkman, NRR
R. Correia, NRR
S. Bajwa, NRR
W. Dean, OEDO (WMD)
R. Frahm, Jr., NRR
S. Richards, OLB/NRR
J. Stolz, NRR
J. Harold, NRR
D. Kerns - SRI - Beaver Valley
G. Wunder, NRR
F. Talbot, NRR
DOCDESK
Inspection Program Branch, NRR (IPAS)

U. S. NUCLEAR REGULATORY COMMISSION
REGION 1

Docket Nos.:	50-334 50-412
Report No.:	98-301
License No.:	NPF-73
Licensee:	Duquesne Light Company
Facility:	Beaver Valley Unit 2 Nuclear Power Plant
Location:	Shippingport, Pennsylvania
Dates:	August 3-7, 17-21, 1998
Chief Examiner:	T. Kenny, Senior Operations Engineer/Examiner
Examiners:	J. D'Antonio, Operations Engineer/Examiner P. Bissett, Senior Operations Engineer/Examiner
Approved By:	Richard J. Conte, Chief, Operator Licensing and Human Performance Branch Division of Reactor Safety

EXECUTIVE SUMMARY

Beaver Valley Unit 2 Nuclear Power Plant
Inspection Report No. 50-412/98-301

Operations

Four Unit 2 senior reactor operator instant (SROI) candidates passed all portions of the initial license examination.

Good performance was noted during the Unit 2 examination in the area of crew communications, control board awareness, and crew briefings during the simulator portion of the operating examination. The NRC examiners observed communications to be direct, succinct, and that all crew members were kept well informed. Crew briefings were routinely held when time permitted. The written examination was developed at the appropriate SRO knowledge level, as were the job performance measures and follow-up questions. Several JPMs, in lieu of questions, were appropriately developed to test the knowledge level of the applicants in the administrative area of the examination.

Current operator license training is being conducted in accordance with RG 1.8 Rev. 2. Appropriate waivers were submitted by the facility licensee and were addressed by the NRC staff.

The examiners concluded that the procedures used were complete in their technical content, were well written, and were clear and understandable for the user.

With respect to licensee restart item P-14, technical specifications surveillance scheduling, was acceptably completed.

With respect to licensee restart items P-15 and P-19, plans and procedures for the new "on-line" scheduling process appear to be in place, but the effectiveness of this procedure remains to be realized.

With respect to licensee restart items M-9 and P-16, during the shutdown, the facility appeared to have taken adequate steps to reduce the shift workload burden due to post maintenance testing; however, the effectiveness of this process remains to be realized.

The facility developed a plan for upgrading TS training in requalification programs for licensed and nonlicensed operators, as stated in their restart plan. GET and GERT now contain TS training for all non licensed personnel and is of appropriate quality. "Just in time " training was enhanced to include training of operating crews prior to important evolutions.

Report Details

I. Operations

05 Operator Training and Qualifications

05.1 Senior Reactor Operator Initial Examinations

a. Scope

The examination was prepared by Beaver Valley Power Station (BVPS) personnel in accordance with the guidelines in interim Revision 8, of NUREG-1021, "Examiner Standards." The NRC examiners administered initial operating licensing portion of the examination to four Unit 2 senior reactor operator instant (SROI) candidates. The written examination was administered by the facility's training organization.

b. Observations and Findings

The results of SRO examination for Unit 2 are summarized below:

	SRO Pass/Fail
Written	4/0
Operating	4/0
Overall	4/0

Overall the entire examination was well written and validated by the licensee prior to the NRC reviewing it. This was evidenced by the few changes that were required by the NRC after their review.

The written portion, job performance measures (JPMs) and simulator scenarios were developed by BVPS and their contractor in accordance with NR-1021. All individuals involved signed a security agreement once the development of the examination commenced. BVPS personnel validated the operation portions of the examination prior to their submitting it to the NRC. The NRC subsequently reviewed and observed the validation of all portions of the proposed examination. During the examination preparation week (August 3-7, 1998) the NRC examiners noted that the facility staff had performed good validation of the new simulator scenarios and JPM's, because little or no changes were required after the demonstrations.

The written portion of the examination was administered on August 17, 1998, and consisted of 100 multiple choice questions. Prior to administration there were minor editorial comments noted by the NRC, that were promptly corrected by the licensee.

The operating portion of the examination was conducted from August 17-21, 1998, and consisted of four simulator scenarios and ten JPMs. All JPMs were followed up with two system-related questions. All candidates were also examined using JPMs and/or questions to evaluate the administrative requirement portion of the examination.

Simulator and JPM performance by the candidates was good. Communication was also good, including the use of repeat backs. The examiners noted that crew briefings were routinely performed by the SROs. Good control board awareness by all of the candidates was evident throughout each of the four scenarios.

c. Conclusions

The candidates performed well on both the written and operating portions of the examination. The candidates were well prepared for the examination, indicating that the facility thoroughly evaluated the knowledge and ability of each candidate in an effort to determine their readiness to sit for an initial NRC, SROI examination. Crew communications, control board awareness, and crew briefings were good. As noted in past BVPS NRC reports, the training department, did well in adhering to the examiner standards and in developing the examination materials needed to administer the examinations.

O5.2 Regulatory Guide (RG) 1.8 Rev. 2 Requirements Inspection

a. Scope (IP 41500)

RG 1.8 Rev. 2 requires certain requirements, and certain obligations be satisfied by a license candidate prior to taking the examination for a hot Senior Reactor Operators license. The inspectors reviewed the four candidates' training records and NRC records to verify compliance with these requirements.

b. Observations and Findings

RG 1.8 requires that:

- Each candidate, for a senior license, have a high school diploma or equivalent. The inspectors verified that all candidates met or exceeded the requirement.

- Each candidate, for a senior license, have four years of responsible power plant experience. The inspectors verified that all candidates met or exceeded the requirement.

- Each candidate, for a senior license, serve three months as an extra person on shift in training for that position. Three months is the equivalent of 520 hours for a 40 hour work week. The candidates did not meet this requirement, however, the NRC granted a waiver on August 17, 1998, to take the examination. This may result in a condition on the issued license.

- Each candidate, for a hot license, should manipulate controls of the facility during a minimum of five reactivity changes. The inspectors verified that all candidates met or exceeded the requirement [10 CFR 55.31(a)(5)]. The candidates did not meet this requirement, however, the NRC granted a waiver on August 17, 1998, to take the examination and the licenses will not be issued until this requirement is met. The licensee agreed, via a letter dated July 13, 1998, that the candidates will be placed in the requalification training program as if the licenses are issued.

c. Conclusions

Current operator license training is being conducted in accordance with RG 1.8 Rev. 2. Appropriate waivers were submitted by the facility licensee in a timely manner and were addressed by the NRC staff.

O8 Miscellaneous Operations Issues

O8.1 Condition Report

In NRC inspection report 50/334-97-300 the inspector documented inconsistencies within certain documents regarding training requirements. Although, the licensee was conducting the training of perspective operators in accordance with RG 1.8, Rev. 2 other documents listed different training requirements . The licensee issued Condition Report (CR) 980734, on April 9, 1998, that described the inconsistencies. During this inspection, the inspector reviewed the licensee's corrective actions to the CR, and found them satisfactory. Changes to documents reflecting proper training requirements for operators, maintenance personnel and other personnel were being tracked by the licensee's tracking system until licensing basis document are properly changed.

O8.2 Procedures (IP 42700)

During the shutdown period, the operating procedures underwent major revisions. The procedures used during the simulator and JPM exercises were reviewed to verify if technical adequacy of the procedures was consistent with desired actions and modes of operation and to verify the ability of procedure (content and format) to be used easily.

The examiners concluded that the procedures used were complete in their technical content, were well written, and were clear and understandable for the users.

II. Maintenance

M8.1 Technical Specification (TS) Surveillance Scheduling and Tracking.

a. Scope (IP 62700)

The inspector evaluated the status of facility restart issue P-14, that addressed centralization of TS surveillance scheduling and tracking in one database, under one Surveillance Coordinator. This was accomplished by a review of the applicable procedure and interviews of the surveillance coordinator and schedulers.

b. Observations and Findings

NPDAP 8.12 Rev 3 "Control and Coordination of Technical Specification Surveillances" defines the responsibilities of the surveillance coordinator. This position tracks all surveillances with frequencies greater than or equal to weekly, including conditional surveillances which may, or may not, be required based on plant operating mode. This tracking is accomplished with a database in the facility's MP (maintenance planning system) software. Required periodic surveillances are incorporated into the baseline 12 week schedule, that is generated with a software called "Primavera." Conditional surveillances are scheduled for the applicable plant mode. The surveillance coordinator generates reports of potential conditional surveillances and coordinates with schedule preparation personnel reports to ensure required surveillances are indicated. The coordinator is informed of completion of surveillances and any necessary changes such as increased frequency testing requirements both by E-mail and hard copy, then he enters this information into MP.

The inspector reviewed activities performed to verify the accuracy of the consolidated database. The facility had performed an extensive review to ensure that procedures existed to properly test all (TS) requirements. This review was discussed in integrated report 50-344&412/97-11. As a result of this review the facility generated a software matrix able to cross reference TS's and procedures. This software cross matrix is redundant to an existing hard copy matrix. The surveillance coordinator had verified that all procedures for which he was responsible for had been correctly entered into MP. A partial audit by Quality Assurance was performed with minor discrepancies resolved.

During this inspection, the coordinator was in the process of verifying that these procedures were correctly referenced in the hard copy technical specification matrix. As a result of this review, additional required changes had been identified which will be incorporated into a future review of the matrix.

c. Conclusions

This restart item (P-14) was acceptably completed.

M8.2 Work Control

a. Scope (IP 62700)

The inspector evaluated the status of facility restart issues P-15 and P-19, which addressed the implementation of a 12 week work management process and a combined 12 week/forced outage schedule.

b. Observations and Findings

The week of this inspection was the second week of the facility's revised scheduling and work control process. Scheduling of work was divided into a 12 week "on-line" schedule and an outage schedule. With the plant in an extended forced outage, these schedules have been combined into one schedule. The on-line schedule is planned around a baseline schedule of work windows for systems and trains. Routine preventive maintenance and surveillance items are added to this schedule, along with corrective maintenance. Work is accommodated in the present schedule or the next 12 week schedule based on priority. The on-line schedulers are current or former SROs for each unit. Once a week, meetings were held between the schedulers, work week management personnel, and supervisors to monitor preparation for future work weeks in advance of scheduled performance. This meeting also includes readiness of current planned work to proceed. The inspector observed a meeting and considered the interaction a benefit.

Outage work was normally planned separately from on-line work. Due to the extended forced outage, the potential benefits of the 12 week schedule were not being realized. The 12 week schedule had been prepared by the on-line schedulers, but any outage related work that could be performed was given priority and fit into the schedule, sometimes with as little as one shift notice. As a result, the potential operational safety benefits of the new schedule and evaluation of equipment out of service were not being realized. These benefits would include ensuring safety related equipment was not removed from service during operations for longer than necessary due to lack of personnel, parts, or interdepartmental coordination, and timely PRA review of the proposed schedule. Since the schedule may have changes subsequent to PRA review, the inspector verified that the facility has an operations department shutdown risk assessment procedure to verify required equipment is operable despite late schedule changes.

Due to the present overlap between shutdown and on-line schedules, the facility did not intend to begin tracking performance indicators for the effectiveness of the revised process until the unit was back on line.

c. Conclusions

With respect to licensee restart items P-15 and P-19, plans and procedures for the new "on-line" maintenance scheduling process appear to be in place, but the effectiveness of this procedure remains to be realized.

M8.3 Post Maintenance Testing

a. Scope (IP 62700)

The inspector reviewed the status of restart items M-9 and P-16. These items addressed review of outstanding post maintenance testing items for restart, and revision of the post maintenance testing process to reduce a work load burden on the operating shift.

b. Observations and Findings

Item M-9 concerned verifying required post maintenance testing was completed. The inspector obtained a printout of work orders that had been statused as complete but awaiting post maintenance testing (PMT) and interviewed the PMT SRO. This individual was using the same printout, verifying that post maintenance testing paperwork was in the control room or tracking it down if it was not. He was also coordinating with work control and the control room to ensure necessary work was completed for restart and to schedule specific PMT activities as necessary. The inspector considered the assignment of a dedicated individual and his evaluation to be appropriate.

Item P-16 concerned revision of the post maintenance testing process to better ensure appropriate post maintenance testing requirements were determined and performed prior to declaring equipment operable. This was being addressed in two parts. An SRO per unit was assigned to work control to evaluate work packages prior to scheduling and modify post maintenance testing requirements if necessary. The second measure was the development of a post maintenance testing procedure to aid shift personnel in determining appropriate post maintenance testing. Development of this procedure had just started and the form of the end product was not determined. The inspector considered the SRO reviews at the planning and scheduling stage, coupled with the dedicated SRO post maintenance testing reviewer for mode change to be adequate for startup.

c. Conclusions

With respect to licensee restart item M-9 and P-16, during the shutdown, the facility appeared to have taken adequate steps to reduce the shift work load burden due to post maintenance testing, however the effectiveness of this process remains to be realized.

M8.4 Licensee "Culture" Enhancements

a. Scope (IP 62700)

The inspector reviewed the status of the following items listed as "culture" enhancements in the licensee's restart plan: 1) Develop a plan to upgrade licensed and nonlicensed requalification training programs for increased emphasis on technical specifications. 2) Developed a plan to upgrade General Employee Training

(GET) and General Employee Refresher Training (GERT) programs ensuring increased sensitivity to Technical Specification (TS) compliance. 3) Develop a "Just in Time" training plan to train all operating crews involved in an activity prior to the performance of the identified activity. A fourth item concerning "lessons learned," from the outage, was not ready for inspection.

b. Observations and Findings

The Training Administrative Manual had been changed to require a two hour session concerning technical specifications in each module for both programs. This training was in addition to TS training presented with each specific system. This training was scheduled to commence with the next module (module 5) for non licensed operator training and had already commenced for licensed operator training. The inspector reviewed the lesson plan for the session taught and considered it to be of appropriate quality.

The inspector reviewed Addendum 98.5 to GERT which described TS's including; their development, ownership of the document, responsibility for implementation, and purpose for the document. The inspector verified that the addendum was presented to all employees, and that the training will be presented at each session of GET in the future.

The Operations Department in conjunction with the Training Department developed a "just in time" training program. The inspector reviewed documents and had discussions with training department personnel regarding training that was presented to operators during this extended outage as follows: All operators have received training regarding changes to procedures altered during this outage. Operators also received training on design changes implemented during this outage. To be completed is training for start up and heat up of the plant prior to the overall plant start up. Training management informed the inspector that this training will take place just prior to returning the unit to service.

c. Conclusions

The facility developed a plan for upgrading TS training in the requalification programs for licensed and nonlicensed operators, as stated in their restart plan. GET and GERT now contains TS training for all non licensed personnel and is of appropriate quality. "Just in time " training was enhanced to include training of operating crews prior to important evolutions.

E8 Review of the FSAR.

While performing the preexamination activities discussed in this report, the inspectors reviewed applicable portions of the FSAR, that related to the selected examination questions or topic areas. No discrepancies were noted.

V. Management Meetings

X1 Exit Meeting Summary

On August 21, 1998 the NRC examiners discussed their observations regarding the examination with Beaver Valley Unit 2 operations and training management representatives. The examiners discussed candidate performance, including communications and briefings among themselves, both were good.

The examiners also expressed their appreciation for the cooperation and assistance that was provided during both the preparation and examination week by licensed operator training personnel and operations personnel. The following were present at the exits.

The results of an earlier inspection evaluation the restart items were also discussed.

PARTIAL LIST OF PERSONS CONTACTED

BEAVER VALLEY

J. Cross, President Generation Group
M. Johnson, Manager of Security (Acting VP)
K. Beatty, General Manager, Nuclear Support
R. Brooks, Sr. Nuclear Operations Instructor
W. Lindsey, Director, Operator Training
R. Hart, Senior Licensing Supervisor

NRC

T. Kenny, Senior Operations Engineer, Chief Examiner
J. D'Antonio, Operations Engineer
D. Kern, Senior Resident Inspector

INSPECTION PROCEDURES USED

IP 41500: Training and Qualification Effectiveness
IP 62700: Maintenance Program Implementation
IP 42700: Plant Procedures

LIST OF ACRONYMS

CFR	Code of Federal Regulations
CR	Condition Report
GERT	General Employee Refresher Training
GET	General Employee Training
JPM	Job Performance Measure
NRC	Nuclear Regulatory Commission
PRA	Probabilistic Risk Assessment
PTM	Post Maintenance Test
QA	Quality Assurance
RG	Regulatory Guide
RO	Reactor Operator
SRO	Senior Reactor Operator
SROI	Senior Reactor Operator Instant
TS	Technical Specifications

Attachments:

1. Beaver Valley Unit 2 SRO Written Examination w/Answer Key
2. Simulation Facility Report

Attachment 1

BV-2 SRO WRITTEN EXAMINATION W/ANSWER KEY

WRITTEN EXAMINATION COVER SHEET

PROGRAM: Licensed Operator Training

CLASS NUMBER: 2LOT2A

SUBJECT: Initial NRC SRO Exam

By this signature, I state that all of the work done on this examination is my own. I have neither given nor received aid.

SIGNATURE _____ DATE _____

NAME ANSWER KEY (Please Print)

DLC EMP. # _____

COMPANY _____ (if other than DLC)

POSSIBLE POINTS 100 SCORE _____

Instructor Initials

PREPARED BY Thomas Stanley TRAINING DIRECTOR/SUPERVISOR

SIGNATURE Thomas W. Stanley APPROVAL [signature] 8/14/98

Date

RJ Brosi

BVPS-2
NRC Exam: 2LOT2, Rev 0
Question 8-98-1

1. The unit is at 100% with all systems NSA. The following annunciators are lit:

A4-3C "TAVG DEVIATION FROM TREF"

A5-4F "ROD CONTROL BANK D LOW-LOW

Tref is 5°F above Tavg

Which of the following actions is required to restore Tavg-Tref to within limits and clear the Rod Insertion Low-Low Limit?

A. Lower turbine load and add boron

B. Raise turbine load and add boron

C. Lower turbine load and dilute

D. Raise turbine load and dilute

ANSWER: A

K/A: 001 K3.01	Importance: 3.1/3.5

Cognitive Level: Comprehension CLOSED BOOK

Ref: AOP 2.1.3 Step 2 Issue 1A Rev. 3

LP#: 2LP-SQS-53C.1	OBJ: Obj. 8

History

Source: NEW

JTA:0000040401	

2. The unit is operating at 100% with all systems NSA. Control Rod H-4 drops into the core. The ANSS is informed that a blown fuse on the stationary gripper coil will require 2 hours to replace. Which of the following actions will be needed to comply with the LCO:

A. Within 1 hour verify compliance with T.S. 3.1.3.6 "Control Rod Insertion Limits".

B. Within 1 hour verify shutdown margin per T.S. 3.1.1 "Boration Control - Shutdown Margin".

C. Within 6 hours place the unit in Hot Standby per T.S. 3.1.3.1 "Movable Control Assemblies-Group Height".

D. Within 6 hours align the bank to within 12 steps of H-4 per T. S. 3.1.3.1 "Movable Control Assemblies-Group Height".

ANSWER: B

K/A: 003 K1.07	Importance: 3.1/3.9

Cognitive Level: Analysis OPEN BOOK

Ref.: 2OM53.C.2.1.8 "Rod Inoperability" Issue 1A, Rev0 Step 4
Beaver Valley Technical Specification 3.1.1 "Boration Control- Shutdown Margin

LP#: 2LP-SQS-53C-1	OBJ: 8

History

Source: NEW

JTA 0000070401	Note: Student has copy of Tech Specs

3. During the performance of ES-0.1 "Reactor Trip Response" the NCO reports that control rod F-8 indicates 24 steps and control rod H-8 indicates 227 steps on the Rod Position Indication Panel.

Which of the following actions is needed to ensure adequate shutdown margin?

A. Stop dumping steam to stabilize Reactor Coolant System temperature at 547°F.

B. Borate the RCS to Cold Shutdown Concentration at 200°F from Curve CB-27

C. Emergency borate until the in service Boric Acid Storage tank shows a 36% level drop.

D. Emergency borate until the in service Boric Acid Storage tank shows an 18% level drop.

ANSWER: D

K/A: 003 A2.03	Importance: 3.3/3.4
Cognitive Level: Analysis	OPEN BOOK
Ref: 2OM-53A.1.ES-0.1"Reactor Trip Response" Issue 1B Rev. 4 Step 6 2OM-53A.1.ES-0.1 "Reactor Trip Response" Background Issue 1B, Rev. 4 Beaver Valley Curve Book Curve CB-27 Issue 7 Rev. 0	
LP#: 2LP-SQS-53.3	OBJ: 6
History	
Source: NEW	
JTA:301AAA0601	Student gets Copy of EOP ES-0.1 and CB-27

BVPS-2
NRC Exam: 2LOT2, Rev 0
Question 8-98-4

4. The reactor has tripped and a Safety Injection was actuated on low RCS pressure. The crew is transitioning from E-0"Reactor Trip and Safety Injection" to E-1 "Loss of Primary or Secondary Coolant", Step 1. The following conditions exist:

RCS Pressure	980 psig - stable
Steam Generator Pressure	950 psig - stable
Containment Pressure	8 psig - stable
RWST level	500 inches - slowly dropping
HHSI flow	520 gpm - stable

During the crew briefing at transition, which of the following sets of pumps should be operating?

1. Low Head SI pumps
2. Reactor Coolant pumps
3. Quench Spray pumps
4. Component Cooling pumps

A. All listed pumps

B. LHSI and Reactor Coolant Pumps only

C. LHSI and Component Cooling Pumps only

D. LHSI and Quench Spray Pumps only

ANSWER: D

K/A: 011 K3.14	Importance4.1/4.2:

Cognitive Level: Analysis CLOSED BOOK

Ref.: 2OM-53.1.E-0 "Reactor Trip and Safety Injection" Issue 1B, Rev. 4

2OM-53.1.E-1 "Loss of Primary or Secondary Coolant" Issue 1B, Rev. 5

LP#: 2LP-SQS-53.3	OBJ: 3

History

Source: NEW

JTA: 3010010601	

BVPS-2
NRC Exam: 2LOT2, Rev 0
Question 8-98-5

5. Transfer to Hot Leg Recirculation, 14 hours following a LOCA, is designed to meet which one of the following criteria?

A. Maximize core cooling following a cold leg break with flow into vessel and out of cold leg break.

B. Dilute boron concentration in the reactor vessel to prevent precipitation of boron on clad surfaces.

C. Minimize differential pressure from cold leg to allow maximum flow into reactor vessel.

D. Limit void in upper vessel to prevent blockage of natural circulation flow into hot legs.

ANSWER: B

K/A: 011 K3.12	Importance: 3.8/4.2
Cognitive Level: Knowledge	CLOSED BOOK
Ref: 2OM53B.3.E-1"Loss of Primary or Secondary Coolant" Issue 1B Rev. 5 Note before step 31	
LP#: 2LP-SQS-53.3	OBJ: 3
History	
Source: NEW	
JTA: 3010010601	

BVPS-2
NRC Exam: 2LOT2, Rev 0
Question 8-98-6

6. The crew is performing ES-1.2 "Post LOCA Cooldown and Depressurization". At step 24 in the procedure the ANSS instructs the Reactor Operator to :

"Depressurize the RCS to minimize break flow until PRZR level is GREATER THAN 76% or Subcooling is less than subcooling listed on Attachment A-5.2"

Which of the following actions will result in the lowest RCS pressure and limit the rise in Pressurizer level?

A. Using a PORV to reduce RCS pressure.

B. Using normal PRZR spray while reducing charging flow.

C. Lock out the PRZR heaters while spraying the PRZR.

D. Aligning auxiliary spray for maximum temperature differential.

ANSWER: B

K/A: W/E02 EK1.2	Importance:3.5/3.8

Cognitive Level: Analysis CLOSED BOOK

Ref.: 2OM53.A.ES-1.2 "Post LOCA Cooldown and Depressurization" Issue 1B, Rev. 5 Step 24
2OM53.B.ES-1.2 "Post LOCA Cooldown and Depressurization" Background" Issue 1B, Rev. 5

LP#: 2LP-SQS-53.3	OBJ: 3

History

Source: NEW

JTA: 301AAA0601	

BVPS-2
NRC Exam: 2LOT2, Rev 0
Question 8-98-7

7. At step 28 in E-0 "Reactor Trip or Safety Injection", the following parameters are noted

RCS Subcooling 55 degrees and rising

Total AFW Flow - 400 gpm - stable

RCS Pressure 2100 psig - rising

PRZR level 19% -rising

Based on these parameters, which of the following is a correct statement?

A. RCS pressure is sufficient to make RCS subcooling an indication of RCS inventory

B. AFW flow is sufficient to make RCS pressure an indication of RCS inventory

C. RCS subcooling is sufficient to make PRZR level an indication of RCS inventory

D. RCS pressure is sufficient to make PRZR level an indication of RCS inventory

ANSWER: C

K/A: W/E02 EA1.3	Importance: 3 8/4.0
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-53A-E-0" Reactor Trip and Safety Injection", Issue 1B, Rev. 4 2OM-53B.5.GI-11 "SI Termination Criteria" Issue 1B, Rev. 1 Page 7	
LP#: 2SQS-53.2	OBJ: 3
History:	
Source: NEW	
JTA: 301AAA0601	

BVPS-2
NRC Exam: 2LOT2, Rev 0
Question 8-98-8

8. The unit is at 100% power with all systems NSA. Which of following will NOT automatically trip the 21A Reactor Coolant Pump?

A. RCP 21A Bearing Low Lube Oil Level = 1.25 in. below Normal

B. 2A 4KV Bus Frequency = <57.5 Hz

C. 2A 4KV Bus Voltage = 75% of rated voltage

D. RCP 21A Motor Electrical Protection Overcurrent

ANSWER: A

K/A: 0015/17 K1.02	Importance: 3.7/4.1
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-6 "Reactor Coolant System" Issue 4, Rev. 0 Section 1OM-6.1.D, Page 1 of 19 2OM-6 "Reactor Coolant System" Figure 06-22 " 10080-LSK-25-1A	
LP#: 2SQS-6.3	OBJ: 8
History	
Source: NEW	
JTA: 003AAA04011	

BVPS-2
NRC Exam: 2LOT2, Rev 0
Question 8-98-9

9. A Reactor Trip with loss of offsite power has occurred. The following conditions exist:

Core Exit Thermocouple Temperatures = 582°F and stable.

All Hot leg Temperatures = 580°F and stable.

All Cold Leg Temperatures = 550°F and stable.

Pressurizer Pressure = 2085 psig and stable.

Containment Pressure = 10 psia and stable

It is desired to reduce RCS pressure but maintain 50°F subcooling. The minimum pressure that can be achieved to maintain 50°F subcooling as indicated on PSMS is:

A. 1930 psia.

B. 1942 psia.

C. 1947 psia.

D. 1962 psia.

ANSWER: C (Psat for 632°F =1947 psia)	
K/A: E09EK3.3	Importance: 3.5/3.6
Cognitive Level: Analysis	OPEN BOOK
Ref.: Steam Tables	
LP#: 2SQS-3.1	OBJ: 14
History	
Source: New	
JTA: 0170020101	Student given Steam Tables

10. Which of the following would comply with the requirements for emergency boration?

A. Open 2CHS*MOV350, verify 30 gpm on 2CHS*FI110 Emergency Boration Flow and verify greater than 30 gpm charging flow to the RCS.

B. Open 2CHS*SOV206 and 2CHS*FCV113A, verify 30 gpm on 2CHS*FI110 Emergency Boration Flow and 40 gpm charging flow to the RCS.

C. Open 2CHS*MOV350 and verify greater than 40 gpm boration flow on 2CHS*FR113 Boric Acid to Blender Flow Recorder.

D. Open 2CHS*SOV206 and 2CHS*FCV113A, verify greater than 40 gpm boration flow on 2CHS*FR113 Boric Acid to Blender Flow Recorder.

ANSWER: D

K/A: 024 A2.02	Importance: 3.9/4.4
Cognitive Level: Analysis	OPEN BOOK
Ref.: 2OM-7.4.C "Emergency Boration" Issue 4 Rev. 1 Pages 1 and 2	
LP#: 2LP-SQS-7.1	OBJ: 8
History	
Source: NEW	
JTA: 004EEE0101	Student has copy of procedure

11. Unit 2 is in Mode 5 on RHS cooling with 2RHS P21A running. The following conditions exist:

2CCP*P21A is running

2CCP*E21A and 2CCP*E21B heat exchangers are in service

2CCP*DCV101A and B CCP Hx Diff. Press. Control Valves are operating in manual

2CCP*TCV100A and B CCP Hx Temp. Control Valves are operating in auto

Which of the following would be the effect on the plant from loss of instrument air?

A. 2CCP*DCV101A and B fail closed, 2CCP*TCV100A and B fail open and RHS temperature drops.

B. 2CCP*DCV101A and B fail open, 2CCP*TCV100A and B fail closed and RHS temperature drops.

C. 2CCP*DCV101A and B fail closed, 2CCP*TCV100A and B fail open and RHS temperature rises.

D. 2CCP*DCV101A and B fail open, 2CCP*TCV100A and B fail closed and RHS temperature rises.

ANSWER: B

K/A: 026 K3.03	Importance: 3.5/3.7

Cognitive Level: Comprehension CLOSED BOOK

Ref: 2OM-15.5 "CCP System", Issue 4 Rev. 0 Figure 15-1 10080-RM-415-1 Rev. 9

LP#: 2LP-SQS-15.1	OBJ: 3

History

Source: NEW

JTA: 0050080101	

12. The crew has initiated emergency boration in response to an ATWS. RCS pressure is 2335 psig. Which of the following actions would maximize negative reactivity and minimize the addition of positive reactivity being added to the RCS?

A. Raise AFW flow to 700 gpm and fill all steam generators to 5% narrow range level.

B. Lower charging flows to 40 gpm and raise letdown flow to 120 gpm by placing two letdown orifices in service.

C. Verify Pressurizer PORV motor isolation valve open and verify/open a Pressurizer PORV.

D. Place Steam Dump Controller to Manual and open the steam dumps.

ANSWER: C

K/A: 029 K1.03	Importance: 3.6/3.8
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-53.4.FR.S-1"Response to Nuclear Power Generation-ATWS", Step Description for Step 8, Issue 1B, Rev. 5	
LP#: 2LP-SQS-53.3	OBJ: 3
History	
Source: NEW	
JTA: 3110010601	

13. The Reactor Coolant system parameters are 1700 psig and 490 degrees.. All actions required by 2OM-51.4.C "Station Shutdown-Cooldown from Mode 3 to Mode 4" procedure are in effect.

Which of the following actions would automatically terminate the cooldown via the steam dumps?

A. 21A and 21B Steam Generator pressures drop to 450 psig in each generator

B. 21B Steam Generator pressure drops from 690 to 490 psig in 45 seconds

C. 21A Steam Generator level rises from 55% to 85 % in 45 seconds

D. 21A and 21C Steam Generator levels drop to less than 5% narrow range

ANSWER: B

K/A: 040 K3.04	Importance: 4.2/4.5
Cognitive Level: Comprehension CLOSED BOOK	
Ref.: 2OM21 "Main Steam", Iss. 4, Rev. 0, Section 2OM-21.1.D Page 2of 11, 2OM-21.B Page 2	
LP#: 2LP-SQS-21.1	OBJ: 3
History	
Source: NEW	
JTA: 0390090101	

14. In step 13 of ECA-2.1" Uncontrolled Depressurization of All Steam Generators" the operator confirms that SI accumulators will be isolated when 2 of 3 Hot Leg temperatures are less than 390 degrees. Isolation of the accumulators below this temperature is required to prevent:

A. Injection of nitrogen gas in to the Reactor Coolant System.

B. Violation of Technical Specification temperature pressure limits.

C. Entry into Pressurized Thermal Shock conditions in the vessel.

D. High pressure differential across the steam generator tubes.

ANSWER: A

K/A: 040 A1.04	Importance: 4.3/4.3

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM-53.A.4.ECA-2.1 " Uncontrolled Depressurization of All Steam Generators" Iss. 1B Rev 6.
Background Description for Step 13

LP#: 2LP-SQS-53.3	OBJ: 3

History

Source: NEW

JTA: 3010030601	

15. Following a steam break that occurred 20 minutes ago, the crew has completed isolating the steam generator using E-2 "Faulted Steam Generator Isolation" with the following status:

Reactor Coolant Temperature at 258 degrees and stable
Reactor Coolant Pressure at 1400 psig and stable
21A Steam Generator Pressure 25 psig and stable
21B and 21C Steam Generator Pressures at 420 psig and stable

Based on the given information, select the appropriate procedure for the transition from E-2"Faulted Steam Generator Isolation.

A. Go to E-1 "Loss of Primary or Secondary Coolant" Step 1.

B. Go to ECA - 2.1 "Uncontrolled Depressurization of All Steam Generators" Step 1.

C. Verify no higher "RED" path present and go to FR-P.1 "Response to Imminent Pressurized Thermal Shock" Step 1.

D. Verify no higher "ORANGE" path or any "RED PATH present and go to FR-P.2 "Response to Anticipated Pressurized Thermal Shock".

ANSWER: D

K/A: W/E08 A2.01	Importance: 3.4/4.2
Cognitive Level: Analysis	OPEN BOOK
Ref: 2OM-53.1 F-0.4 "Vessel Integrity" Issue 1B, Rev. 1 2OM-53A.1.A-4.4 "PTS-Operation Limits Curve" Issue 1B, Rev. 2	
LP#: 2LP-SQS-53.3	OBJ: 12
History	
Source: NEW	
JTA: 3110140601	Student gets F-0.4 and A-4.4

16. As pressure rises in the Main Condenser to normal atmospheric pressure, in what sequence will the following protective functions actuate?

1) A5-5B "CONDENSER VACUUM LOW TURBINE TRIP"
2) A12-4C "CONDENSER UNAVAILABLE (C-9)"
3) A6-5G "CONDENSER VACUUM LOW/LOW-LOW"
4) LP Turbine Rupture Disk ruptures

A. 3,1,2

B. 1,3,2

C. 4,3,2

D. 3,2,4

ANSWER: A

K/A: K/A 0051 K2.06	Importance: 1.6/1.5

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM 26 "Main Turbine and Condenser", Section 21.1.C, Issue 4 Rev. 4 Page 5

2OM-26.4.AAB " Condenser Vacuum Low Turbine Trip" Iss. 4 Rev. 1

2OM-26.AAK " Condenser Vacuum Low/LOW-LOW", Iss. 4 Rev. 4

2OM-26 ABM "Condenser Unavailable"(C-9)" Iss. 4 Rev. 0

LP#: 2LP-SQS-31.1	OBJ: 5

History

Source: NEW

JTA: 0750C30101	

17. In step 25 of ECA-0.0 " Loss of All AC Power" all intact steam generators are depressurized until the steam generator pressures are 300 psig. What is the basis for stopping at 300 psig?

A. To limit head voiding and ensure continued natural circulation.

B. Minimize loss of RCS through the damaged Reactor Coolant Pump seals.

C. Prevent the return to criticality of the reactor core during cooldown.

D. Prevent challenging the reactor vessel integrity limit.

ANSWER: D

K/A: 055 K3.02	Importance: 4.3/4.6
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 2OM.53.B.4.ECA-0.0 " Loss of All AC Power" Background Issue 1B Rev 4 Page 114	
LP#: 2LP-SQS-53.3	OBJ: 3
History	
Source: NEW	
JTA: 3010060601	

18. Bus 2AE de-energized when the normal feeder breaker opened. Which out of position switch would prevent an emergency start of the 2-1 Emergency Diesel Generator?

A. Mode Selector Switch in NORMAL

B. D/G Auto/Local Key Switch in AUTO

C. Generator Synchronous Check Switch in OFF

D. Auto/Exerciser switch in EXERCISE

ANSWER: D

K/A: 055 A1.02	Importance: 4.3/4.4

Cognitive Level: Comprehension CLOSED BOOK

Ref.: 2OM-36.5 "4KV Station Service System Figures and Tables", Issue 4, Rev. 0, Figures 36-24A and 24B

2OM-36.3.C.8 "Power Supply and Control Switch List Diesel Generator 2-1" Issue 4, Rev. 8, Page 19

2OM-53.A.4.ECA-0.0 " Loss of All AC Power", Issue 1B, Rev. 4, Step 8

LP#: 2LP-SQS-53.3	OBJ: 3

History

Source: NEW

JTA: 3010060601	

19. A short has damaged Vital Bus 2-3 and the panel will be unavailable from normal and alternate supply. Which of the following actions will be required?

A. Pressurizer level II and III must be selected for service

B. Steam Generator Pressure Channel III must be selected for service

C. Make-up to the VCT must be controlled in manual

D. Swapover to the RWST must be manually performed at 5%

ANSWER: D

K/A: 0057 A1.04	Importance: 3.5/3.6
Cognitive Level: Analysis	OPEN BOOK
Ref: 2OM-38.4.W "Extended Loss of Vital Bus 2-3" Issue 1, Rev. 4, Page 1	
LP#: 2LP-SQS-39.1	OBJ: 7
History	
Source: NEW	
JTA: 0630040101	Student gets copy of 38.4.W

20. Service Water Pump C is currently in service and connected to the 4KV Emergency Bus 2DF. During an attempt to start Service Water Pump A, the discharge valve jammed partially open. If power were lost to the AE bus, what would be the status of the Service Water system at the completion of the sequencing of loads on the bus?

A. SWS pumps A and B would be running

B. SWS pump B would be running only

C. SWS pump C would be running only

D. SWS pumps A and C would be running

ANSWER: D	
K/A: 062 A2.02	Importance: 2.9/3.6
Cognitive Level: Comprehension	OPEN BOOK
Ref.: 2OM-30.5 "Service Water Figures and Tables" Issue 4, Rev. 2 Figure 30-6 12241-LSK-17-A	
LP#: 2LP-SQS-30.1	OBJ: 5
History	
Source: NEW	
JTA: 076--CO121	Student gets LSK

21. A fire has caused the evacuation of the Control Room and the plant is being controlled from the Alternate Shutdown Panel (ASP) in accordance with 2OM-56C, Alternate Safe Shutdown. Prior to beginning a cooldown, the RCS is borated to the Xenon free cold shutdown Boron concentration. This is accomplished by:

A. Using 22A Boric Acid Transfer Pump [2CHS*P22A] and Alternate Emergency Boration Valve [2CHS*SOV206] to pump either Boric Acid Storage Tank to the suction of the Charging Pump.

B. Gravity feed of 21B Boric Acid Tank [2CHS*TK21B] via Emergency Boration Isolation Valve [2CHS*MOV350] to the suction of the Charging Pump.

C. Setting the Boric Acid Blender control to 2000 ppm and initiating a feed and bleed of the RCS.

D. Aligning the suction of the Charging Pump (2CHS*P21B) to the RWST.

ANSWER: A

K/A: 068AA1.11	Importance: 3.9/4.1

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM56C.4.F.9"Operation of Alternate Emergency Boration Valve[2CHS*SOV206] and Remote Operation of Boric Acid Injection Valve (2CHS*FCV113A) Issue 1 Rev. 5

LP#: 2LP-SQS-53C.1	OBJ: 8

History

Source: New

JTA: 0000020401	

22 A channel II Containment High-1 pressure signal is in test with a trip signal when a second channel Containment High 1 is generated by electrical noise. Which of the following will be the status of containment isolation?

A. All inside and outside containment penetrations will go to their Phase A configuration.

B. All inside and outside containment penetrations will remain in their current configuration.

C. Only the outside containment penetrations will go to their Phase A configuration.

D. Only the inside containment penetrations will go to their Phase A configuration.

ANSWER: A

K/A: 069(W/E 14) A1.01	Importance: 3.5/3.7
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-1.1.D "Reactor Control and Protection" Issue 4, Rev. 0 FSAR Table 6.2-60	
LP#: 2LP-SQS-1.2	OBJ: 9
History	
Source: NEW	
JTA: 0060150101	

23. The crew has completed the actions of ES-1.3 "Transfer to Cold Leg Recirculation". SI, CIA and CIB have been reset. Off site power is lost and both EDG's start and load busses AE and DF. To ensure core cooling, which of the following actions will be required?

A. Restart A and B High Head Safety Injection Pumps

B. Restart C and D Recirc Spray pumps

C. Restart A and B Quench Spray pumps

D. Restart A and B Service Water Pumps

ANSWER: B

K/A: 074 E06/E07 EK 2.1	Importance: 3.6/3.8

Cognitive Level: Comprehension CLOSED BOOK

Ref.: 2OM13.5 "Containment Depressurization System Tables and Figures" Figure 13-12, 12241-LSK-27-1A, Issue 4, Rev1

2OM53A.1.ES-1.3 "Transfer to Cold Leg Recirculation" Issue 1B, Rev.

2OM-36.1.C "4KV Station Electrical Major Components", Iss. 4 Rev. C, pages 15 and 16

LP#: 2LP-53.3	OBJ: 8

History

Source: NEW

JTA: 301AAA0601	

24. The chemist reports that reactor coolant system activity has reached 1.1 μCi/gm in Iodine due to failed fuel. After 48 hours at this level of activity the unit must be brought to less than 500 °F within 6 hours to:

A. limit thermal stresses on the failed fuel and reduce I-131 releases to the RCS.

B. limit the Auxiliary Building dose rates to less than the requirements of 10CFR20.

C. limit the post LOCA containment dose limits to the requirements of 10CFR20.

D. limit the secondary side pressure in case of a steam generator tube rupture.

ANSWER: D

K/A: 076 (General 2.2.25)	Importance: 2.5/3.7
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: BVPS Unit 2 Technical Specification 3/4.4.8 Basis	
LP#: 2LP-SQS-TS.2	OBJ: 9
History	
Source: NEW	
JTA: 3410180302	

25. Unit 2 has been stabilized after completing the actions of ES-0.1 "Reactor Trip Response". The crew is monitoring Mode 3 conditions. Which of the following would LOWER the Shutdown Margin for the Core?

A. Three Shutdown bank rods that remained 25 steps out of the core, drift down into core.

B. The NCO opens 2CHS*MOV350 and starts the inservice Boric Acid pump.

C. The Plant Operator lowers steam dump setpoint pressure from 1000 psig to 950 psig.

D. The Plant Operator lowers Auxiliary Feedwater flow from 600 gpm to 400 gpm.

ANSWER: C

K/A: 007 K1.02	Importance: 3.4/3.8

Cognitive Level: Comprehension CLOSED BOOK

Ref.: Generic Fundamentals Reactor Theory Fundamentals, Topic 1 K1.10, Page 9

LP#: 2LP_SQS-6.5	OBJ: 3

History

Source: NEW

JTA: 0020090101	

26. Unit 2 is in Mode 4 with the following indications:

RCS Wide Range Temperature = 325 degrees

2RCS-PI402 Wide Range Pressure = 460 psig

2RCS-PI403 Wide Range Pressure = 465 psig

The RCS loop B Wide Range Cold Leg temperature indication (2RCS*TI423) input to B OPPS Train has failed low. Which of the following would be the potential consequence of this failure?

A. 2RCS*PCV455C Pressurizer PORV opens

B. 2RCS*PCV456 Pressurizer PORV opens

C. Pressurizer Code Safety Valve lifts

D. RHS Suction Relief Valve lifts

ANSWER: B

K/A: 008 A2.06	Importance: 3.3/3.6
Cognitive Level: Comprehension	OPEN BOOK
Ref.: 2OM-6.4 ABC "Reactor Coolant Wide Range Pressure Deviation High" Issue 4, Rev. 0, Page 5 BVPS Curve Book CB-25, Issue 7, Rev. 0	
LP#: 2LP-SQS-6.4	OBJ: 5
History	
Source: NEW	
JTA: 0020090101	Student gets references listed above

27. During the performance of ES-1.2 " Post LOCA Cooldown and Depressurization" the operators have commenced a cooldown. At the completion of step 18 the following conditions exist:

"C" RCP is running
RCS Subcooling 85°F and dropping
RCS Pressure 1150 psig and slowly dropping
SG Pressure 950 psig and stable
HHSI Flow 350 gpm on 2SIS*943
Pressurizer 38% and slowly dropping
2CHS*P21A running
2CHS*P21B has just been secured

What action must the ANSS take?

A. Stop all operating Reactor Coolant Pumps.
B. Restart the 2B HHSI pump 2CHS*P21B.
C. Allow RCS pressure and PRZR level to stabilize.
D. Establish normal charging flow.

ANSWER: C

K/A: 009 A1.01 | Importance: 4.4/4.3

Cognitive Level: Analysis OPEN BOOK

Ref: 2OM53.A.1.ES-1.2 "Post LOCA Cooldown and Depressurization" Background Caution before step 19

LP#: 2LP-SQS-53.3 | OBJ: 3

History

Source: NEW

JTA: 301AAA0601 | Student gets ES-1.2

28. The unit is cooling down in ES-1.2 "Post LOCA Cooldown and Depressurization" with all Reactor Coolant Pumps off. Reactor Coolant System pressure is 1500 psig. Which of the following indicate the potential failure of natural circulation?

A. RCS Subcooling is 85°F and stable

B. Steam Generator Pressures are 585 psig and stable

C. Core Exit Thermocouples are 525 °F and stable

D. RCS Cold Leg Temperatures are 500°F degrees and stable

ANSWER: D	
K/A: W/EO3 EK2.2	Importance: 3.7/4.0
Cognitive Level: Analysis	OPEN BOOK
Ref.: 2OM-53A-1.7 "Natural Circulation Verification" Issue 1B, Rev. 2	
LP#: 2LP-SQS-53.3	OBJ: 3
History	
Source: NEW	
JTA: 301AAA0601	Student gets attachment and steam tables

29 Following a LOCA, both trains of recirculation have become unavailable. The crew has responded using ECA-1.1 "Loss of Emergency Coolant Recirculation". The ANSS has determined that minimum SI flow to maintain core cooling is 100 gpm. This will allow the performance of which of the following actions?

A. Normal charging may be established from the VCT to the reactor coolant system to provide borated makeup.

B. RCS cooldown rates may be increased to maximum achievable to reduce time to reaching RHS system startup conditions.

C. The SI accumulators may be isolated to preserve the inventory for use when the RWST is emptied.

D. Containment Recirc Spray pumps may be stopped to preserve inventory in the RWST.

ANSWER: A

K/A: W/E11 K2.2	Importance: 3.3/3.9
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 20M53B.4.ECA-1.1 "Loss of Emergency Coolant recirculation " Background, Issue 1B, Rev. 5 Step 16	
LP#: 2LP-SQS-53.3	OBJ 5
History	
Source: NEW	
JTA: 3010020601	

30. Annunciator A2-3F "Letdown Flow Path Trouble" is lit. Computer point "REGEN HX LTDN TEMP CHS-TE140 HIGH" is in alarm. The following conditions exist:

Charging Flow	45 gpm
Seal Injection Flow	22 gpm

Letdown Orifice Isolation Valves 2CHS*AOV200A and 200B = OPEN

Pressurizer level 2% above program

Which of the following actions would LOWER the heat load on the Regenerative Heat Exchanger?

A. Lower Charging Flow by closing Charging Pump Flow Control Valve 2CHS*FCV122

B. Place another orifice in service by opening 2CHS*AOV200C

C. Remove 60 gpm orifice from service by closing 2CHS*AOV200B

D. Raise letdown flow by opening Non-Regen Hx Discharge Pressure Control Valve 2CHS*PCV145

ANSWER: C

K/A: 022 K3.02	Importance: 3.5/3.8
Cognitive Level: Analysis	CLOSED BOOK
Ref: 2OM7.4.AAF"Letdown Flow Path Trouble" Issue 1, Rev. 10 Page 3 0f 6	
LP#: 2LP-SQS-7.1	OBJ 7
History	
Source: NEW	
JTA: 0040150101	

31. Unit 2 has been shutdown for 5 days. The following conditions exist:

Reactor coolant temperature is 125 degrees °F

Pressurizer level is 22%

RCS pressure is 95 psig using nitrogen in the PRZR

The operating RHS pump has become gas bound and is shutdown by the crew. How long would the crew have to vent the pump before reaching saturation in the RCS?

A. 270 minutes

B. 175 minutes

C. 166 minutes

D. 125 minutes

ANSWER: B

K/A: 025 K1.01	Importance: 3.9/4.3

Cognitive Level: Analysis OPEN BOOK

Ref.: 2OM53.C.4.2.10.1 "Residual Heat Removal Loss", Issue 1A, Rev. 4, Attachments 1,2,3 and 4

LP#: 2LP-SQS-10.1	OBJ: 10

History

Source: NEW

JTA: 0000180401	Assumptions: Saturation for 110 psia is 335 degrees Current RCS Temp is 125 degree Heat rate at 120 hours after shutdown is 1.2°F/hr Student gets Attachments and steam tables

32. The unit is in Mode 3 with the Reactor Trip Breakers open when the NCO identifies pressurizer pressure transmitter PT444 as failed low. Which one of the following would be the next control action that would automatically occur?(Assume no operator actions)

A. Pressurizer Heater Banks A,B,D, and E are de-energized from PT445 on high RCS pressure.

B. Pressurizer Variable Heater bank C is de-energized from loss of PT444 signal.

C. PORV 2RCS-PCV455C opens on a high pressure signal for PT445.

D. PORV 2RCS*PCV455D and 2RCS*PCV456 open on high pressure signal from PT445.

ANSWER: D

K/A: 027 K2.03	Importance: 2.6/2.8
Cognitive Level: Analysis	OPEN BOOK
Ref.: 2OM-6.4.IF "Instrument Failure", Issue 4, Rev. 4, Page 16 2OM-6.5 "Reactor Coolant System Figures and Tables" , Issue 4, Rev. 6, Figures 6-35 and 6-36	
LP#: 2LP-SQS-6.4	OBJ: 10
History	
Source: NEW	
JTA: 0020090101	Copy of section of references

33. A unit startup is in progress with the reactor critical at 2200 cps in the source range when N-31 Source Range Detector High Voltage is lost. Choose the correct response.

A. Raise power to the P-6 setpoint and continue the startup.

B. Verify overlap of 1 decade with the Intermediate Range and continue startup.

C. Place the unit in Hot Standby with the Reactor Trip Breakers open.

D. Suspend positive reactivity additions and restore N-31 to operable status.

ANSWER: D

K/A: 032 K3.01	Importance: 3.2/3.6

Cognitive Level: Analysis CLOSED BOOK

Ref.: 2OM-53C.4.2.2 "Source Range Channel Malfunction" Issue 1A, Rev. 4, Step 2 and 3
Unit 2 Technical Specification 3.3.1 Table 3.3-1

LP#: 2-LP-TS.2	OBJ: 9

History

Source: NEW

JTA: 3410180302	

34. The ANSS notes that N-35 "LOSS OF COMP VOLT" light is lit on the NI cabinet. Which of the following operations will be impacted by the loss of voltage?

A. During startup, the P-6 permissive will not de-energize the Source Range High voltage.

B. During shutdown, the P-6 permissive to re-energize the Source Range High voltage will be delayed.

C. During startup, the P-10 permissive to manually de-energize the Source Range High voltage will be delayed.

D. During shutdown, the P-10 permissive to manually unblock the Source Range High voltage will not function.

ANSWER: B

K/A: 033 A2.11	Importance: 3.1/3.4

Cognitive Level: Comprehension CLOSED BOOK

Ref.: 2OM-2.4.AAC " NIS DETECTOR/COMPENSATOR TROUBLE", Issue 1, Rev. 3 Page 3
2OM-53C.4.2.2.18 " Intermediate Range Channel Malfunction" Issue 1A, Rev. 1, Step 4

LP#: 2LP-SQS-2.1	OBJ: 18

History

Source: NEW

JTA: 0000100401	

35. Unit 2 is operating in Mode 1 with all systems NSA. The most recent samples indicate the following leakages in all three steam generators.

A= 0.5 gpm B= 0.1 gpm C=0.15 gpm

Which of the following would be the required Technical Specification actions?

A. Reduce leakage to within limits within 4 hours or be in Hot Standby within 6 hours and in Cold Shutdown within the next 30 hours.

B. Place the unit in Hot Standby within 6 hours and in Hot Shutdown within an additional 6 hours and in Cold Shutdown within the next 30 hours.

C. Place the unit in Hot Standby in 6 hours and Cold Shutdown within an additional 30 hours.

D. Perform a reactor inventory balance within 12 hours and then every 12 hours until the unit is in Cold Shutdown.

ANSWER: A	
K/A: 037 2.1.22	Importance: 3.4/4.0
Cognitive Level: Analysis	OPEN BOOK
Ref.: BVPS Unit 2 Technical Specification 3.4.6.2	
LP#: 2LP-SQS-53C.1	OBJ: 2
History:	
Source: Modified from LOT #852	
JTA: 0000110401	Student gets copy of Tech Spec

36. A cooldown is being conducted in accordance with ES-3.1 "RCS Cooldown Using Backfill." The depressurization of the RCS may be halted just before going to less than 360 psig.

Which of the following is the reason for stopping depressurization at this pressure?

A. The vessel must be soaked for 1 hour to remove thermal stresses from the cooldown.

B. The ruptured steam generator must be soaked above Nil Ductility Transition Temperature.

C. To allow the differential pressure across RCP 21C to be maintained above 215 psid.

D. To stop backfill from the ruptured steam generator prior to establishing RHS cooling.

ANSWER: C

K/A: 038 K3.08	Importance:

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM-53B.4.ES-3.1 "Post-SGTR Cooldown Using Backfill" Issue 1B, Rev. 4 Background for Note prior to Step 8

LP#: 2LP-SQS-53.1	OBJ: 3

History

Source: NEW

JTA: 3010040601	

37. Which of the following will complete arming of the C-20 signal for AMSAC?

A. Main Feedwater total flow has been greater than 25% for 180 seconds.

B. Two of three Narrow Range Steam Generator levels on one steam generator greater than 25%.

C. Two of four Power Range NI's are greater than 40% power.

D. Two of two First Stage Impulse pressure transmitters are greater than 40% power.

ANSWER: D

K/A: 054 A2.03	Importance:

Cognitive Level: Comprehension CLOSED BOOK

Ref.: 2OM-1.1.B "Reactor Control and Protection Summary Description" Issue 4, Rev. 1, Page 22

LP#: 2LP-SQS-1.5	OBJ: 4

History

Source: LRT Exam Unit 1 , 1LP-LRT-III-49,- 2LOT2A Exam 11, 12/18/97

JTA: 1500030101	

38. Unit 2 is at 100% with all systems NSA. Annunciator A8-9E "125V DC BUS 2-5 TROUBLE" is lit. The following conditions exist:

A1-1A" DC DISTRIBUTION PANEL LOSS OF CONTROL DC" is lit

Battery Charger Volts Meter on Battery charger 2-5 reads "0" volts

Which of the following would result from a loss of voltage on DC Bus 2-5?

A. 21A and 21B Main Feedwater pumps trip on loss of control power to 4KV bus 2A and2D

B. Main Generator Exciter Field Breaker ACB 41 opens on loss of control power

C. Reactor trip is generated on 2/3 RCP bus Underfrequency above P-7

D. Reactor trip is generated when Main Generator Output Breakers PCB-352 and 362 trip open

ANSWER: C	
K/A: 058 A2.03	Importance: 3.5/3.6
Cognitive Level: Analysis	OPEN BOOK
Ref: 2OM-39.4.AAN "125V DC 2-5 Trouble", Issue 4, Rev. 2, Page 3	
LP#: 2LP-SQS-39.1	OBJ: 7
History: NEW	
Source:	
JTA: 0630040101	Student gets copy of reference

39. Unit 1 and Unit 2 are both at 100% power when a HIGH alarm is received on Control Room Radiation Monitor [2RMC*RQ201]. Control Room Radiation Monitor [2RMC*RQ202] is in ALERT. Select from the list below the expected response from these alarms.

A. [2HVC*MOD201A & C] CR ACU Air Intake and Exhaust Dampers close; [2HVC*MOD201B & D] CR ACU Air Intake and Exhaust Dampers remain open.

B. The Control Room Emergency Bottled Air Pressurization System will actuate.

C. The Unit 1 and Unit 2 Emergency Ventilation fans start after a 60-minute time delay.

D. The standby Unit 2 Air Handling Unit, [2HVC*ACU201A/B] receives an auto start signal.

ANSWER: B

K/A: 061AA1.01	Importance: 3.6/3.6
Cognitive Level: Knowledge	CLOSED BOOK
Ref: 2OM-43.4 "ADB Local Control Room Area (2RMC*RQ201) High Alarm Level", Issue 1, Rev. 4	
LP#: 2LP-SQS-43.1	OBJ: 5
History:	
Source: LOT bank #0509 modified	
JTA: 0130010101	

40. The Unit is at 100% with all systems NSA. 2IAC-PI106A "CNMT Instrument Air Header Pressure" reads 0 psig. If air pressure is not restored to containment, which of the following will cause a reactor trip?

A. Low SG level when SG Main Feed Reg. valves 2FWS-FCV478, 488 and 498 close.

B. Low Pressurizer pressure when PORV's 2RCS*PCV455A and 455B open.

C. High pressurizer level when Letdown Orifice Inlet valves 2CHS*AOV200A, B and C close.

D. High RCS pressure when Main Steam Isolation Valves 2MSS-AOV101A, B and C close.

ANSWER: C

K/A: 065 K3.03	Importance: 2.9/3.4
Cognitive Level: Comprehension CLOSED BOOK	
Ref.: 2OM-53.4.3.34.2 "Loss of Containment Instrument Air", Attachment 1, Issue 1A, Rev. 2	
LP#: 2LP-SQS-34.1	OBJ: 5
History	
Source: NEW	
JTA: 0780030101	

41. The Reactor Coolant Tavg signal from loop 21A is lost due to wire breakage. The unit is at 100% with all systems NSA. Which of the following describes the impact on pressurizer level?

A. Pressurizer level will control at program level for 100% reactor power.

B. Charging Flow Control valve 2CHS*FCV122 opens on indicated low level, actual pressurizer level rises.

C. Letdown Orifice Inlet valves close on indicated low level, actual pressurizer level rises.

D. A4-1C "PRESSURIZER CONTROL LEVEL DEVIATION HIGH/LOW" is lit with all heaters on.

ANSWER: A

K/A: 028 A2.02	Importance: 3.4/3.8
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-6.5 Reactor Coolant System Figures and Table", Figure 6-62, Issue 4, Rev. 6 2OM-7 "Chemical and Volume System Figures and Tables" Figure 7-15,	
LP#: 2LP-SQS-6.4	OBJ: 11
History	
Source: NEW	
JTA: 002MMM040i	

42. Which of the following conditions will directly initiate stripping of the motor loads from the 4KV Emergency Bus 2DF?

A. 480 Bus 2P voltage drops to 90% of rated voltage for 90 seconds.

B. 4KV Station Bus 2D drops to 75% of rated voltage for 0.33 seconds.

C. Overcurrent on 480 VAC 2P Feeder Bkr 2F11 to 480 VAC Emergency Bus 2P.

D. Emergency Bus 2DF Supply Leads Differential to from 2D to 2DF 4KV Emergency Bus.

ANSWER: A

K/A: 056 K3.01	Importance: 3.5/3.9

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM--36.1.C "4KV Station Service System Major Components", Issue 4, Rev. 3, Page3 of 23
2OM-36.5 "4KV Station Service System Figures and Tables" Issue 4, Rev. 0 Figure 36-7A

LP#: 2LP-SQS-36.1	OBJ: 6

History

Source: NEW

JTA: 0620040101	

43. Control of the Atmospheric Steam Dumps 2SVS*PCV101A and 2SVS*PCV101B has been transferred to the Alternate Shutdown Panel. If the valves are closed, rising steam pressure will cause which of the following automatic actions to occur first?

A. Main Steam Safety Valves 2SVS*SV101A, B and C will open.

B. Atmospheric Dump Valves 2SVS*PCV101A, B and C will open.

C. Residual Heat Release Valve 2SVS*HCV104 will open.

D. Only atmospheric Dump Valve 2SVS*PCV 101C will open.

ANSWER B

K/A: W/E 13 K2.1	Importance: 3.0/3.1

Cognitive Level: Comprehension CLOSED BOOK

Ref.: 2OM-21.1.C "Main Steam System " Major Components", Issue 4, Rev. 0

2OM-21.1.C "Main Steam System Precautions, Limitations, Setpoints" Issue 4, Rev. 2 Page 3 and 4

2OM-21.5 "Main Steam Figures and Tables" Figure 21-9A and 9-K

LP#: 2LP-SQS-21.1	OBJ: 3

History

Source: NEW

JTA: 0390080101	

44. A fault occurs on the 4160 VAC Supply Breaker to the 480 VAC Bus 2A, causing it to open. This will result in:

A. A Reactor Trip due to the loss of power to a Reactor Trip Breaker Rod Drive M/G set.

B. A Reactor Trip due to the loss of power to all Group 'A' Shutdown Bank rods.

C. No Reactor Trip. No power for Rod Drive M/G sets or Control rod power comes from Bus 2A.

D. No Reactor Trip. All loads on Bus 2A will be automatically tied to Bus 2B via a Tie-breaker.

ANSWER: D

K/A: 001K2.05	Importance: 3.1/3.5

Cognitive Level: Knowledge CLOSED BOOK

Ref: 2OM36.4.ACJ" 4160 to 480v Substa Feeder ACB Auto-Trip" Issue 1, Rev. 3, Page 1

LP#: 2LP-SQS-36.1	OBJ: 6

History

Source: New

JTA: 0620040101	

45. When approaching criticality by rod withdrawal in 2OM-50.4 "Reactor Startup From Mode 3 to Mode 2," which of the following methods will ensure a smooth addition of equal increments of reactivity to the core?

A. Verification at 128 steps on Control Bank A that Control Bank B begins withdrawal.

B. Halting rod withdrawal at every 100 steps on Control Banks A and B to level count rate.

C. Verification of Shutdown Banks fully withdrawn prior to movement of Control Bank A.

D. Verification of Reactor Coolant System Tavg above 541°F every 15 minutes until critical.

ANSWER: A

K/A: 001 K5.59	Importance: 2.7/3.4

Cognitive Level: Comprehension CLOSED BOOK

Ref.: 2OM50.4.D "Reactor Startup From Mode 3 to 2", Issue 1, Rev. 29, Page 19
Generic Fundamentals Reactor Theory Fundamentals, Topic 3, Section B, K1.09, Page 18

LP#: 2LP-SQS-1.3	OBJ: 4.d

History

Source: NEW

JTA: 0010090101	

46. Given the following:

- There is a small break LOCA inside containment.
- All systems respond as designed.
- All S/G pressures are ~ 1000 psig
- RCS Pressure is 1480 psig and dropping slowly.
- Containment Pressure is 12 psig.

Which of the following describes the reason the RCP's must be tripped?

A. To prevent excessive depletion of RCS inventory which could lead to severe core uncovery.

B. To prevent RCP motor bearing damage due to the loss of cooling.

C. To prevent an RCP seal failure due to the loss of the seal water return flowpath.

D. To prevent RCP motor damage due to the high temperature, high humidity operating environment of the containment.

ANSWER: B	
K/A: 003 K6.04	Importance: 2.8/3.1
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-53A.1.E-0 "Reactor Trip and Safety Injection" Left Hand Page	
LP#: 2LP-SQS-53A.1	OBJ: 3
History 2LOT 1 NRC Exam - March 1997	
Source: NRC Exam Bank-Braidwood-52	
JTA: 0030020101	

47. Given the following:

Reactor Power at 50%

Tavg is at 562°F

Pressurizer Pressure is at 2235 psig

Pressurizer Level is below program at 36%

All control systems are in automatic except Rod Control which is in Manual

The Operator notes that Pressurizer level is dropping.

Which instrument failure would cause the drop in Pressurizer level assuming there were no Operator actions taken?

A. Impulse Pressure channel PT446 failed high.

B. 'A' loop hot leg RTD failed high.

C. NI-44 Nuclear Instrumentation failed high.

D. Charging flow transmitter FT122 fails high.

ANSWER: D

K/A: 004K3.02	Importance: 3.7/4.1

Cognitive Level: Comprehension CLOSED BOOK

Ref.: 2OM-7.1.B "Chemical and Volume Control Figures and Tables" Issue 4, Rev. 0, Figure 07-15

LP#: 2LP-SQS-6.4	OBJ: 13

History

Source: NEW

JTA: 0020090101	

48 The unit is at 100% with all systems NSA. A Safety Injection signal is generated. High Head Safety Injection Pumps Suction Valve [2CHS*LCV115B] opened BUT [2CHS*LCV115D] failed to open. What is the impact of this action on the Charging Pump suction flow?

A. Both operating charging pumps will receive suction flow from the VCT.

B. One charging pump will continue to take suction from the VCT and one charging pump will take suction from the RWST.

C. One charging pump will take suction from the RWST. The other charging pump will have no suction until operator action is taken.

D. Both operating charging pumps would take suction from the RWST via [2CHS*LCV115B].

ANSWER: D

K/A: 004 K1.23	Importance: 3.4/3.7
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-7.5"Chemical Volume Control System Tables and Figures" Issue 4, Rev. 0, Figure 7-1	
LP#: 2LP-SQS-7.1	OBJ: 7
History:	
Source: Taken from NRC 2, Question 266, ID 5190	
JTA: 0040150101	

49. Unit 2 is in Mode 3 with the following conditions:

Tavg is at 400°F and stable

RCS Pressure is at 1000 psig and stable

Steam Generator Pressures are at 230 psig and stable

The Control Room Operator turns on Pressurizer Heater Banks A and B. With no further operator actions, the first actuation will be:

A. Safety Injection Signal on low steam generator pressure

B. Safety Injection Signal on low RCS pressure

C. AMSAC actuation on low steam generator pressure

D. Reactor Trip signal generated on low RCS pressure

ANSWER: A

K/A: 013 K1.01	Importance: 4.2/4.4

Cognitive Level: Analysis CLOSED BOOK

Ref.: 2OM-1.2.B "Reactor Protection Setpoints", Issue 4, Rev. 3, pages 4 and 5

LP#: 2LP-SQS-1.2	OBJ: 10

History LRT 1997 Module IV Written exam

Source:

JTA: 0120050101	

50. During 100% power operation, the lowest (bottom) Data 'A' coil for a Shutdown Bank 'A' rod fails (open circuit.), What is the effect of this failed coil on the Digital Rod Position Indication (DRPI) system?

A. No effect. The rod will indicate normally until it is fully inserted.

B. No effect. The Data 'B' coils will compensate and provide normal indication for all rod elevations.

C. All indication for the rod will be lost until the failed Data 'A' coil is removed from the circuitry by taking the Accuracy Mode Selector switch to the Data 'B' position.

D. DRPI will automatically switch into the half-accuracy mode. A Rod Bottom and General Warning Status light will be flashing for the affected rod.

ANSWER: D	
K/A: 014A2.06	Importance: 2.6/3.0
Cognitive Level: Comprehension CLOSED BOOK	
Ref.: 2OM-1.1.B "Reactor Control and Protection" Page 18 of 22 Issue 4 Rev. 1	
LP#: 2LP-SQS-1.4	OBJ: 4
History:	
Source: New	
JTA: 0010090101	

51. Following the performance of the Daily Heat Balance Calculation, reactor power is determined to be at 99.45%. Power Range nuclear instruments (NIs) read as follows:

N-41 = 99.5 %

N-42 = 99.3 %

N-43 = 99.6 %

N-44 = 99.1 %

Which, if any, NI channels require adjustment?

A. All channels need to be adjusted to 99.4 %.

B. N-41 and N-43 need to be adjusted to < 99.45 %.

C. N-42 and N-44 need to be adjusted to >99.45 %.

D. No channels require adjustment.

ANSWER: C

K/A: 015A1.01	Importance: 3.5/3.8
Cognitive Level: Analysis	CLOSED BOOK
Ref.: Daily Heat Balance 2OM-54.4.C1 Issue 1 Rev. 11 Page 2 of 5	
LP#: 2LP-SQS-2 1	OBJ: 14
History:	
Source: LOT Bank #0752 modified	
JTA: 0150070201	

52 The B Train Incore Thermocouple Reference Junction Box has lost input from the installed RTD's that monitor temperature of the box and transmit the temperature to the Plant Safety Monitor System display.

If the Reference Junction box temperature rises from 160°F to 180°F, then thermocouple EMF would _____ and indicated temperature would _____.

A. drop, drop

B. drop, rise

C. rise, drop

D. rise, rise

ANSWER: A

K/A: K6.01	Importance: 2.7/3.0
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: Generic Fundamentals	
LP#: 2LP-SQS-3.1	OBJ: 9
History	
Source: NEW	
JTA: 0170020101	

53. Annunciator A1-1E "CONTAINMENT AIR PARTIAL PRESS HIGH/LOW" is lit. Containment Air Partial pressure is rising. Which of the following is the maximum pressure that could be allowed?

A. 8.9 psia with a Service Water temperature of 60 degrees

B. 10.2 psia with a Service Water temperature of 60 degrees

C. 10.4 psia with a Service Water temperature of 60 degrees

D. 10.5 psia with a Service Water temperature of 90 degrees

ANSWER: B

K/A: 022 A1.01	Importance: 3.6/3.7

Cognitive Level: Analysis OPEN BOOK

Ref.: 2OM-12.4.AAA "Containment Air Partial Press High/Low", Issue 4, Rev. 1, Page 3
BVPS 2Curve Book CB-19A, Issue 7, Rev. 0

LP#: 2LP-SQS-12.1	OBJ: 10

History

Source: NEW

JTA: 0260060101	Student gets Curve

54 Due to an engineering concern 2RSS-P21A and 2RSS-P21C Recirc Spray Pumps were declared inoperable. Based on this situation, which of the following is the time limit allowed by Technical Specifications for restoration prior to starting a unit shutdown?

A. 2RSS-P21A must be operable within 72 hours and 2RSS-P21C in 6 hours.

B. 2RSS-P21A must be operable within 6 hours and 2RSS-P21C in 72 hours.

C. 2RSS-P21A and 2RSS-P21C must be operable in 72 hours.

D. 2RSS-P21A and 2RSS-P21C must be operable in 6 hours.

ANSWER: C	
K/A: 026 2.2.22	Importance: 3.4./4.1
Cognitive Level: Analysis OPEN BOOK	
Ref.: BVPS Unit 2 Technical Specification 3.6.2.2 and 3.5.2	
LP#: 2LP-SQS-11.1	OBJ: 9
History	
Source: NEW	
JTA: 3410180302	Student get Tech Spec

55. With the unit operating at 100% power and all systems NSA, which of the following listed features will act to provide Net Positive Suction Head for the Main Feedwater Pumps?

A. 2CNM-AOV100 Condensate Feedwater Heater Bypass Valve will open on low Feedwater Pump Suction header pressure.

B. Condensate Spill valve 2CNS-MOV105 will open to divert condensate from Turbine Plant Demineralized Water Storage Tank on low condensate header discharge pressure.

C. Standby Condensate Pump will start on low suction pressure to the Main Feedwater Pumps.

D. Standby Condensate Pump will start on low condensate header discharge pressure.

ANSWER: D	
K/A: 056 K4.14	Importance: 2.2/2.6
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 2OM-22A.1 D "Condensate System Instrumentation and Control", Issue 4 Rev. 2, Pages 1-9	
LP# 2LP-SQS-22A.1	OBJ: 5
History NEW	
Source:	
JTA: 0590030101	

56 To minimize the time that a Main Feedwater Pump Motor [2FWS-P21A1] takes to reach rated speed, the start circuit of the Main Feedwater pump will:

A. Block start of the Main Feedwater pump if the Feed Pump Discharge valve [2FWS-MOV150A] is closed.

B. Delay the start of the Main Feedwater Pump motor [2FWS-P21A2].

C. Block starting of the Main Feedwater pump until recirculation valve [2FWS-FCV150A] is open.

D. Delay starting of the Main Feedwater Pump motor [2FWS-P21A2] until discharge valve [2FWS-MOV150A] is open.

ANSWER: B

K/A: 059 K4.14	Importance: 3.1/3.2
Cognitive Level: Analysis	CLOSED BOOK
Ref.: 2OM-24.5 "Steam Generator Feedwater System Figures and Tables" Figure 24-06A, Issue 4, Rev. 1	
LP#: 2LP-SQS-24.1	OBJ: 6
History	
Source: NEW	
JTA: 0590030101	

57. Annunciator A2-3H "SAFETY SYSTEM TRAIN A INOPERABLE" is lit. Annunciator A2-4H "SAFETY SYSTEM TRAIN B INOPERABLE" is off. Which of the following would explain this condition?

A. Turbine Driven Auxiliary Feedwater pump overspeed latch not reset.

B. Control of 2MSS*SOV 105A and 2MSS*SOV105D is selected to the Emergency Shutdown Panel.

C. Control transfer switches for 2MSS*SOV105 A and 2MSS*SOV105D are NOT reset

D. Any Main Steam Supply Valve to Turbine Driven Auxiliary Feedwater Pump 2MSS*AOV105A through F closed.

ANSWER: A

K/A: 061 K4.06	Importance: 4.0/4.2
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 2OM 24.1.D "Steam Generator Feedwater System" Issue. 4 Rev. 2 Page 23 2OM24.5 "Steam Generator Feedwater System" Issue. 4 Rev 1 Figure 24-11	
LP#: 2LP-SQS-24.1	OBJ: 10
History	
Source: NEW	
JTA: 0130010101	NOTE: Change to Outline NEW K/A

58 The unit is at 100% power with all systems NSA. 2A Steam Generator Aux. Feedwater Throttle Valve (2FWE-FCV100E) was closed for an approved BVT test and will not re-open. Which of the following actions must be taken?

A. Restore the 2FWE-FCV100E and the 2A AFW train to OPERABLE status in 72 hours.

B. Place the unit in HOT STANDBY within 6 hours and HOT SHUTDOWN within an additional 6 hours.

C. Align the Turbine Driven Auxiliary Feed Pump to the B Auxiliary Feed Header within 2 hours.

D. Restore 2FWE-FCV100E to OPERABLE status within 1 hour or be in HOT STANDBY within 6 hours.

ANSWER: B	
K/A: 061 2.1.12	Importance: 2.9/4.0
Cognitive Level: Analysis	OPEN BOOK
Ref: BVPS 2 Technical Specification 3.7.1.2"	
LP#: 2LP-SQS-24.1	OBJ: 13
History:	
Source: NEW	
JTA: 3410180302	Student gets Tech Spec

59 The Spare Battery Charger 2-7 will be removed from replacing Battery Charger 2-1 and will replace charger 2-3. Which one of the following limits applies?

A. Battery 2-1 must be disconnected from DC Bus 2-1 while the Spare Charger is removed.

B. Battery Charger 2-1 must be paralleled with the Spare Charger before the Spare Charger is removed.

C. Uninteruptible Power Supply UPS*VITBS2-3 must be on alternate AC power source when the Spare Charger is in service on BAT 2-3.

D. The Spare Charger FLOAT/EQUALIZER switch must be operated in "FLOAT" while in service.

ANSWER: C

K/A: 063 K1.01	Importance: 2.7/3.2
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 2OM-39.4.D "Placing Spare Battery Charger In Service", Issue 4, Rev. 5, Precaution and Limitation II. C, page 1 0f 5	
LP#: 2LP-SQS-39.1	OBJ: 9
History:	
Source: NEW	
JTA: 0620040101	

60 Liquid Waste Effluent Monitor 2SGC-RQ100 is out of service. The Steam Generator Blowdown Holding Tank 2SGC-TK21A is to be released. What action will enable the release of the tank with the monitor out of service?

A. 2SGC-TK21A must be recirculated for sufficient time to turn volume over twice.

B. Two independent samples for 2SGC-TK21A must be analyzed.

C. A Senior Licensed Operator must confirm release rate calculations and valve alignment.

D. Emergency Outfall Flow must be adjusted to exceed 1000 gpm prior to and during release.

ANSWER: B

K/A: 068 2.3.6	Importance: 2.1/3.1
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: ODCM Appendix C Page C-12	
LP#: 2LP-SQS-43.1	OBJ: 7
History	
Source: NEW	
JTA: 3410120302	

61 Due to high activity being vented from the Boron Recovery System Degasifiers it has been decided to place the Waste Gas Charcoal Delay Beds [2GWS-TK22A(B)(C)(D)] in service in the Waste Gas System. Which of the following functions will be served by this action?

A. Krypton isotopes will be delayed for up to 30 days for decay

B. Iodine 131 will be delayed for up to 30 days for decay

C. Xenon isotopes will be delayed for a minimum of 30 days for decay

D. Krypton 85 will be delayed until decayed below minimum detectable levels

ANSWER: C

K/A: 071 2.1.28	Importance: 3.2/3.3

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM-19.1.C "Gaseous Waste Disposal System" Page 2 of 13 Issue 4 Rev.0

LP#: 2LP-SQS-19.1	OBJ: 3

History

Source: NEW

JTA: 0710080104	

62. When using the RM-11 Console, the Key Lock function must be used to perform which of the following functions?

A. Acknowledge system alarms with the SYSTEM ACK function key

B. Request a filter advance using the FILTER function

C. Clear the RM-11 screen with the CLEAR SCREEN entry function key

D. Reset RM-80 setpoints in SUPERVISORY mode

ANSWER: D

K/A: 072 A4.01	Importance: 3.0/3.3

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 20' 3.1.D "Radiation Monitoring System" Page 4 of 18, Issue: 4 Rev. 0

LP#:	OBJ:

History

Source: NEW

JTA: 072BBB0221	Warning K/A change to outline

63 The unit is in Mode 3 in preparation for startup. The root stop isolation valve for the high-pressure side of RCS LOOP "A" flow transmitters, 2RCS-414, 415 and 416 has been isolated and the high pressure side depressurizes. Which of the following would be an expected response?

A. Annunciator A2-5E "Reactor Coolant Loop Flow Low" is lit.

B. A reactor trip signal is generated on low reactor coolant system flow.

C. Annunciator A2-4G "Reactor Coolant Loop By-Pass Flow Low" is lit.

D. An Overpower/Delta T reactor trip signal is generated on low reactor coolant system flow.

ANSWER: A

K/A: 002 A1.05	Importance: 3.1/3.7
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM1.2.B "Reactor Control and Protection Precautions, Limits and Setpoints", Issue 4, Rev. 3	
LP#: 2LP-SQS-1.2	OBJ: 4
History:	
Source: NEW	
JTA: 0020090101	

64. Following a Loss of Coolant Accident (LOCA), RCS pressure is 300 psig and slowly dropping.

Which of the following statements describes what should be the normal status of the Emergency Core Cooling Flow at this point in time?

A. Constant HHSI flow exists with no LHSI flow.

B. Increasing HHSI flow exists with no LHSI flow.

C. Constant HHSI and LHSI flow exists.

D. Increasing HHSI and LHSI flow exists.

ANSWER: B

K/A: 006K5.06	Importance: 3.5/3.9

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM-53.A.1 ES-1.2 "Post LOCA Cooldown and Depressurization" Issue 1B, Rev. 5,

LP#: 2LP-SQS-ES	OBJ: 2

History:

Source: LOT Bank #0490

JTA: 3010020601	

65 The unit is heating up with the Reactor Coolant Pressure at 885 psig. Pressurizer Pressure Relief Tank pressure is at 40 psia and PRT temperature is rising. What would be the maximum temperature that would appear on the Pressurizer Safety Relief Valve Tail Pipe Temperature Indicator if one of the Pressurizer Safety valves were leaking?

A. 320 degrees

B. 420 degrees

C. 520 degrees

D. 647 degrees

ANSWER: A

K/A: 010 A1.09	Importance: 3.4/3.7
Cognitive Level: Comprehension	OPEN BOOK
Ref.: Steam Tables	
LP#: 2LP-SQS-6.4	OBJ: 3
History	
Source: NEW	
JTA: 0070030101	Student gets steam tables

66. The unit is at 100% power with all systems NSA. Seal injection flow is the minimum allowed per operating procedure to each Reactor Coolant Pump. The flow controller for 2CHS*FCV122 has manually repositioned to demand. What is the charging flow and seal injection flows after 2CHS*FCV122 reaches its new demanded position?

A. No charging flow and seal injection flow to each RCP below minimum.

B. Maximum charging flow and seal injection flow to each Reactor Coolant Pump below minimum.

C. Maximum charging flow and seal injection flow to each Reactor Coolant Pump above minimum.

D No charging flow and seal injection flow to each Reactor Coolant Pump above minimum.

ANSWER: D

K/A: 011 K1.02	Importance: 3.3/3.5
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-7.1.C "Chemical and Volume Control System", Issue 4, Rev. 3 Page 23	
LP#: 2LP-SQS-7.1	OBJ: 5
History	
Source: NEW	
JTA: 0040150101	Assumptions: RCP seal injection at minimum of 6 gpm

67. The plant is operating at 100% power when a loss of 4160 VAC Bus 2A occurs resulting in a reactor trip. The following signals were generated:

1. Low Reactor Coolant Flow Trip.
2. SG21A (21B) (21C) Low Level Reactor Trip.
3. RCP Breaker Trip.
4. Generator Trip Due to Turbine Trip.

Which one of the following choices depicts the order in which the signals were generated?

A. 2, 3, 1, 4

B. 3, 1, 2, 4

C. 3, 4, 1, 2

D. 1, 3, 4, 2

ANSWER: B

K/A: 012K4.02	Importance: 3.9/4.3
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-1:2.B "Reactor Control and Protection" Precautions, Limitations and Setpoints, Issue 4, Rev. 3	
LP#: 2LP-SQS-1.1	OBJ: 7
History	
Source: LOT Bank #0220	
JTA: 0120050101	

68. Given the following:

- The Unit is operating at 100% power with all systems NSA
- RCS Tavg control channels are indicating as follows:
  - "A" loop - 580 °F
  - "B" loop - 582 °F
  - "C" loop - 581 °F
- "B" loop Tcold instrument begins to slowly fail LOW.

Which of the following describes the response of the Tavg control system to this failure?

As the "B" loop Tavg drops, the selected Tavg will swap from "C" loop to...

A. "A" loop, then to "B", then finally back to "C".

B. "B" loop, then to "A", then finally back to "C".

C. "B" loop, then to "A", and remains there.

D. "A" loop and remains there.

ANSWER: C

K/A: 016 A3.01	Importance: 2.9/2.9
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-6.1.D Reactor Coolant System , Issue 4, Rev. 0 page 18	
LP#: 2LP-SQS-6.5	OBJ: 5.a
History NRC 2LOT1-March 1997	
Source: M-North Anna - 44	
JTA: 3440210302	

69. Containment Hydrogen concentration has reached 1.5% when B Train Recombiner fails. How will the H2 concentration in Containment be affected?

A. Hydrogen concentration will peak above the 4% design basis with only the A Train in service.

B. Hydrogen concentration will remain below the 4% design basis using only the A Train.

C. Containment venting must be conducted to ensure Hydrogen concentration remains less than 4%.

D. Hydrogen concentration will remain less than 4% if Train B suction is aligned to the suction of the A Train Recombiner.

ANSWER: B

K/A: 028 K3.01	Importance: 3.3/4.0
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-46.1.A "Post DBA Hydrogen Control System", Issue 1, Rev. 5 page 1 UFSAR Figure 6.2.136	
LP#: 2LP-SQS-46.1	OBJ: 1
History 2LOT2, 9/26/97, Exam (6.13,8.1,15.1,20.1,46.1,47.1)	
Source: Modified from SQS Question 1422	
JTA: 3010020601	

70. The suction piping of the fuel pool cooling pumps, 2FNC*P21A and 21B, has ruptured and cannot be isolated. Choose the lowest resulting fuel pool level by design that will result?

A. Approximately 10 feet above spent fuel assemblies.

B. Approximately 23 feet above spent fuel assemblies.

C. Approximately a level equal to the top of the fuel assemblies.

D. The spent fuel pool will completely drain.

ANSWER: A

K/A: 033 K3.03	Importance: 3.0/3.3
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-21.1.B "Spent Fuel Pool Cooling and Purification System" Summary Description, Issue 4, Rev. 1,page 3 of 4	
LP#: 2LP - LRT VIII - 149	OBJ: 10
History 2LOT2, 9/26/97, Exam (6.13,8.1,15.1,20.1,46.1,47.1)	
Source LRT Question 1140:	
JTA: 033--A0101	

71. Unit 2 is at 35% with all systems NSA. First Stage Impulse pressure transmitter 2MSS*PT446 is selected for control. If the transmitter were isolated and vented, what would be the impact on the steam generator level control system?

A. Steam generator level would exceed program level causing feedwater flow to drop.

B. Steam generator level would drop to no-load level causing feedwater flow to rise.

C. Indicated steam flow would exceed feed flow causing feedwater flow to rise.

D. Indicated steam flow would be less than feed flow causing feedwater flow to drop.

ANSWER: A

K/A: 035 A2.03	Importance: 3.4/3.6
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-24.4.IF " Main Steam Instrument Failure" , Issue 4, Rev. 5, Attachment 5, page 38 of 43	
LP#: 2LP-SQS-24.1	OBJ: 4
History	
Source: NEW	
JTA: 0350060101	

72. The unit is on natural circulation, following a trip and loss of off-site power. Emergency Diesel Generator 2-1 failed to start. Which of the following flow paths will be removing heat from the RCS? (Assume no operator actions)

A. 21A and 21B Steam Generator Atmospheric Dump Valves only

B. 21C Steam Generator Atmospheric Dump Valve only

C. All steam generators via 2SVS*HCV104 Residual Heat Release Valve

D. All steam generators via Main Steam Safety Valves

ANSWER: D

K/A: 039 K3.05	Importance: 3.6/3.7
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM21.3.C "Power Control and Switch List" Issue 4 Rev 7 Page 2 of 50	
LP#: 2LP-SQS-21.1	OBJ: 4
History	
Source: NEW	
JTA: 0390080101	

73. The unit is at 100% with all systems NSA. The following pump sets are running:

Condensate Pumps 2CNM* P21A and P21C

Service Water Pumps 2SWS*P21A and P21B

The 4KV breaker Supply Bus 2AE to 2A, ACB [2A10], opens on a spurious trip with no fault detected. Which of the following will be the response of Service Water pumps and the Condensate pumps to the opening of the breaker?

A. SWS pump 2SWS*P21A powered from 2A SSST, all other pumps NSA.

B. SWS pump 2SWS*P21A powered from EDG 2-1, all other pumps NSA.

C. SWS pump 2SWS*P21A and CNM pump 2CNM*P21A powered from 2A SSST.

D. SWS pump 2SWS*P21A powered from EDG 2-1, CNM pump 2CNM*P21A off, CNM pump 2CNM*P21C on.

ANSWER: B

K/A: 062 K4.03	Importance: 2.8/3.1
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM-36-.1.D" 4KV Station Service System Instrumentation and Controls" Issue 4, Rev. 3, pages 10 to 20	
LP#: 2LP-SQS-36.1	OBJ: 4
History	
Source: LOT exam bank 647	
JTA: 0620040101	

74. Both 4KV Emergency Busses have been de-energized for over 30 minutes. Pressurizer level is off scale low with no cooldown in progress. All steam generators are less than 5% narrow range. When Diesel Generator 2-1 is loaded on the bus which of the following pumps will need immediate verification of starting per ECA-0.0 "Loss of All AC Power"?

A. HHSI pump 2CHS*P21A

B. Auxiliary Feedwater pump 2FWE*P23A

C. Component Cooling Water pump 2CCP*P21A

D. Service Water Pump 2SWS*P21A

ANSWER: D

K/A: 064 K1.01	Importance: 3.1/3.6
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 2OM53.4.ECA-0.0 "Loss of All AC Power" , Issue 1B, Rev. 4 Step 37	
LP#: 2LP-SQS-53.3	OBJ: 3
History	
Source: LOT exam bank 560	
JTA: 3010060601	

75. Unit 2 is at 100% power with all systems NSA. An "ALERT" alarm on 2CCP-RQ100 occurs. Steam Generator 21B has high activity due to a small tube leak. Level is rising in the CCP surge tanks. Which of the below listed heat exchangers is likely to be leaking?

A. Boron Recovery Degasifier Vent Condenser 2BRS-E22A

B. Reactor Coolant Pump Seal Water Return Heat Exchanger 2CHS*E21

C. Steam Generator Blowdown Heat Exchanger 2BDG-E22

D. Letdown Non-Regenerative Heat Exchanger 2CHS*E22

ANSWER: D

K/A: 073 K1.01	Importance: 3.6/3.9
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 2OM43.4.AAE Local-Component Cooling Water(2CCP-RQ100)Alert Alarm Level""	
LP#: 2LP-SQS - 43.1	OBJ: 9
History	
Source: Based on SQS 1203	
JTA: 0000420401	

76. A request has been submitted for a Temporary Operating Procedure to allow closing Main Condenser Outlet valves 2CWS*MOV100C and 100D to manually clean both waterboxes under one clearance. Which of the following must be resolved prior to approving the procedure change?

A. Service water return from the CCS HX's to the cooling tower will be blocked.

B. Service water must be aligned to the Emergency Outfall to prevent overpressure of the condenser.

C. Service water return from the CDS Chillers must be aligned to Unit 1 Cooling Tower Blowdown.

D. Service water pump seal injection water must be shifted from Filtered Water to the Service Water strainers.

ANSWER: A

K/A: 075 K4.01	Importance: 2.5/2.8
Cognitive Level: Comprehension	OPEN BOOK
Ref: 2OM-31.2.A "Circulating Water System Precautions and Limitations", Issue 4, Rev.0, Precautions 18 and 19"	
LP#:	OBJ:
History:	
Source: Based on SQS question 60	
JTA: 0750140101	Copy of system print OM Figure 30.1

77. The containment instrument air is currently being supplied by Station Instrument Air via 2IAC*MOV131. If a CIA signal were generated which of the following would be the impact on the Containment Instrument Air system

A. 2IAC*MOV131 will close and the lead Containment Instrument Air compressor will start.

B. 2IAC*MOV130 will close and the lead Containment Instrument Air compressor will start.

C. 2IAC*MOV131 will close and all containment air valves will go to fail position.

D. 2IAC*MOV130 will close and all containment air valves will go to fail position.

ANSWER: D

K/A: 079 A4.01	Importance: 2.7 2.7
Cognitive Level: Analysis	OPEN BOOK
Ref.: 2OM-34.5"Compressed Air Systems Figures and Table" , Issue 4, Rev. 3 Figures 34-3 and 34-7A	
LP#: 2LP-SQS-34.1	OBJ: 5
History	
Source: Modified from LOT Item 506	
JTA: 078AAA0101	Students get Figures34.3 and .7A

78. A CO^2 discharge is imminent in a protected zone. Which of the following actions are available to alert personnel in the protected zone?

A. Predischarge warning horn sounds inside the protected zone.

B. Blue rotating lights are initiated in all occupied areas for the protected zone.

C. The CO^2 contains a Wintergreen oderizer to flood the zone prior to discharge.

D. All key card controlled entrance doors are locked closed for the affected zone.

ANSWER: A

K/A: 086 A4.04	Importance: 3.1/3.4
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 2OM-33.1.D "Fire Protection Systems Instrumentation and Control", Issue 4, Rev. 2, Page 4 of 11	
LP#: 2LP-SQS-33	OBJ: 3
History 2LOT2, 11/7/97, (Fire Protection, Alt. Safe Shutdown, Injury and Casualty Control)	
Source: Based on SQS 1132	
JTA: 0860070101	

79. When exiting the containment using the 18 inch Escape Manway, 2PHS*PI104 "Altimeter" and 2PHS*FI101 "Speed Indicator" provide what function?

A. Input to the Emergency Door "OPEN" alarm bell while opening the outside door.

B. Provide an audible whistling sound until air pressure differential is less than 0.5 psig.

C. Guide the door operator to control depressurization rate while equalizing pressure.

D. Input to the Personnel Hatch door interlock ring while equalizing pressure.

ANSWER: C

K/A: 103 K4.04	Importance: 2.5/3.2
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 2OM-47.4.C "18-inch Escape Manway Operations", Issue 4, Rev. 2, Note before step 2 on page 4 of 6	
LP#: 2LP-SQS047.1	OBJ: 4
History	
Source: Based on SQS 1114	
JTA: 0210010101	

80. The plant is in Mode 4 on RHR with a cooldown to Mode 5 in progress. The "A" Train of RHS is in service. During the construction of scaffolding on the RHR platform, the instrument air line to [2RHS*HCV758A] is broken, resulting in the loss of air to the valve. Which of the following describes the impact on RHS Heat Exchanger Outlet Flow Control Valve 2RHS*HCV758A and the status of the RHS system after the loss of air?

A. The valve fails open. [2RHS*FCV605A] will automatically close to control flow and maintain flow at pre-event. Temperature will drop.

B. The valve fails open. The RHR pump will trip on overcurrent due to run-out. RCS temperature will initially drop and then rise after the pump trips.

C. The valve fails closed. [2RHS*FCV605A] will automatically open to maintain flow. Temperature will rise.

D. The valve failing closed. [2RHS*FCV605A] will need to be manually opened to maintain flow. Temperature will drop until FCV605A is opened.

ANSWER: A

K/A: 005A2.04	Importance: 2.9/2.9
Cognitive Level: Comprehension	CLOSED BOOK
Ref: 2OM10.5"Residual Heat Removal Systems Figures and Tables" Figure10.1	
LP#: 2LP-SQS-10.1	OBJ: 5
History:	
Source: New	
JTA: 0050080101	

81. The reactor trips from 100% power. The following conditions exist:

Steam Dump Mode Selector Switch is in Tavg position

Reactor Trip Breaker "B" indicates closed.

Which of the following plant responses will be the result of the above conditions?

A. The C-20 Permissive 180 sec. time delay is blocked and AMSAC actuates.

B. The Steam Dump Load Rejection controller maintains Tavg within 5°F of no-load Tavg.

C. Feedwater Isolation Signal on Low Tavg is blocked.

D. The "B" Train Safety Injection Automatic Actuation signal is blocked.

ANSWER: B

K/A: 041 K4.17 | Importance: 3.7/3.9

Cognitive Level: Comprehension | CLOSED BOOK

Ref.: 2OM-21.5 "Main Steam System Figures and Tables" Issue 4, Rev. 2 Figures 21-9G to K

LP#: 2LP-SQS-1.2 | OBJ: 3

History

Source: LOT Exam question 31

JTA: 0120080101

82. During a turbine startup, the Valve Position Limiter is inadvertently left at 100% when the turbine latch pushbutton is pushed. Which of the following valve actuations occur?

1. Throttle Valves Open
2. Governor Valves Open
3. Reheat Stop Valves Open

A. 1 and 2

B. 2 only

C. 1 and 3

D. 2 and 3

ANSWER: D

K/A: 045A4.06	Importance: 2.8/2.7

Cognitive Level: Comprehension CLOSED BOOK

Ref.: 2OM-52.4.A "Increasing Power From 5% Reactor Power and Turbine on Turning Gear to Full Load Operation" Issue 1, Rev. 33, page 20 to 22

LP#: 2LP-SQS-52.1	OBJ: 9

History:

Source: LOT bank #0492 modified

JTA: 0450020101	

83. Pressurizer Relief Tank (2RCS-TK21) alarm A4-3H "PRESSURIZER RELIEF TANK TROUBLE" is lit. Computer address L0494D is in alarm. Which of the following could be the cause of this alarm?

A. 2CHS*PI145 Letdown pressure is 700 psig.

B. 2CHS*PI122 Charging Pressure is 2275 psig.

C. 2CHS*PI138 Excess Letdown Pressure is 135 psig.

D. 2RCS*PI402 Rx Coolant System pressure is 150 psig.

ANSWER: A

K/A: 007 A3.01	Importance: 2.7/2.9

Cognitive Level: Analysis OPEN BOOK

Ref.: 2OM-6.4.AAY " PRESSURE RELIEF TANK TROUBLE ", Issue 4, Rev. 0, page 11 of 18

LP#: 2LP-SQS-6.4	OBJ: 15

History

Source: NEW

JTA: 0070030101	Student gets ARP

84. Two separate channels, Pressurizer Pressure 2RCS*PT444 and PT445, are provided for Pressurizer Pressure Control.

Which of the following statements describes the interface between the two channels?

A. All indications, controls, and alarms in the control room are associated with either PT444 or PT445 and cannot be selected between the two.

B. A control switch is provided to determine which channel is used to accomplish various control functions.

C. The two channels (PT444 and PT445) use a common D/P cell with two transmitters connected to the one common D/P cell.

D. The signal from the two transmitters is auctioneered high and then compared to the pressure setpoint that is controlled by the Master Pressure Controller.

ANSWER: A

K/A: 2.1.28	Importance: 3.2/3.3

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM-6.5 "Reactor Coolant System Figures and Tables", Issue 4, Rev. 6, Figures 6-36 and 6-37

LP#: 2LP-SQS-6.4	OBJ: 11

History:

Source: LOT Bank #0487

JTA: 0100070101	

85 Given the following:

- Unit 2 is in Mode 1
- Both Containment Instrument Air Compressors have failed.
- [2IAC-MOV131] Station Instrument Air to Containment Instrument Air Cross Connect has been opened to maintain containment instrument air pressure.

Which of the following represents the Technical Specification actions required for the above listed conditions?

A. The valve may be opened under Administrative control as long as an operator is dedicated to close the valve if the Standby Alarm is sounded.

B. Commence immediate preparation for plant shutdown.

C. No Technical Specification actions required.

D Restore containment instrument air pressure and close [2IAC-MOV131] within one hour or be in Hot Standby within the next six hours.

ANSWER: C

K/A: 2.1.10	Importance: 2.7/3.9
Cognitive Level: Knowledge	CLOSED BOOK
Ref: TS 3.6.3.1	
LP#: 2LP-SQS-53C.1	OBJ: 3
History:	
Source: LOT Bank #0113 modified	
JTA: 1190150301	

86 Which of the following statements is **NOT** correct regarding a confined space entry?

A. An entry into the confined space shall consist of a minimum of two individuals.

B. A method of communication shall be established to maintain contact with personnel within the confined space.

C. An SCBA for emergency use shall be located near the entrance of a confined space when certain tasks are being performed within.

D. For conditions when an SCBA used by rescuers may be impractical, the ventilation flow can be increased as an additional precaution.

ANSWER: A	
K/A: 2.1.26	Importance: 2.2/2.6
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: NPDAP 3.7	
LP#: STOP Training	OBJ:
History	
Source: LOT Bank #0173	
JTA: 3420200302	

87 Unit 1 is in Mode 1 and Unit 2 in Mode 4 with the normal shift complement. At 0400 hours, the Unit 2 ANSS is injured and is transported to a local Emergency Center for treatment. He will not return this shift.

Which of the following statements is correct with regard to authorized shift staffing?

A. Credit can be taken for the Unit 1 ANSS provided the Unit 2 NSS does not leave the control room.

B. An additional supervisory qualified SRO must be added to the shift complement by 0500 hours.

C. An additional supervisory qualified SRO must be added to the shift complement by 0600 hours.

D. Since the next shift will be relieving within 4 hours, shift manning is adequate provided the next shift has a full complement.

ANSWER: C

K/A: 2.1.4	Importance: 2.3/3.4
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: 1/2OM-48.1.B "Operations Shift Complement and Functions" Issue 3, Rev. 17, pgs. 3&4	
LP#: 2LP-SQS-48.1	OBJ: 2
History	
Source: LOT Bank #0312 modified	
JTA: 3430060302	

88. Which of the following items on the ANSS Shift Turnover Checklist would ONLY be the responsibility of the OFF-GOING ANSS?

A. Review previous shift narrative logs

B. List any Technical Specification items in effect

C. Review the ESF Mimic Print for out of normal conditions

D. Log 5 qualified fire brigade members in the ANSS log

ANSWER: B

K/A: 2.1.18	Importance: 2.9/3.0

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 1/2OM-48.1.C Issue 4 Rev. 3 Figure 48.1.C-2 "Assistant Nuclear Shift Supervisors Turnover Checklist

LP#: 2LP-SQS-48.1	OBJ: 3

History

Source: LOT Bank #0384 modified

JTA: 1190030301	

89. The unit is at 375°F with pressure at 900 psig. SI Accumulator 2SIS*TK21C is pressurized to 550 psig. Which of the following actions is allowed?

A. Heat up and RCS pressurization above 1000 psig may continue, with up to 6 hours to restore the accumulator to OPERABLE status.

B. Heat up and RCS pressurization above 1000 psig may continue, with up to 1 hour to restore the accumulator to OPERABLE status.

C. The unit must remain in HOT STANDBY below 1000 psig until the accumulator is restored to operability.

D. The unit must be placed in HOT SHUTDOWN within 1 hour and COLD SHUTDOWN within the following 6 hours.

ANSWER: C

K/A: 2.1.33	Importance: 3.4/4.0
Cognitive Level: Analysis	OPEN BOOK
Ref.: BVPS Unit 2 Technical Specifications 3.5.1 "Accumulators" Tech Spec 3.0.4	
LP#: 2LP-SQS-TS	OBJ: 1
History	
Source: NEW	
JTA: 3410180302	Student gets copy of Tech Specs

90. The plant has just finished a refueling outage and is currently in Mode 3. Secondary SG pressures have reached 600 psig and testing of [2FWE*P22] is in progress. During the test run, the governor valve fails. Which of the following is the required action?

A. Return the plant to mode 4 within the next 6 hours.

B. Twenty-four hours are available to repair [2FWE*P22] before any action need to be taken.

C. Restore [2FWE*P22] within 72 hours or be in Hot Shutdown within the following 6 hours.

D. Restore [2FWE*P22] within 72 hours or be in Hot Shutdown within the following 90 hours.

ANSWER: D	
K/A: 2.2.22	Importance: 3.4/4.1
Cognitive Level: Comprehension	OPEN BOOK
Ref.: TS 3.7.1.2	
LP#: 2LP-SQS-TS	OBJ: 1
History:	
Source: New	
JTA: 1190150301	Student gets copy of Tech Specs

91. During Mode 1 operation, the following RWST parameters are noted:

Volume = 860,000 gallons

Boron Concentration = 2110 ppm

Temperature = 50°F

Corrective action must be taken for which one of the following reasons?

A. The basis for determining the time for Transfer to Hot Leg Recirculation following a LOCA may be invalid, resulting in precipitation of the soluble boron.

B. The reactor may not comply with Shutdown Margin Boron requirements to remain subcritical following an analyzed accident.

C. Contained volume in the RWST may be not sufficient for both ECCS and to restore containment pressure to sub-atmospheric pressures within the 1-hour design criteria.

D. During a Design Basis Accident the Recirculation Sump would overfill and flood safety related systems in the containment.

ANSWER: A	
K/A: 2.2.25	Importance: 2.5/3.7
Cognitive Level: Comprehension	OPEN BOOK
Ref: TS 3.1.2.8 and Bases	
LP#: 2LP-SQS-TS	OBJ: 1
History	
Source: LOT Bank #0271 modified	
JTA: 1190150301	Copy of Tech Specs

92. When performing a station startup in accordance with OM Chapter 50, "Station Startup," steps marked by a filled diamond sign (♦) indicate the step:

A. may be skipped at the discretion of the NSS.

B. may be skipped provided the GMNO initials the omitted step.

C. cannot be omitted, but may be started out of sequence.

D. cannot be omitted and must be performed in the specified sequence.

ANSWER: C

K/A: 2.2.1	Importance: 3.7/3.6

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 1/2OM-48.2.C " Adherence and Familiarization to Operating Procedures", Issue 4, Rev. 0, Page 6 and 7

LP#: 2LP-SQS-48.1	OBJ: 10

History

Source: LOT Bank #0386

JTA: 119CCC0301	

93. The NSS and ANSS have decided that an On the Spot procedure change is need this shift to continue a process. The change is determined to remain within the intent of the procedure. The procedure change involves a system procedure, which has no impact on Technical Specification Surveillance's. Which of the following may be OMITTED for the approval of the On the Spot change in order to use the procedure change this shift?

A. A review by an approved Operations Unit Non-Intent Reviewer.

B. Approval by a Unit 2 Senior Reactor Operator.

C. A review by a SPED engineer.

D. Approval by the GNMO or designated Technical Assistant within 14 days.

ANSWER: C

K/A: 2.2.6	Importance: 2.3/3.3
Cognitive Level: Knowledge	CLOSED BOOK
Ref: 1/2OM-48.2.B Control of Operating Procedures Issue. 4 Rev. 15 Pages B10 and B11	
LP#: 2LP-SQS-48.1	OBJ: 10
History	
Source: NEW	
JTA: 3430200302	

94. Unit 2 is in the process of completing the initial conditions to release a Gaseous Waste Tank to the Unit 1 Atmospheric vent. Both Unit 1 and Unit 2 ANSS sign and date the PRE (discharge authorization block) of the RWDA-G. Which of the following is OUTSIDE the responsibility of the Unit1 and Unit 2 ANSS signatures?

A. The approval has been granted for the release of the specified tank under the RWDA-G.

B. Only one gas tank from the station is being discharged at one time.

C. Tritium sampling by the Chemistry department has been completed for the specified tank.

D. All RM-11 alarm setpoints have been properly adjusted in accordance with the RWDA-G.

ANSWER: C

K/A: 2.3.9	Importance: 2.5/3.4

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 1/2OM-19.4A.B "Unit 2 GW Storage Tk Disch to Unit 1 Atmos Vent" III. 9, page B3, Issue: 3 Rev 6

LP#: 2LP-SQS-19.1	OBJ: 9

History

Source: NEW

JTA: 3410120302	

95. Unit 2 is in Mode 5 and containment purge is in progress under an RWDA-G. The ANSS is notified that a drain on the letdown line downstream from the Regenerative Heat Exchanger was opened and is draining to the floor. Which of the following actions should the ANSS take?

A. Stop the purge and close out the current RWDA-G for the containment purge.

B. Stop the purge and notify the Health Physics department to sample the Containment atmosphere before re-initiation of the purge.

C. Stop the purge and verify the drainage is completed or stopped prior to restarting the containment purge.

D. Stop the purge and notify the Health Physics department to update the setpoints for the RWDA-G before continuing the purge.

ANSWER: A

K/A: 2.3.9	Importance: 2.5/3.4

Cognitive Level: Knowledge CLOSED BOOK

Ref: 2OM44C.2.A "Precaution and Limitation", Issue 4, Rev. 1, Item "General" 7, Page 1 of 2

LP#: 2LP-SQS-44C.1	OBJ: 9

History

Source: NEW

JTA: 3410120302	

96 Unit 2 is at 100% power with all systems NSA. What would be the result if the MSIV on 21A Steam Generator were to go full closed?

A. Low Steam Line Pressure Safety Injection.

B. Pressurizer Pressure High Reactor Trip.

C. High-High Steam Generator Level Feedwater Isolation.

D. Pressurizer Pressure Low Safety Injection.

ANSWER: A

K/A: 2.4.4	Importance: 4.0/4.3
Cognitive Level: Comprehension	CLOSED BOOK
Ref.: Transient Analysis	
LP#: 2LP-SQS-21.1	OBJ: 7
History:	
Source: LOT Bank #0625	
JTA: 3420250302	

97. The Digital Rod Position Indication system has just generated a Non-Urgent alarm. Which of the following could be the cause for this alarm?

A. Loss of Data A and Data B signal from a single rod.

B. Disagreement between two central control rods.

C. A central control card calculates a rod's position as 236 steps withdrawn.

D. Accuracy mode selector switch placed in the A+B position.

ANSWER: B

K/A: 2.4.31	Importance: 3.3/3.4

Cognitive Level: Knowledge CLOSED BOOK

Ref.: 2OM1.1.B " Reactor Control and Protection Summary Description" Issue 4, Rev. 1, Page 18

LP#: 2LP-SQS-1.4	OBJ: 8

History:

Source: LOT Bank #0690 modified

JTA: 0140030101	

98. The Emergency Classification that requires the implementation of Site assembly/accountability is _____1_____. This assembly/accountability must be completed within _2_____.

A. (1) Alert; (2) 30 minutes.

B. (1) Alert; (2) 60 minutes.

C. (1) Site Area Emergency; (2) 30 minutes.

D. (1) Site Area Emergency; (2) 60 minutes.

ANSWER:C

K/A: 2.4.44	Importance: 2.1/4.0
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: EPP/IP 3.2 "Site Assembly and Personnel Accountability" Page 5 and Page 11	
LP#: EPP 57	OBJ:
History	
Source: LOT Bank #0723	
JTA: 3440020302	

99 Security has reported that there is smoke in the computer room for the Unit 1 Simulator Facility.

As ANSS what should your response be?

A. Authorize the Security Shift Supervisor to call the local fire departments for response.

B. Dispatch the site fire brigade and notify the local fire departments for support.

C. Notify the local fire department and dispatch an operator to de-energize equipment as needed.

D. Notify the local fire department and dispatch security with the required support equipment.

ANSWER: C

K/A: 2.4.27	Importance: 2.9/3.0
Cognitive Level: Knowledge	CLOSED BOOK
Ref.: 2OM-56B.4.1"Fire Brigade and Fire Fighting Procedures " Issue 1, Rev. 9 page B9 of 18	
LP#: 2LP-SQS-48.1	OBJ: 5
History	
Source: NEW	
JTA: 3440070302	

100 Unit 2 is operating at 100% with all systems NSA. A reactor trip is actuated. The ANSS observes the NCO's performing the following immediate actions from E-0 "Reactor Trip and Safety Injection":

1. Manually stop both Turbine EH Fluid Pumps.
2. Manually open PCB 352, "No. 2 Main Tfmr No. 5 345 KV Bus Bkr".
3. Depress the Reheater Controller Reset pushbutton.
4. Depress Emer Gen 2-1 "Start" pushbutton.

In what sequence should the ANSS observe the above actions?

A 1,3,4,2

B 1,2,3,4

C 1,2,4,3

D 1,3,2,4

ANSWER: D

K/A: 2.4.1	Importance: 4.3/4.6
Cognitive Level: Knowledge	CLOSED BOOK
Ref: 2OM53.A.1.E-0 "Reactor Trip or Safety Injection" Issue 1B, Rev. 4	
LP#: 2LP-SQS-53.3	OBJ: 3
History	
Source: NEW	
JTA: 3010010601	

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

Attachment 2

SIMULATION FACILITY REPORT

Facility Licensee: Beaver Valley Unit 2

Facility Docket No: 50-412

Operating Tests Administered from: August 17-21, 1998

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

No simulator deficiencies, that affected the scenario examinations or JPMs, were identified during the execution of the examination.