May 8, 2000

Mr. Stephen E. Scace, Director
Nuclear Oversight and Regulatory Affairs
Northeast Nuclear Energy Company
PO Box 128
Waterford, CT 06385

SUBJECT: MILLSTONE UNIT3 GENERATING STATION REACTOR OPERATOR AND SENIOR REACTOR OPERATOR INITIAL EXAMINATION REPORT 05000423/2000-301

Dear Mr. Scace:

This report transmits the results of the subject operator licensing examinations conducted by the NRC during the period of April 17 through 21, 2000. These examinations addressed areas important to public health and safety and were developed and administered using the guidelines of the "Examination Standards for Power Reactors" (NUREG-1021, Revision 8).

Based on the results of the examinations, all applicants (eight Senior Reactor Operator (SRO) and one Reactor Operator (RO)) passed all portions of the examinations. The preliminary performance insights observed during the examination were discussed between Mr. L. Briggs and Mr. M. Baughman on April 21, 2000. The final results were discussed via telephone conference call on May 1, 2000. No significant inspection findings were identified.

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.

No reply to this letter is required, but should you have any questions regarding this examination, please contact me at 610-337-5183, or by E-mail at RJC@NRC.GOV.

Sincerely,

/RA/

Richard J. Conte, Chief
Operational Safety Branch
Division of Reactor Safety

Docket No. 05000423
License No. NPF-49

Enclosure: Initial Examination Report No. 05000423/2000-301 w/Attachments 1 and 2

cc w/encl; w/Attachments 1-2:
G. D. Hicks, Director - Nuclear Training Services

cc w/encl; w/o Attachment 1-2:
B. D. Kenyon, President and Chief Executive Officer - NNECO
R. P. Necci, Vice President - Nuclear Technical Services
L. J. Olivier, Senior Vice President and Chief Nuclear Officer - Millstone
M. H. Brothers, Vice President - Nuclear Operations
F. C. Rothen, Vice President - Nuclear Work Services
J. T. Carlin, Vice President - Human Services - Nuclear
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D. Katz, Citizens Awareness Network (CAN)
T. Concannon, Co-Chair, NEAC
R. Bassilakis, CAN
J. M. Block, Attorney, CAN
G. Winslow, Citizens Regulatory Commission (CRC)
E. Woollacott, Co-Chair, NEAC

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A. Cerne, SRI
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B. Holian, DRS
L. Briggs, Chief Examiner, DRS
V. Curley, DRS OL Facility File
R. Conte, DRS
DRS File

Distribution w/encl; w/o Attachment 1-2: **(VIA ADAMS)**
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Inspection Program Branch, NRR **<IPAS>**
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos:	05000423
Report Nos:	05000423/2000-301
License Nos:	NPF-49
Licensee:	Northeast Nuclear Energy Company
Facility:	Millstone Unit 3
Location:	Waterford, CT
Dates:	April 14 - 21, 2000 (Operating and Written Test Administration) April 24 - 28, 2000 (Grading)
Chief Examiner:	L. Briggs, Senior Operations Engineer/Examiner
Examiners:	S. Dennis, Operations Engineer/Examiner T. Fish, Operations Engineer/Examiner
Approved By:	Richard J. Conte, Chief Operational Safety Branch Division of Reactor Safety

SUMMARY OF FINDINGS

Millstone Nuclear Facility, Unit 3
NRC Examination Report No. 05000423/2000-301

The report covers a 1 week period of onsite examination by NRC region-based examiners. If applicable, the significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Signficance Determination Process in Inspection Manual Chapter 0609.

- There were no findings.

Report Details

4. OTHER ACTIVITIES (OA)

4OA4 Cross Cutting Issues

.1 Reactor Operator and Senior Reactor Operator Initial License Examinations

a. Scope

The NRC examination team reviewed the written and operating initial examinations submitted by the Millstone Unit 3 training staff to verify or ensure, as applicable, the following:

- Prepared and developed in accordance with the guidelines of Revision 8 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." The review was conducted both in the Region I office and at the Millstone Unit 3 facility. Final resolution of comments and incorporation of test revisions was conducted during and following the onsite preparation week.
- Met the overall quality goals (range of acceptability) of NUREG-1021, Revision 8 (interim guidance is contained in Report of Interaction 99-18, dated November 24, 1999, and posted on the NRC's internet home page).
- Assess simulation facility problems.
- Facility licensee completed a test item analysis for feedback into the systems approach to training programs.
- Examination security requirements met.

The NRC examiners administered the operating portion of the exam to all applicants from April 17 through 21, 2000. The written examinations were administered by Millstone Unit 3 training staff on April 14, 2000.

b. Observations and Findings

Grading and Results

All nine applicants passed all portions of the initial licensing examination.

The facility did not submit any post-examination comments.

Examination Preparation and Quality

No inspection findings were identified.

Examination Administration and Performance

No inspection findings were identified.

4OA6 Exit Meeting Summary

On April 17, 2000, the NRC Chief Examiner discussed preliminary overall observations noted during the examination with the Manager, Operations Training. On May 1, 2000, the Chief Examiner provided final conclusions and examination results to Millstone management representative, Mr. D. Hicks, Director, Nuclear Training Services, and other management personnel, via telephone. License numbers for the nine applicants were also provided during the final exit meeting.

The NRC also expressed appreciation for the cooperation and assistance that was provided during the preparation of the exam by the licensee's training staff and examination team.

Attachments:
1. SRO Written Exam w/Answer Key
2. RO Written Exam w/Answer Key

PARTIAL LIST OF PERSONS CONTACTED

FACILITY

M. Baughman, Manager, Operations Training
J. Cote, Senior Instructor (exam team)
D. Hicks, Director, Nuclear Training Services
R. Martin, Shift Manager (exam team)
R. Royce, Senior Instructor (exam team)
J. Vernotzy, Reactor Operator (exam team)
M. Wilson, Unit 3 Operations Manager

NRC

L. Briggs, Senior Operations Engineer/Examiner
S. Dennis, Operations Engineer/Examiner
T. Fish, Operations Engineer/Examiner

Attachment 1

SRO WRITTEN EXAM W/ANSWER KEY

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

Applicant Information

Name:	Region: I
Date:	Facility/Unit: Millstone Station, Unit Three (3)
License Level: **SRO**	Reactor Type: Westinghouse PWR
Start Time:	Finish Time:

Instructions

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

Applicant Certification

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

_____
Applicant's Signature

Results

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

Question: 1

The plant is operating normally at 100% power.

Which of the following conditions require a reactor trip followed by a trip of ONE RCP?

A. VCT temperature increases to 140° F.

B. The "A" train RPCCW containment header isolates.

C. Seal injection flow to the "A" RCP decreases to 5.0 GPM.

D. The "A" RCP bearing oil temperature increases to 200° F.

Question: 2

PLANT CONDITIONS:

- A hurricane warning is in effect for southeastern Connecticut.
- A reactor trip has occurred due to a loss of offsite power, and the crew has cooled down the plant using EOP 35 ES-0.2 NATURAL CIRCULATION COOLDOWN.
- The crew has been holding RCS cold leg wide range temperature stable for the past hour.
- Core Exit Thermocouples are reading 425°F
- Thot in all loops is 424°F
- Tcold in all loops is 392°F

If adequate natural circulation is occurring, what should be the approximate SG pressures, and what is the current Thot trend?

A. SG pressures reading 210 psig, with Thot slowly increasing due to decreasing natural circulation flow rates.

B. SG pressures reading 210 psig, with Thot slowly decreasing due to lowering decay heat levels.

C. SG pressures reading 307 psig, with Thot slowly increasing due to decreasing natural circulation flow rates.

D. SG pressures reading 307 psig, with Thot slowly decreasing due to lowering decay heat levels.

Question: 3

Which of the following conditions would require the crew to initiate immediate boration of the RCS?

A. In MODE 5, with dilution paths NOT isolated and cold calibrated pressurizer level at 80%, core burnup is 9,000 MWD/MTU and RCS boron concentration is 2250 PPM (See attached curves).

B. With the plant at 100% power, an unexplained event is causing Tave to increase to 590°F. Reactor power is increasing, and control rods are inserting.

C. After a reactor trip, with the crew performing ES-0.1 "Reactor Trip Response", the RCS cools down uncontrollably to 540°F.

D. While performing a rapid downpower IAW OP3575, the ROD CONTROL BANKS LIMIT Lo Alarm is received.

Question: 4

With the plant operating at 100% power, a loss of the "A" train of RPCCW occurs.

Which of the following groups of components will be affected?

A. Letdown Heat Exchanger, SI Pump Cooling Surge Tank.

B. Letdown Heat Exchanger, Seal Water Heat Exchanger.

C. Excess Letdown Heat Exchanger, SI Pump Cooling Surge Tank.

D. Excess Letdown Heat Exchanger, Seal Water Heat Exchanger.

Question: 5

The following plant conditions exist:

- The Unit is operating at 100% power
- Pressurizer pressure control is in automatic
- One set of backup Heaters is energized in "ON"
- Actual pressurizer pressure is 2250 psia

The pressurizer Master Pressure Controller malfunctions and the **setpoint** is step changed from 2250 psia to 2000 psia.

Which of the following describes the initial automatic responses in the pressurizer Pressure Control System as a result of this failure?

A. PORV PCV-455A opens, Spray Valves open, and pressurizer control bank heaters go to minimum current.

B. PORV PCV-456 opens, Spray Valves open, and pressurizer control bank heaters go to minimum current.

C. Spray valves open and pressurizer control bank heaters go to minimum current.

D. Spray valves close and control bank heaters go to maximum current.

Question: 6

The crew is responding to four faulted Steam Generators using ECA-2.1 RESPONSE TO FOUR FAULTED STEAM GENERATORS. Narrow range level in all generators is off scale low, and auxiliary feedwater flow has been throttled to 100 gpm to each SG.

Why doesn't the crew completely isolate Aux Feed flow to the SGs?

A. Prevent the water in the feed ring from flashing to steam.

B. Minimize RCS cooldown.

C. Prevent thermal shock to SG components.

D. Minimize the potential for a loss of secondary heat sink.

Question: 7

While responding to a pressurized thermal shock (PTS) condition in accordance with FR-P.1, the operator is directed to check if ECCS can be terminated.

The bases for terminating ECCS when responding to a PTS condition are:

A. SI flow may have contributed to the RCS cooldown, and may cause excessive cycling of the pressurizer PORVs.

B. SI flow may have contributed to thermal stresses in the reactor vessel Thot and Tcold nozzles, and may cause excessive cycling of the pressurizer PORVs.

C. SI flow may have contributed to the RCS cooldown, and may prevent a subsequent RCS pressure reduction.

D. SI flow may have contributed to thermal stresses in the reactor vessel Thot and Tcold nozzles, and may prevent a subsequent RCS pressure reduction.

Question: 8

The following sequence of events occurs:

1. The plant was at 90% power with a thermal backwash in progress on the "A" condenser bay.
2. The only running circulating pump for the "A" condenser bay trips.
3. The crew trips the reactor due to high differential pressure between condenser bays.
4. "A" bay indicates 4 inches Hg absolute, "B" and "C" bays indicate 1 inch Hg absolute.
5. Significant decay heat causes RCS temperature to increase following the trip.

What is the temperature at which RCS Tave will stop increasing after the trip?

A. 551°F

B. 557°F

C. 561°F

D. 567°F

Question: 9

With the plant at 100% power, a loss of all AC power occurred. When the reactor tripped, RCS pressure increased to 2350 psia. The crew is currently preparing to commence a cooldown of the RCS while in EOP 35 ECA-0.0 LOSS OF ALL AC POWER.

By what method was the overpressure event mitigated, and how will the crew cooldown the RCS?

A. Pressure was controlled automatically by the PZR PORVs, and the crew will cooldown the RCS using the Atmospheric Dump Bypass Valves locally.

B. Pressure was controlled automatically by the PZR spray valves, and the crew will cooldown the RCS using the Atmospheric Dump Bypass Valves locally.

C. Pressure was controlled automatically by the PZR PORVs, and the crew will cooldown the RCS using the Atmospheric Dump Valves.

D. Pressure was controlled automatically by the PZR spray valves, and the crew will cooldown the RCS using the Atmospheric Dump Valves.

Question: 10

With the plant at 100% power, VIAC 1 is lost and the crew enters AOP 3564 LOSS OF ONE PROTECTIVE SYSTEM CHANNEL.

AOP 3564, step 3 directs the crew to verify normal letdown in service, and the RO reports that letdown has isolated.

What caused letdown to isolate?

A. Instrument Air has isolated to Containment.

B. Control Power has been lost to the Letdown Orifice Isolation Valves (3CHS*AV8149A, B, or C).

C. Control Power has been lost to the Letdown Containment Isolation Valves (3CHS*CV8152 or 3CHS*CV8160).

D. A Pressurizer level channel has failed low.

Question: 11

The "A" train of service water has been lost and the crew has transitioned from AOP 3560 LOSS OF SERVICE WATER to AOP 3561 LOSS OF RPCCW.

Why will the crew be directed to isolate letdown if an "A" train service water pump can not be started?

A. Maintain RCS inventory control.

B. Prevent flashing in the seal water heat exchanger.

C. Minimize heatup in the "A" train RPCCW system.

D. Prevent a challenge to RCP trip foldout page criteria.

Question: 12

A deep seated electrical cable fire was burning out of control in the cable spreading area, and the crew chose to manually initiate a CO2 discharge into the area.

In EOP 3509.1 CONTROL ROOM, CABLE SPREADING AREA OR INSTRUMENT RACK ROOM FIRE, why is a different Control Room evacuation route required to be taken now that CO2 has discharged in the Cable Spreading area?

A. The Control Building west stairwell may now be uninhabitable.

B. The "A" Train Switchgear room may now be uninhabitable.

C. The "B" Train Switchgear room is now uninhabitable.

D. The Cable Spreading room is now uninhabitable.

Question: 13

The following events occur:

1. A fire in the Instrument Rack Room causes a reactor trip.
2. The crew enters E-O, "Reactor Trip or Safety Injection."
3. The fire makes the Control Room uninhabitable, and EOP 3509, FIRE EMERGENCY directs the crew to implement EOP 3509.1 CONTROL ROOM, CABLE SPREADING AREA OR INSTRUMENT RACK ROOM FIRE.
4. A decision is made to evacuate the Control Room.

What should be done regarding E-0?

A. Evacuate the Control Room then return to the E-0, step in effect

B. Continue with E-0, substituting local actions for Control Room actions

C. Exit E-0 and implement EOP 3509.1

D. Perform both procedures in parallel

Question: 14

The plant has been operating at 100% power when a large break LOCA occurs.

T=0: The reactor trips and safety injection actuates.
T+6 minutes: The crew manually actuates CDA at E-0, step 12, since CTMT pressure is 37 psia and Quench Spray pumps are not running. Both Quench Spray pumps will not start.
T+15 minutes: The crew transitions to EOP 35 FR-Z.1 RESPONSE TO HIGH CTMT PRESSURE.
T+16 minutes: A PEO is dispatched to the ESF building to realign RSS pump "C", using EOP 35 FR-Z.1, Attachment "A".

EOP 35 FR-Z.1, Attachment "A" will align the "C" RSS pump to take a suction on the:

A. RWST and discharge through the RSS CTMT spray ring.

B. CTMT sump and discharge through the RSS CTMT spray ring.

C. RWST and discharge through the QSS CTMT spray ring.

D. CTMT sump and discharge through the QSS CTMT spray ring.

Question: 15

Plant Conditions:

- The reactor has tripped.
- Core Exit Thermocouples are 744°F.
- The crew has transitioned to the appropriate recovery procedure.

While the crew is performing the depressurization of all intact steam generators to 140 psig, the INTEGRITY critical safety function status turns RED.

Which of the following statements describes the actions which should be taken by the crew in response to these conditions?

A. Complete the current step in the recovery procedure, then address FR-P.1.

B. Immediately transition to FR-P.1, and when completed return to the recovery procedure.

C. Perform appropriate actions of FR-P.1 concurrently with the action being performed.

D. Complete the recovery procedure entirely then address FR-P.1.

Question: 16

The plant was initially in HOT STANDBY with Tave at 557°F when RCS specific activity exceeded Technical Specification limits. To comply with Technical Specifications, the crew is currently cooling down the plant to less than 500°F.

What is the basis for maintaining the RCS temperature less than 500°F?

A. Prevent the release of activity should a SG tube rupture, since RCS saturation pressure will be below the lift pressure of the atmospheric relief valves.

B. Minimize thermal stresses on the leaking fuel pins, limiting fission product release to the RCS.

C. Prevent the release of activity to containment should a loss of all AC power occur, by minimizing thermal stresses on the RCP seals.

D. Minimize offsite dose rates if a DBA LOCA occurs, by maintaining RCS temperature limit below the solubility limit for iodine.

Question: 17

The following initial plant conditions exist:

- The plant is at 70% power.
- All stator cooling parameters are normal.
- Tave matches Tref.
- Control bank "D" rods are at 205 steps.
- Rods start to step outward.

The RO places rod control in MANUAL, but this does not stop the rod motion.

Which one of the following actions should the crew take in response to this condition?

A. Increase turbine load to maintain Tave within 1.5°F of Tref utilizing the load limiter.

B. Initiate a boration as necessary to maintain Tave within 1.5°F of Tref.

C. Wait for C-11 to stop outward rod motion. If not, trip the reactor and go to E-0, REACTOR TRIP OF SAFETY INJECTION.

D. Trip the reactor and go to E-0, REACTOR TRIP OF SAFETY INJECTION.

Question: 18

While operating at 100% power, a control bank D group 1 rod drops. The crew has entered AOP 3552 MALFUNCTION OF THE ROD DRIVE SYSTEM and is ready to withdraw the dropped rod.

Shortly before the crew starts withdrawing the dropped rod, AOP 3552, Attachment "B" has the crew reset the control bank D group 1 step counter to zero.

Which of the following describes why the affected group step counter needed to be reset to zero?

A. This ensures that the P/A converter will send the proper rod height data to the RIL circuitry.

B. This ensures that the rod is withdrawn to the proper height with a proper group step counter indication.

C. This prevents a ROD CONTROL URGENT FAILURE (MB4C 4-8) annunciator from coming in during the rod recovery.

D. This prevents a BANK D FULL ROD WITHDRAWAL (MB4C 5-8) annunciator from coming in during the rod recovery.

Question: 19

Initial conditions:

- The reactor has been operating at 100% power for several weeks.
- The TDAFW Pump is tagged out for maintenance.
- Assume that the "B" MDAFW pump can remove 1% decay heat.

A reactor trip occurs, and a PEO reports a mild rubbing sound coming from the "A" MDAFW pump.

About how much time after the trip can the crew stop the "A" MDAFW pump and still remove all of the decay heat with the "B" MDAFW Pump?

A. 4 to 8 seconds

B. 4 to 8 minutes

C. 4 to 8 hours

D. 4 to 8 days

Question: 20

A small break LOCA occurs.

Which of the following Main Board trends can be initially used to diagnose the LOCA as a pressurizer vapor space loss of coolant accident?

A. Pressurizer level and RCS subcooling both increase.

B. Pressurizer level and RCS subcooling both decrease.

C. Pressurizer level increases and RCS subcooling decreases.

D. Pressurizer level decreases and RCS subcooling increases.

Question: 21

INITIAL CONDITIONS:

A reactor trip and safety injection has occurred. The crew is in EOP 35 E-1 LOSS OF REACTOR OR SECONDARY COOLANT

- RCS pressure is 2350 psia, with pressure being controlled by the PZR PORVs.
- SG pressures are 1100 psig and stable.

CURRENT CONDITIONS:

- The crew is preparing to perform E-1, step 10 "Check RCS and SG Pressures".
- The RO reports that RCS pressure is 2200 psia and dropping rapidly.
- PORV 3RCS-PCV455A indicates OPEN.
- SG pressures are 1100 psig and stable

What action must the crew take?

A. Close the PORV. If the PORV will not close, proceed to E-1, step 11 due to decreasing RCS pressure.

B. Close the PORV, and if the PORV will not Close, close its block valve. If RCS pressure starts to increase, return to E-1, step 1.

C. Do not close the PORV. Return to E-1, step 1 due to stable SG pressures.

D. Do not close the PORV. Proceed on to E-1, step 11 due to decreasing RCS pressure.

Question: 22

The following conditions exist:
- A LOCA has occurred
- Reactor Trip/Safety Injection occurred due to low pressurizer pressure
- The operating crew has completed the appropriate actions of E-0 and transitioned to E-1 LOSS OF REACTOR OR SECONDARY COOLANT.
- RCS pressure is stable at 600 psia
- RHR pumps have just been stopped per E-1, step 9.
- The following conditions exist inside containment:
    - Temperature, 170°F
    - Pressure, 22 psia
    - Radiation levels, 10 R/hr

Under which of the following conditions will the RHR pumps be required to be restarted?

A. RCS pressure drops to less than 300 psia.

B. Pressurizer level drops to less than 16%.

C. Containment temperature increases to 180°F.

D. Containment radiation increases to 10^4 R/hr.

Question: 23

The plant tripped from 100% power, and the following conditions exist:

- RCS pressure is 1780 psia and is slowly decreasing
- Abnormally high radiation alarms in the Aux Building
- All ECCS systems are operating per design
- Containment conditions are normal
- The crew has entered E-0 REACTOR TRIP OR SAFETY INJECTION.

Assuming plant conditions do not significantly change and the leak is unable to be isolated, what is the expected flow path through the EOP Network after exiting E-0?

A. E-1 "Loss of Reactor or Secondary Coolant", to ES-1.2 "Post LOCA Cooldown and Depressurization"

B. ECA-1.2 "LOCA Outside Containment", to E-1 "Loss of Reactor or Secondary Coolant"

C. ECA-1.2 "LOCA Outside Containment", to ECA-1.1 "Loss of Emergency Coolant Recirculation"

D. E-1, "Loss of Reactor or Secondary Coolant", to ECA-1.2 "LOCA Outside Containment", to ECA-1.1 "Loss of Emergency Coolant Recirculation"

Question: 24

PLANT CONDITIONS:

- The crew is performing the actions of ES-1.2, "Post-LOCA Cooldown and Depressurization."
- Both SIH pumps have been stopped
- The one running charging pump has been realigned to its normal charging path.
- The next major action category is to "Depressurize the RCS to minimize RCS subcooling".

What is the purpose of this action?

A. Minimize pressure stress to reduce PTS concerns.

B. Minimize break flow and reduce RCS makeup requirements.

C. Reduce pressure to inject the accumulators.

D. Reduce pressure to allow RHR to inject into the RCS.

Question: 25

The following sequence of events has occurred:

1. The plant was initially at 100% power when an RCS LOCA occurred.
2. When attempting to swap over to cold leg recirculation, the crew was unable to provide a flowpath from the CTMT sump to the RCS.
3. The crew entered EOP 35 ECA-1.1 "Loss of Containment Recirculation"
4. SIS flow has been reduced to one train in order to delay RWST depletion.
5. Technical support reports that emergency coolant recirculation capability has been restored via the "C" RSS Pump.

What action should the crew take?

A. Establish minimum ECCS flow by starting and stopping RHR and/or SI pumps as necessary.

B. Establish normal charging and operate any of the ECCS pumps to maintain the required flow.

C. Transition to EOP 35 ES-1.3 TRANSFER TO COLD LEG RECIRCULATION.

D. Transition to EOP 35 ECA-1.2 LOCA OUTSIDE CONTAINMENT.

Question: 26

The plant was at 100% power when a Safety Injection occurred.

The current plant conditions exist at the completion of E-0 step 14:

- SI has occurred.
- All SI equipment started.
- Containment Temperature is 110°F.
- RCS pressure is 2280 psia and increasing.
- CET's are 550°F and slowly decreasing.
- Pressurizer level is 50% and slowly increasing.
- SG levels are 10% narrow range and increasing.
- SG pressures are 1090 psig.
- All radiation monitors read normal.

Assuming conditions do not significantly change, in which procedure will the crew stop the SIH pumps?

A. E-1 - Loss of Primary or Secondary Coolant

B. ES-1.1 - SI Termination.

C. ES-1.2 - Post LOCA Cooldown and Depressurization.

D. ES - 1.3 - Transfer to Cold Leg Recirculation.

Question: 27

The plant is at 100% power when the RO notices letdown flow oscillating due to flashing downstream of the letdown orifices.

What could have caused the flashing to occur?

A. The Regenerative Heat Exchanger has developed a tube leak.

B. 3CHS*PCV131, Letdown Pressure Control Valve, has failed closed.

C. RPCCW flow to the Letdown Heat Exchanger has increased.

D. 3CHS*FCV121, Charging Line Flow Control Valve, has failed closed.

Question: 28

INITIAL CONDITIONS:

- The plant was at 100% power.
- NIS Power Range Channel N41 has failed high. All appropriate bistables have been tripped.
- A plant shutdown is commenced due to an approaching hurricane.

How will the shutdown be affected if an additional power range channel sticks at its 100% value during the shutdown?

A. Outward rod motion in automatic will not be blocked when power is reduced below 15% power.

B. The reactor will automatically trip when power is reduced below 10% power.

C. Both source range channels will have to be manually energized from MB4.

D. Both source range channels can not be energized automatically or manually from MB4.

Question: 29

Initial Conditions:

- The unit is at 80% power
- Two control rods in Group 1 of Control Bank 'D' were found misaligned from their group step counters by 13 steps below the rest of the group.
- The two misaligned rods have been determined to be untrippable.

What ACTION is required?

A. Immediately trip the reactor.

B. The plant must be in HOT STANDBY within 6 hours.

C. The plant must be in HOT STANDBY within 7 hours.

D. The plant must be in COLD SHUTDOWN within 72 hours.

Question: 30

The plant is at 100% power with both TDMFPs in service, and the MDMFP in "pull-to-lock". Numerous annunciators alarm on MB5, and the BOP operator reports the following:

- The steam flow-feed flow recorders for all SGs indicate 0 mpph feed flow and 3.8 mpph steam flow.
- Both TDMFPs are still running.

Which of the following events may be in progress?

A. Main Feed header pressure instrument has failed low.

B. Main Steam header pressure instrument has failed low.

C. The "A" SG narrow range level instrument has failed high.

D. Turbine impulse pressure instrument has failed high.

Question: 31

A loss of secondary heat sink has occurred. Bleed and Feed has been initiated using one PORV.

Which of the following describes Bleed and Feed cooling effectiveness using only one PORV?

A. Bleed and Feed cooling effectiveness decreases since less RCS depressurization allows less subcooled SI flow .

B. Bleed and Feed cooling effectiveness will not be affected since RCS depressurizes to saturation in either case.

C. Bleed and Feed cooling effectiveness will not be affected since RCS pressure rises to the PORV setpoint in either case.

D. Bleed and Feed cooling effectiveness increases since less RCS mass is lost through a single PORV.

Question: 32

With the plant at 100% power, an accidental gaseous release occurs from the turbine building stack. Shortly after the release, radiation monitors 3HVC*RE16A and 3HVC*RE16B go into high alarm.

Assuming no operator action, how will the Control Room air pressurization system respond?

A. The emergency pressurization air dump valves, 3HVC*SOV74A and 3HVC*SOV74B will open after a 60 second time delay.

B. Control building air intake ventilation valves, 3HVC*AOV25 and 3HVC*AOV26 will close after a 60 second time delay.

C. Control building emergency air recirc dampers, 3HVC*AOD119A and 3HVC*AOD119B immediately open.

D. No valves or dampers will reposition since no Control Building Isolation signal is present.

Question: 33

A LOCA inside containment is in progress. The time is now 09:00 AM, and the RO has reported containment parameters to the US as follows:

08:12 CTMT radiation levels are 8.1×10^3 R/HR, CTMT temperature is 152°F
08:15 CTMT radiation levels are 1.2×10^4 R/HR, CTMT temperature is 175°F
08:31 CTMT radiation levels are 9.3×10^4 R/HR, CTMT temperature is 181°F
08:38 CTMT radiation levels are 5.0×10^5 R/HR, CTMT temperature is 193°F

When was the first time ADVERSE CONTAINMENT (AC) parameters were required to be used, and for how long will use of the AC numbers be in effect?

A. 08:15, and AC numbers are in effect for the entire time the crew is in the EOP network.

B. 08:15, and AC numbers are in effect until both CTMT temperature and radiation drop to below the adverse setpoints.

C. 08:31 and AC numbers are in effect for the entire time the crew is in the EOP network.

D. 08:31, and AC numbers are in effect until both CTMT temperature and radiation drop to below the adverse setpoints.

Question: 34

The ATWS analyses for a Loss of Turbine Load event and a Loss of Feedwater event both predict the RCS temperature decrease causes recriticality to occur and that without operator action reactor power eventually stabilizes at approximately 5%.

Which of the following is responsible for power leveling off at 5%?

A. Doppler Power Coefficient.

B. AFW system capacity.

C. Moderator Temperature Coefficient.

D. Steam demand of two atmospheric dump valves.

Question: 35

Offsite power has been lost and the crew is preparing to perform a cooldown using ES-0.2 NATURAL CIRCULATION COOLDOWN. Only one CRDM fan is available.

How does having only 1 CRDM fan impact the natural circulation cooldown?

A. The crew should go to ES-0.3, NATURAL CIRCULATION COOLDOWN WITH STEAM VOID IN VESSEL (with RVLMS).

B. The crew should wait at step 1 of ES-0.2, NATURAL CIRCULATION COOLDOWN until an RCP can be started.

C. The crew should maintain the natural circulation cooldown rate LESS THAN 80° F/hr, and subcooling should be maintained greater than 132°F.

D. The crew should align a reactor vessel head vent letdown path and then conduct the cooldown in the same manner as if two CRDM fans are running.

Question: 36

With the Radioactive Liquid Waste radiation monitor 3LWS-RE70 out of service, the following sequence of events occurs:

1. A discharge of the "A" Low Level Waste Drain Tank (LLWDT) is commenced.
2. A PEO accidentally commences transfer of the "A" High Level Waste Drain Tank to the discharging LLWDT.
3. The error is detected and the discharge terminated after a significant amount of highly radioactive water has been discharged.
4. An "Unusual Event, Delta-Two" is declared due to the unplanned release continuing greater than 60 minutes.
5. Rad assessment determines that the integrated dose offsite is 0.01 Rem TEDE and 0.3 Rem CDE thyroid.

What change in classification should be made, if any?

A. General Emergency, Alpha

B. Site Area Emergency, Charlie-Two

C. Alert, Charlie-One

D. No change required.

Question: 37

The following sequence of events occurs:

1. A LOCA has occurred.
2. The crew is performing actions in E-1 LOSS OF REACTOR OR SECONDARY COOLANT.
3. The RO reports that the "Containment" status tree has turned from GREEN to ORANGE.
4. The STA informs the crew that no other RED or ORANGE paths exist.
5. Containment pressure is 19 psia and slowly increasing.
6. Containment radiation is 100 R/hr and slowly increasing.
7. Containment sump level is 16 feet and slowly increasing.

What action, if any, should be taken by the crew to address the ORANGE path?

A. No action is required, since the crew has verified that the status tree is invalid.

B. Transition to FR-Z.1 "Response to High Containment Pressure".

C. Transition to FR-Z.2 "Response to Containment Flooding".

D. Transition to FR-Z.3 "Response to High Containment Radiation Level".

Question: 38

INITIAL CONDITIONS:

- The plant is at 100% power.
- I&C is performing testing on the reactor protection system.
- The "B" Reactor Trip Bypass Breaker is closed.

The following sequence of events occurs:

- I&C testing results in an inadvertent train "B" SIS.
- The crew enters E-0 REACTOR TRIP OR SAFETY INJECTION.
- The "B" Reactor Trip and Bypass breakers fail to open.
- A PEO is dispatched to locally open the breakers.
- The PEO fails to open the "B" Reactor Trip Bypass breaker.
- Per E-0 step 7, the crew manually actuates the "A" train of SIS.

What operational implication, if any, is there in having the "B" Reactor Trip Bypass breaker remain closed?

A. There are no operational implications.

B. All valves associated with FWI will have to be manually closed.

C. The steam dumps are still controlled by the load reject controller.

D. Neither train of SI can be reset.

Question: 39

The following sequence of events occurs:

1. A small cold leg break loss of coolant accident occurs
2. Safety injection actuates
3. The pressurizer empties
4. RCS pressure decreases to approximately 1200 psia within 2 minutes, and stabilizes.
5. Subcooling based on core exit thermocouples is 0°F
6. SG pressure is being maintained by the atmospheric dump valves

Which of the following describes why pressure has stabilized in the RCS?

A. Mass injected into the RCS from the accumulators equals the mass loss from the LOCA.

B. Mass injected into the RCS from the Charging and SIH pumps equals the mass loss from the LOCA.

C. Energy removal from the RCS via the steam generators has stopped and energy removal is provided solely by the break flow from the RCS.

D. RCS inventory is decreasing, but insufficient heat removal out the break results in Steam Generators removing the excess heat.

Question: 40

Which of the following RCP components helps to mitigate the consequences of a partial loss of reactor coolant flow?

A. Anti-rotation device.

B. Lower radial bearing.

C. Thrust bearing.

D. Flywheel.

Question: 41

The following conditions exist:

1. The crew is starting up the plant after a refueling outage.
2. IC&E Department reports that due to an improperly installed Nuclear Instrumentation modification, neither NIS intermediate range (IRNI) channel is properly calibrated.
3. Both IRNI channels are declared INOPERABLE.

Based on power level at the time of discovery, what ACTION is required by Technical Specifications?

A. If power is at 100 counts in the source range, restore both IRNIs to OPERABLE prior to exceeding the P-6 setpoint.

B. If power is 10^{-8} amps in the intermediate range, restore both IRNIs to OPERABLE prior to exceeding 10% power.

C. If power is at 1%, power operation may continue as long as both channels are placed in the tripped condition within 6 hours.

D. If power is at 8%, within one hour initiate action to be in at least HOT STANDBY within the next six hours.

Question: 42

With the plant at 100% power, an LOP occurs, and the "B" EDG failed to start. The crew is currently performing EOP 35 ES-0.1 REACTOR TRIP RESPONSE.

Which of the following pumps is running?

A. "A" RHR Pump

B. "A" Charging Pump

C. "A" SIH Pump

D. "A" Quench Spray Pump

Question: 43

The crew is performing E-3, "Steam Generator Tube Rupture", and is preparing to initiate the RCS cooldown. E-3 directs the crew to check if ruptured SG pressure is greater than 420 psig; otherwise they are to transition to ECA-3.1, "SGTR with Loss of Reactor Coolant-Subcooled Recovery Desired".

Which of the following describes a reason for ensuring the ruptured steam generator pressure is greater than 420 psig?

A. To ensure subsequent RCS cooldown does not cause a PTS concern.

B. To ensure the ruptured steam generator pressure is greater than the intact steam generator pressures.

C. To ensure that a low steam line pressure safety injection does not occur.

D. To ensure that RCS subcooling is maintained upon the subsequent RCS cooldown.

Question: 44

Plant Conditions

- The plant was in mode 1, 100% power, when a loss of DC bus 1 occurs.
- The plant is tripped, the Control Room team is carrying out the actions of ES-0.1, "Reactor Trip Response" and AOP-3563, "Loss of DC Bus Power".
- RCS temperature is 561°F.

What method is available to the operators in the control room for reducing RCS temperature?

A. All 9 Condenser Steam Dumps.

B. All 4 Atmospheric Dump Valves.

C. All 4 Atmospheric Dump Bypass Valves.

D. All Steam Generator Safety Valves.

Question: 45

The reactor has tripped, and the crew is progressing through the EOP network. The crew enters EOP 35 FR-Z.3 RESPONSE TO HIGH CONTAINMENT RADIATION LEVEL.

Per FR-Z.3 guidance, which Ctmt ventilation system will the crew use with ADTS concurrence?

A. Ctmt Air Filtration System.

B. Ctmt Air Recirculation System.

C. Ctmt Purge System.

D. Ctmt Vacuum System.

Question: 46

A loss of VIAC 2 occurs. The operators verify that the plant is still stable at 100% power, and send a PEO out to investigate.

Which of the following signals, setpoints and coincidences will cause a main steam isolation (MSI) signal during current plant conditions?

A. HI-2 containment pressure signal greater than 18 psia on 1 of 2 remaining channels.

B. Hi-3 containment pressure signal greater than 23 psia on 1 of 3 remaining channels.

C. Low steam line pressure signal less than 1092 psig on 1 of 3 remaining channels on 1 of 4 steam generators.

D. Hi steam line pressure negative rate signal 100 psig drop, 1 of 2 remaining channels on 1 of 4 steam generators.

Question: 47

The plant is in MODE 6 with refueling in progress. The SIGMA operator is preparing to latch the next spent fuel assembly in order to move it from the reactor core to the spent fuel pool.

What condition would require the refueling SRO to direct the SIGMA operator **NOT** to latch and move the next fuel assembly?

A. The CTMT upender has an assembly in it and is in the vertical position.

B. The CTMT upender is empty and is in the vertical position.

C. The CTMT upender has an assembly in it and is in the horizontal position.

D. The CTMT upender is empty and is in the horizontal position.

Question: 48

The following sequence of events occurs:

1. The reactor has tripped and the crew is progressing through the EOP network.
2. A YELLOW path comes in on the "Heat Sink" status tree.
3. The crew enters EOP 35 FR-H.2 RESPONSE TO STEAM GENERATOR OVERPRESSURE.
4. The crew is preparing to dump steam from the affected SG.
5. The US reads a CAUTION that does not allow releasing steam from a SG with narrow range level GREATER THAN 87% prior to an evaluation.

Why shouldn't the crew dump steam from the affected SG if level is GREATER THAN 87%?

A. Releasing steam may cause an uncontrolled radiation release, since it is likely that the SG is ruptured.

B. Releasing steam may result in two phase flow and water hammer, potentially damaging pipes and valves.

C. Releasing steam will be ineffective in lowering SG pressure, since SG water is likely subcooled.

D. Releasing steam will cause a rapid pressure drop in the RCS, potentially resulting in a Safety Injection.

Question: 49

While operating at 90% power, a control bank "D", group 1 rod becomes misaligned higher than the rest of the group. The crew has entered AOP 3552 MALFUNCTION OF THE CONTROL ROD DRIVE SYSTEM, and is currently preparing to align the affected rod to the rest of the bank.

Why is the crew directed by AOP 3552 to perform a SHUTDOWN MARGIN calculation during the recovery actions?

A. Technical Specification compliance must be confirmed prior to moving the misaligned rod.

B. Technical Specification compliance will be assured in the event that the rod drops during the recovery.

C. Technical Specification compliance will be assured in the event that the rod is discovered to be stuck during the recovery.

D. Technical Specification compliance will be assured in the event that the rod is not realigned within the hour.

Question: 50

A loss of VIAC 1 occurs, resulting in the 'A' Train Inadequate Core Cooling/RVLMS cabinet being deenergized.

How will the Plant Process Computer respond?

A. All CETs and one train of RVLMS will have 'X' quality tags indicated.

B. All CETs and both trains of RVLMS will still indicate properly.

C. Half of all CETs and both trains of RVLMS will have 'X' quality tags indicated.

D. Half of all CETs, and one train of RVLMS will have 'X' quality tags indicated.

Question: 51

A valid CIA signal occurs.

Which of the following loads, normally supplied by Reactor Plant Chilled Water (CDS), will now be cooled by RPCCW?

A. "A" and "B" CAR fans and CRDM shroud cooling

B. Neutron shield tank cooler and "A" and "B" CAR fans

C. Neutron shield tank cooler and RCP Motor Air Coolers.

D. CRDM shroud cooling and RCP motor air coolers.

Question: 52

With the plant at 100% power, one of the two running Reactor Plant Chilled Water (CDS) pumps trips, resulting in one of the running chillers to trip as well.

What will be the first concern for the crew?

A. Reaching a CTMT temperature Technical Specification limit.

B Reaching a CTMT pressure Technical Specification limit.

C. Overheating RCPs

D. Overheating CRDMs

Question: 53

With the plant at 100% power, one of the running Main Condensate pumps trips. Operators attempt to start the standby pump, but it does NOT start.

What impact will this have on plant operation?

A. Feed pump discharge pressure will drop, and the Motor Driven Main Feed pump will auto-start on low feed pump discharge header pressure. This will restore feed header pressure to normal.

B. Feed pump suction pressure will drop, and the Motor Driven Main Feed pump will auto-start on low feed pump suction pressure. This will restore feed header pressure to normal.

C. Feed pump discharge pressure will drop, and all Main Feed pumps will trip on low feed pump discharge pressure. This will result in a LO-LO SG Level reactor trip.

D. Feed pump suction pressure will drop, and all Main Feed pumps will trip on low feed pump suction pressure. This will result in a LO-LO SG Level reactor trip.

Question: 54

With the plant at 48% power, the crew is placing the second Turbine Driven Main Feed Pump 3FWS-P2B in service. While the BOP operator was raising feed pump speed using the manual speed control switch 3TFC-M1B, turbine speed stopped increasing at approximately 2200 rpm. The BOP then raised the manual speed control switch to the high speed stop.

How should the BOP operator continue to raise "B" TDMFP speed?

A. Depress the RAISE pushbutton on the feed pump master speed controller 3FWS-SK509B.

B. Take the Dahl controller 3FWS-SK46B toggle to the RAISE direction.

C. Adjust the Dahl 3FWS-SK46A bias control knob to above zero.

D. Energize the "B" TDAFW pump hydraulic jack by taking the selector switch at Main Board 5 to ON.

Question: 55

PLANT CONDITIONS:

- A reactor trip has occurred.
- The crew has just entered EOP 35 ES-0.1, REACTOR TRIP RESPONSE.
- PZR level is 25% and slowly decreasing.
- Steam Generator pressures are approximately 990 psig and slowly decreasing.
- Tave is 545°F and slowly decreasing.
- RCS pressure is 2020 psia and slowly decreasing.

What action must be taken by the crew per ES-0.1 to address the cooldown?

A. Throttle AFW flow.

B. Commence immediate boration.

C. Initiate SI and return to step 1 of E-0.

D. Close the MSIVs and MSIV bypass valves.

Question: 56

The Shift Manager is reviewing the shiftly and weekly control room rounds and observes the following recorded parameters:

- The "B" train control room pressurization air bank pressure is 2100 psia.
- The "A" SIH pump to hot leg injection valve 3SIH*MV8802A is closed with its power lockout switch in "off".
- Accumulator "D" pressure is 640 psia.
- RWST temperature is 45°F.

What ACTION would be in compliance with Technical Specification ACTION STATEMENTS?

A. Restore the inoperable control room envelope bank to OPERABLE within 7 days, or initiate and maintain operation of an OPERABLE Control Room Emergency Filtration System in the recirculation mode.

B. Restore the accumulator to OPERABLE within 8 hours or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.

C. Restore the inoperable ECCS subsystem to OPERABLE within 72 hours or be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours.

D. Restore the RWST to OPERABLE within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Question: 57

Which of the following radiation monitors monitors for releases from Unit 3 and has automatic actions associated with it?

A. 3HVR*RE10A, Reactor Plant Ventilation Exhaust Monitor.

B. 3HVR-RE19B, SLCRS Exhaust to Unit 1 Stack.

C. 3SWP-RE60B, "B" RSS Heat Exchanger Service Water Outlet Monitor.

D. 3LWS-RE70, Liquid Rad Waste Discharge Monitor.

Question: 58

What daily check does the primary rounds operator make on the process gas receiver, and why is the check made?

A. Verifies radiation levels are within limits to ensure backflow of radioactive gas from the Unit 1 stack is not occurring.

B. Verifies radiation levels are within limits to minimize personnel exposure due to Oxygen-17 decay.

C. Verifies hydrogen and oxygen concentrations are within limits to ensure that flammable concentrations of do not exist.

D. Verifies hydrogen and oxygen concentrations are within limits to minimize corrosion in the process gas receiver.

Question: 59

The plant is in MODE 6.

It is desired to commence core offload, but the alarm circuitry for one of the Fuel Pool area monitors has failed. I&C is investigating, and no other operator actions have been taken.

Which of the following describes the required ACTION, if any, to be taken in order to allow core offload to commence?

A. No ACTION required, fuel movement may commence.

B. Fuel movement can be conducted indefinitely if an appropriate portable monitor is provided.

C. Fuel movement can be conducted for 30 days if an appropriate portable monitor is provided.

D. Core offload can NOT be conducted until the instrument is repaired.

Question: 60

The plant is in MODE 5 after completing a refueling outage. The crew has drained the RCS to mid-loop conditions using OP 3270A REDUCED INVENTORY OPERATION in order to perform emergent work on a leaking RCS loop stop valve. The "A" train of RHR is in service with 1,000 gpm flow through RHR heat exchanger flow control valve 3RHS*HCV606.

An unexplained increase in RCS temperature is occurring, and the RO throttles open on RHR heat exchanger flow controller 3RHS*HC606.

What will happen to RHR flow through the "A" RHR heat exchanger?

A. Flow will remain the same since a stem locking device has been installed on 3RHS*HCV606 that limits flow to 1,000 gpm.

B. Flow will remain the same since power has been removed to 3RHS*HCV606 with flow set to 1,000 gpm.

C. Flow will increase to a maximum of 4,000 gpm, since this is the procedural flow limit while in reduced inventory operations.

D. Flow will decrease since vortexing will occur in the RHR suction piping from the RCS loop hot leg.

Question: 61

The plant is at 100% power in a normal electrical lineup. The "A" RHR pump is running for a surveillance run.

Which of the following describes the power supply path for the "A" RHR pump if a fast transfer occurs on the "A" train?

A.
- NSST "A" FEEDER - OPEN
- 34A/34C Bus Tie - CLOSED
- RSST "A" FEEDER - CLOSED

B.
- NSST "A" FEEDER - OPEN
- 34A/34C Bus Tie - OPEN
- RSST "A" FEEDER - CLOSED

C.
- NSST "A" FEEDER - CLOSED
- 34A/34C Bus Tie - CLOSED
- RSST "A" FEEDER - OPEN

D.
- NSST "A" FEEDER - CLOSED
- 34A/34C Bus Tie - OPEN
- RSST "A" FEEDER - OPEN

Question: 62

Initial conditions:

- The current 4 minute average calorimetric output is 3410 MWth based on a steam flow calculation.
- An I&C Technician removes a steam pressure instrument from service while performing calibrations.

The I&C Technician was unaware that the instrument fed into the calorimetric, and the calorimetric auto-swapped to an NI based calculation. The auto-swap caused the next calorimetric 4 minute average to jump to 3445 MWth (101%)

In accordance with OP 3204 AT POWER OPERATIONS, which of the following actions is required?

A. Immediately reduce 4 minute average power to less than or equal to 3400 MWth.

B. Notify the NRC within 24 hours.

C. Submit a CR.

D. Maintain the shiftly 8 hour average less than or equal to 3411 MWth.

Question: 63

Pressurizer level transmitter LT459 is selected for control when its variable leg develops a leak near the transmitter.

Which of the following describe anticipated instrument or plant response?

	LT-459 PZR Level Indication	LT-460 & 461 PZR Level Indication	VCT Level
A.	Increasing	Decreasing	Increasing
B.	Decreasing	Increasing	Increasing
C.	Increasing	Decreasing	Decreasing
D.	Decreasing	Increasing	Decreasing

Question: 64

With the plant at 100% power, power range channel N41 fails low.

How are power range N41 HI FLUX and RATE TRIP bistables placed in the trip condition?

A. The control power fuses are removed from the Power Range N41 drawer.

B. The instrument power fuses are removed from the Power Range N41 drawer.

C. The Comparator Channel Defeat switch is taken to the N41 position at the Comparator and Rate Drawer.

D. An I&C technician trips the bistables from the instrument rack room.

Question: 65

Control Bank "D" rods were at 200 steps when one of the Bank "D", Group 1 rods dropped. The crew has entered AOP 3552 MALFUNCTION OF THE ROD DRIVE SYSTEM, and is currently recovering the dropped rod.

During the recovery of the rod, a "Bank D Full Rod Withdrawal" alarm is received on MB4C.

Which of the following describes the required response by the crew?

A. Stop the recovery and check the rod disconnect switches. Another Bank D rod is likely moving.

B. Stop the recovery and match Tave to Tref. Verify SHUTDOWN MARGIN is adequate.

C. Continue the alignment. This annunciator is expected since the bank overlap unit still receives the outward demand signal.

D. Continue the alignment. This annunciator is expected since the P/A converter still receives the outward demand signal .

Question: 66

Plant operating at 100% power.

Loop 1 narrow range Thot fails HIGH.

Which of the statements describes the response of loop 1 OPΔT and OTΔT setpoints?

A. - OPΔT setpoint DOES NOT CHANGE.
- OTΔT setpoint DECREASES.

B. - OPΔT setpoint INCREASES.
- OTΔT setpoint DOES NOT CHANGE.

C. - OPΔT setpoint DECREASES.
- OTΔT setpoint DECREASES.

D. - OPΔT setpoint INCREASES.
- OTΔT setpoint INCREASES.

Question: 67

A CDA occurred and the crew is progressing through the EOP network. The CTMT Recirc (RSS) pumps have just started, and the RO is verifying that equipment is in the desired lineup.

What should be the position of the RPCCW heat exchanger service water inlet isolation valves (3SWP*MOV50A/B), and the service water inlet valves to the containment recirc coolers (3SWP*MOV54A/B/C/D)?

A. Both the RPCCW heat exchanger service water inlet isolation valves and the service water inlet valves to the containment recirc coolers should be OPEN.

B. The RPCCW heat exchanger service water inlet isolation valves should be OPEN and the service water inlet valves to the containment recirc coolers should be CLOSED.

C. The RPCCW heat exchanger service water inlet isolation valves should be CLOSED and the service water inlet valves to the containment recirc coolers should be OPEN.

D. Both the RPCCW heat exchanger service water inlet isolation valves and the service water inlet valves to the containment recirc coolers should be CLOSED.

Question: 68

Which automatic actions occur on high radiation inside containment as detected by RMS-41 or RMS-42?

A. If running, the CAR fans trip.

B. CTMT Isolation Phase "A" (CIA) actuates.

C. The CTMT Purge Supply and Exhaust Valves close.

D. If running, the Containment Purge Fans trip.

Question: 69

With the plant at 100% power, the seal fails in the gate between the spent fuel pool and the empty transfer canal. Level in the spent fuel pool starts to slowly decrease, and the "Fuel Pool Level Lo" annunciator comes in at MB1.

What will be the first source of makeup water supplied to the spent fuel pool?

A. Water will be manually made up from the primary grade water system.

B. Water will be manually made up from RWST.

C. Water will be automatically made up from the primary grade water system.

D. Water will be automatically made up from the RWST.

Question: 70

The unit is at 25% power when the "A" MSIV inadvertently closes during partial stroke testing.

Assuming the reactor does not immediately trip, which of the following parameters would show an INITIAL DECREASE following the "A" MSIV closure?

A. "A" Steam Generator level.

B. "A" RCS Loop Cold Leg temperature.

C. "B" RCS Loop ΔT.

D. Rod insertion limit.

Question: 71

PARAMETER:	CURRENT VALUE:	TREND:
Reactor power	58%	Increasing
RCS pressure	2225 PSIA	Decreasing
Auctioneered high Tave	569°F	Decreasing
Turbine power	595 MWe	Decreasing
S/G NR levels	52%	Increasing
Steam pressure	1030 PSIG	Decreasing
Containment pressure	15 PSIA	Increasing

Based on the plant conditions, which of the following events is in progress?

A. Small LOCA

B. Steamline break

C. Continuous rod withdrawal

D. Steam generator tube rupture

Question: 72

With the plant at 100% power, the power supply breaker for the "C" Pressurizer control heater group 3RCS-H1C trips. The investigation reveals a faulty trip relay in the heater breaker.

Which of the following describes the ACTION, if any, required by the crew?

A. No ACTION required, all LCOs are met.

B. Restore the inoperable heaters to OPERABLE within 72 hours or be in at least HOT STANDBY within the next 6 hours..

C. Be in HOT STANDBY with the trip breakers open within 8 hours.

D. Restore the inoperable heaters to OPERABLE within 2 hours or be in at least HOT STANDBY within the next 6 hours.

Question: 73

With the plant operating at 100% in a normal electrical lineup, the "Bus 34A Differential" alarm is received on MB8.

What will be the expected electrical distribution response as a result of the 34A differential?

A. Bus 34A de-energizes, bus 34C slow transfers to the RSST.

B. 34C fast transfer to the RSST, the tie breaker remains closed allowing 34A to remain energized.

C. Bus 34A de-energizes, bus 34C is powered from the "A" emergency diesel.

D. Bus 34A deenergizes, bus 34C fast transfers to RSST.

Question: 74

The plant has tripped and the crew is in EOP 35 ES-0.1 REACTOR TRIP RESPONSE. Numerous MB8 annunciators are received and the BOP operator reports that the Battery 1 DC volt meter indicates zero volts.

How will the loss of DC Bus 301A-1 affect the "A" Emergency Diesel (EDG)?

A. The "A" EDG auto-started as soon and the DC bus was lost.

B. If an LOP occurs, the "A" EDG will not auto-start, but can still be started from MB8.

C. The "A" EDG can only be started locally using the air start valve levers.

D. The "A" Train Sequencer is not energized.

Question: 75

PLANT CONDITIONS:

* The “A” EGLS is in "Test 1"
* A ”CDA“ test is being conducted.
* Charging pump "A" is in "Test"
* All other components are in "Inhibit"
* The “B” Charging pump is running.

A valid "SIS" signal is received.

How will the “A” EGLS respond?

A. The EGLS sees both inputs, prioritizes CDA, and starts all equipment except charging pump "A".

B. The EGLS sees both inputs, prioritizes CDA, and starts only charging pump "A".

C. The EGLS comes out of CDA Test and responds to the SIS signal by starting all equipment except charging pump "A".

D. The EGLS comes out of CDA Test and responds to the SIS signal by starting all equipment including charging pump "A".

Question: 76

Approximately 1 hour ago, a radiation release to the environment occurred at MP3. Control Room Makeup Air Supply Radiation Monitors 3HVC-RE16A and B have "high" alarmed, resulting in a CBI signal. Currently, the crew is aligning the Control Room Pressure Envelope Emergency Ventilation System for recirculation with outside filtered air.

What will be the relationship between control room pressure and atmospheric (outside air) pressure while in operation with recirculated outside filtered air?

A. Control Room pressure will be equal with outside air pressure.

B. Control Room pressure will be greater than outside air pressure.

C. Control Room pressure will be at a set pressure independent of outside air pressure.

D. Control Room pressure will be less than outside air pressure.

Question: 77

A loss of all AC power has occurred, and the crew is placing equipment in PULL-TO-LOCK to block automatic loading of the AC emergency busses per ECA-0.0 LOSS OF ALL AC POWER, step 6.

Which pumps will be left in AUTO, and why?

A. One charging pump per train, to provide RCP seal cooling.

B. One charging pump per train, to provide RCS inventory makeup.

C. One service water pump per train, to provide emergency diesel generator cooling.

D. One service water pump per train, to provide RPCCW cooling for the RCP thermal barriers.

Question: 78

The plant is at 100% power.
The Shift Manager is on a plant tour.
The "A" Turbine Driven Main Feed Pump is out of service for seal replacement.
A PEO reports that a significant amount of oil has started spraying from the Motor Driven Main Feed Pump lube oil piping.

What is the US required to do in this situation per OP 3260 CONDUCT OF OPERATIONS?

A. Notify the Duty Officer prior to decreasing load.

B. Obtain SM approval prior to decreasing load.

C. Consider, prior to taking action, the exposure to equipment damage versus the need for continued operation.

D. Station the shift technician at the fire panel to monitor and respond to alarms in order to minimize crew distractions.

Question: 79

A deep seated fire started 10 minutes ago in the computer room, and the Halon system automatically actuated. The crew desires to enter the computer room prior to ventilating the area in order to inspect for damage.

Which of the following is in accordance with the Halon related precautions of OP 3341B FIRE PROTECTION HALON SYSTEM?

A. The computer room may be ventilated now since ten minutes is adequate to ensure that a deep seated fire is out.

B. A self contained breathing apparatus must be used for entry.

C. A filter type or canister mask may be used for entry.

D. The area may be entered alone.

Question: 80

A large break LOCA has occurred. While performing EOP 35 ES-1.3 TRANSFER TO COLD LEG RECIRCULATION, the crew has improperly performed a step and the RSS to RHR cross-connect valve 3RSS*MV8837B fails to open from MB2.

Which of the following conditions could be preventing 3RSS*MV8837B from opening?

A. The RHR to SI cross-connect valve (3RHS*MV8804B) is closed.

B. The RSS to RHR cross-connect valve (3RSS*MV8838B) is open.

C. The RWST suction isolation valve (3RHS*MV8812B) is open.

D. RHR pump suction valve (3RHS*MV8702B) is closed.

Question: 81

The plant is being cooled down per OP 3208 PLANT COOLDOWN.
The operating crew is preparing to align the "B" RHR train for cooldown.

The crew is directed to OP 3330A REACTOR PLANT COMPONENT COOLING WATER to align the RPCCW system for plant cooldown operations.

Aligning RPCCW for cooldown operations will help prevent exceeding:

A. 8100 gpm through the RPCCW heat exchanger.

B. RPCCW Containment header flow limit.

C. 140°F on the RPCCW return line from the RHR heat exchanger.

D. RPCCW pump runout limit.

Question: 82

An infrequently performed test and evolution (IPTE) is about to be conducted.

What are two responsibilities of the on-duty Shift Manager for the test?

A. Maintain technical responsibility for performance of the procedure, and determine the "level of use" for the procedure.

B. Assign the management test lead, and release the procedure for performance.

C. Select engineering department personnel to review the procedure, and conduct the pre-evolution brief.

D. Ensure prerequisites have been completed , and ensure performance of the procedure is terminated if any of the termination criteria is met.

Question: 83

Following a design basis LOCA, the "A" hydrogen recombiner is placed in service, but CTMT hydrogen concentration continues to increase.

Which of the following describes how hydrogen recombiner gas heater power requirements change as CTMT hydrogen concentration increases?

A. Heater power will decrease as hydrogen concentration increases.

B. Heater power will increase as hydrogen concentration increases.

C. Heater power does not change since it is not related to hydrogen concentration.

D. Heater power does not change since heater power is not variable.

Question: 84

What is the purpose of the upload limit interlock on the new fuel elevator?

A. Prevent dropping a new fuel assembly from excessive heights should the elevator cable fail.

B. Prevent raising an irradiated fuel assembly so that the minimum required depth of water shielding is maintained.

C. Prevent raising the elevator guide rollers out of the water, since the rollers are water lubricated.

D. Prevent raising the elevator when either cable binding is taking place or an obstruction is in the cart's path.

Question: 85

The plant at 100% power, and the crew has removed the "A" EDG from service for preplanned heat exchanger zinc replacement. The BOP operator has verified offsite sources were energized.

What other Technical Specification ACTION is required with the "A" EDG out of service?

A. Demonstrate the OPERABILITY of the "B" EDG within 8 hours.

B. Demonstrate the OPERABILITY of the "B" EDG within 24 hours.

C. Restore the "A" EDG to OPERABLE within 2 hours or be in HOT STANDBY within the next 6 hours.

D. Verify that the TDAFW Pump is OPERABLE within 2 hours or be in HOT STANDBY within the next 6 hours.

Question: 86

A station blackout is in progress and the only source of power is the SBO diesel, supplying the "B" Train electrical busses.

Which of the following SBO diesel trip conditions is bypassed during this emergency operation?

A. Primary lockout relay tripped.

B. High water temperature.

C. Low lube oil pressure.

D. Engine overspeed.

Question: 87

Which of the following describes why RCPs are tripped during E-0 REACTOR TRIP OR SAFETY INJECTION step 11 "Check if CDA Required", if a CDA has actuated?

A. Prevents excessive RCS inventory loss.

B. Minimizes the energy released to containment.

C. Protects the RCPs due to a loss of cooling.

D. Minimizes heat input into the RCS.

Question: 88

The crew is preparing to perform a surveillance using a "General Level of Use" procedure.

Which of the following describes the procedure performance requirements for this procedure?

A. The user must read each step just prior to performing that step.

B. The user must reference the procedure after each step to verify that each step has been performed correctly.

C. The user may read as many steps as can be easily remembered , and then perform the steps as remembered.

D. The user does not need to reference the procedure before or during the activity as long as his or her level of proficiency has been maintained.

Question: 89

A PEO is sent out to perform an independent verification of a valve lineup. During the verification, the PEO finds a valve closed that is required to be open.

Which one of the following actions is required?

A. Do not reposition the valve, document the wrong position on the valve lineup sheet, and continue with the verification.

B. Reposition the valve, initial the appropriate box on the valve lineup sheet, and continue with the verification.

C. Do not reposition the valve, and immediately notify the Shift Manager or Unit Supervisor of the discrepancy.

D. Reposition the valve, and then notify the Shift Manager or Unit Supervisor of the discrepancy.

Question: 90

In accordance with Technical Specifications, what is the minimum crew composition during CORE ALTERATIONS?

A. One SS, one licensed SRO responsible for fuel handling, one licensed RO in the Control Room, and one PEO.

B. One licensed SRO in the Control Room, one licensed SRO responsible for fuel handling, one licensed RO in the Control Room, and two PEOs.

C. One licensed SRO in the Control Room, two licensed ROs, two PEOs, and an STA.

D. One SS, one licensed RO in the Control Room, and one PEO.

Question: 91

Which one of the following temporary installations in the plant would require a temporary modification tag to be installed on it per WC10 TEMPORARY MODIFICATIONS?

A. A leaking relief valve on the "A" auxiliary boiler has been gagged shut.

B. A hose has been connected from a service air connection to a temporary sump pump in the main condenser pit.

C. Plastic sheeting has been installed over a Water Treating system pump to protect it from rain water.

D. A drain hose has been connected from a Service Water pipe to a floor drain.

Question: 92

The unit is at 100% power when a large loss of load event occurs. RCS pressure reaches 2780 psia, and the reactor does not trip.

Concerning the Technical Specification RCS pressure safety limit, how long does the crew have per Tech Specs to be in HOT STANDBY with RCS pressure within its limits?

A. 5 minutes

B. 15 minutes

C. 1 hour

D. 6 hours

Question: 93

The US informs the RO that Safety Injection pump 3SIH*P1A failed its surveillance and the associated ACTION STATEMENT must be entered.

In accordance with OP 3260 CONDUCT OF OPERATIONS, what process is required to track the status of the ACTION STATEMENT?

A. The RO will generate a CR that will be reviewed and approved by the SM.

B. The RO will notify the work control SRO of the ACTION STATEMENT.

C. The RO will notify the system engineer, who will generate an Allowed Outage Time form.

D. The RO will enter the ACTION STATEMENT into the shift log.

Question: 94

A PEO has the following dose history:

- Total lifetime exposure: 1,100 mrem TEDE
- Current year's exposure: 50 mrem TEDE
- No authorizations have been given for extending his administrative dose limit.

While performing a valve lineup in the Auxiliary Building pipe chase area, the PEO is not informed of a demin resin slurry transfer taking place. The PEO receives a dose of 2,500 mrem.

Which of the following is true concerning the PEO's annual dose limits?

A. The dose is within both the annual NU admin limit and the federal limit.

B. The dose exceeds the annual NU admin limit but is within the federal limit.

C. The dose is within the annual NU admin limit but exceeds the federal limit.

D. The dose exceeds both the annual NU admin limit and the federal limit.

Question: 95

A Site Area Emergency has been declared due to a LOCA outside CTMT. The LOCA is into the ESF building, a pathway to the environment exists, and limited makeup to the RWST is available. An operator is sent in to the ESF building to locally isolate the leak. This action has all of the required approvals, and would result in a significant reduction in offsite dose.

The operator has a total lifetime exposure of 4200 mrem TEDE and an exposure for the current year of 200 mrem.

What is the maximum exposure the operator may receive while performing this action?

A. 800 mrem TEDE

B. 4800 mrem TEDE

C. 23800 mrem TEDE

D. 25000 mrem TEDE

Question: 96

During an emergency condition after exiting E-0 the RO reports the following conditions:

- Containment - ORANGE path
- Core cooling - RED path
- Heat sink - RED path
- Integrity - ORANGE path

Select the order in which the above conditions should be addressed.

A. Core Cooling, Heat Sink, Containment, Integrity.

B. Core Cooling, Heat Sink, Integrity, Containment.

C. Heat Sink, Core Cooling, Containment, Integrity.

D. Heat Sink, Core Cooling, Integrity, Containment.

Question: 97

A small break LOCA has occurred and no high head injection pumps are running. CETCs are at 1220°F and the operating shift is responding in accordance with the appropriate response procedure.

Which of the following lists the recovery strategies in the correct sequence for the condition?

A. Start ECCS, depressurize RCS, depressurize secondary, start RCPs.

B. Start ECCS, depressurize secondary, start RCPs, depressurize RCS.

C. Depressurize secondary, start ECCS, depressurize RCS, start RCPs.

D. Depressurize secondary, depressurize RCS, start RCPs, start ECCS.

Question: 98

The following events are in progress:

- A tube rupture has occurred on the "C" Steam Generator.
- The crew is currently performing EOP 35 ES-3.1 POST SGTR COOLDOWN USING BACKFILL.
- The "B" RCP is running.
- During backfill the crew inadvertently allows the "C" Steam Generator narrow range level to go offscale low.

Which of the following is a potential negative consequence of this action?

A. SG depressurization will occur, reinitiating primary to secondary leakage.

B. Dilution from excess back leakage will result in transition to EOP 35 FR-S.1 ATWS.

C. Pressurizer level will fall below the minimum value, resulting in an automatic reinitiation of SI.

D. Heat removal from the RCS will be reduced such that the optimal cooldown rate CANNOT be maintained.

Question: 99

A loss of all service water has occurred, and the crew has entered AOP 3560 LOSS OF SERVICE WATER. No service water pumps can be started, and the crew isolates letdown and trips the reactor.

Which local PEO action is also required by the AOP under these conditions?

A. Trip all RCPs from the 6.9KV switchgear.

B. Start all traveling water screens in fast speed at the intake structure.

C. Isolate seal injection at the Auxiliary Building 4 foot level.

D. Establish feed and bleed to the charging pump cooling system.

Question: 100

The plant was initially at 100% power when the following sequence of events occurs:

Time	Event
0800	A reactor trip and safety injection occurs due to a tube rupture on the "B" SG.
0811	The low setpoint safety valve on the "B" SG lifts and fails to reseat.
0813	The "B" SG radiation monitor 3MSS*RE76 indicates 0.5 uCi/cc.
0823	"B" SG narrow range level goes offscale high.
0827	3MSS*RE76 indicates 5.0 uCi/cc.
0840	Maintenance is dispatched to attempt to locally close the "B" SG safety valve.
0849	3MSS*RE76 indicates 7.0 uCi/cc.
0853	Maintenance reports that the "B" SG safety valve has been gagged shut.

What is the classification of this event?

A. GENERAL EMERGENCY - ALPHA

B. SITE AREA EMERGENCY - CHARLIE 2

C. ALERT - CHARLIE 1

D. UNUSUAL EVENT - DELTA 2

U.S.N.R.C. Site-Specific Written Examination
Millstone Station, Unit 3
Senior Reactor Operator

Name:_____

1.	A	B	C	D	26.	A	B	C	D
2.	A	B	C	D	27.	A	B	C	D
3.	A	B	C	D	28.	A	B	C	D
4.	A	B	C	D	29.	A	B	C	D
5.	A	B	C	D	30.	A	B	C	D
6.	A	B	C	D	31.	A	B	C	D
7.	A	B	C	D	32.	A	B	C	D
8.	A	B	C	D	33.	A	B	C	D
9.	A	B	C	D	34.	A	B	C	D
10.	A	B	C	D	35.	A	B	C	D
11.	A	B	C	D	36.	A	B	C	D
12.	A	B	C	D	37.	A	B	C	D
13.	A	B	C	D	38.	A	B	C	D
14.	A	B	C	D	39.	A	B	C	D
15.	A	B	C	D	40.	A	B	C	D
16.	A	B	C	D	41.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
Millstone Station, Unit 3
Senior Reactor Operator

Name:_____

51.	A	B	C	D	76.	A	B	C	D
52.	A	B	C	D	77.	A	B	C	D
53.	A	B	C	D	78.	A	B	C	D
54.	A	B	C	D	79.	A	B	C	D
55.	A	B	C	D	80.	A	B	C	D
56.	A	B	C	D	81.	A	B	C	D
57.	A	B	C	D	82.	A	B	C	D
58.	A	B	C	D	83.	A	B	C	D
59.	A	B	C	D	84.	A	B	C	D
60.	A	B	C	D	85.	A	B	C	D
61.	A	B	C	D	86.	A	B	C	D
62.	A	B	C	D	87.	A	B	C	D
63.	A	B	C	D	88.	A	B	C	D
64.	A	B	C	D	89.	A	B	C	D
65.	A	B	C	D	90.	A	B	C	D
66.	A	B	C	D	91.	A	B	C	D
67.	A	B	C	D	92.	A	B	C	D
68.	A	B	C	D	93.	A	B	C	D
69.	A	B	C	D	94.	A	B	C	D
70.	A	B	C	D	95.	A	B	C	D
71.	A	B	C	D	96.	A	B	C	D
72.	A	B	C	D	97.	A	B	C	D
73.	A	B	C	D	98.	A	B	C	D
74.	A	B	C	D	99.	A	B	C	D
75.	A	B	C	D	100.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
Millstone Station, Unit 3
Senior Reactor Operator

SRO

Name: KEY

1.	A	B	C	●	26.	A	●	C	D
2.	A	●	C	D	27.	A	B	C	●
3.	A	●	C	D	28.	A	B	C	●
4.	●	B	C	D	29.	A	●	C	D
5.	A	B	●	D	30.	A	●	C	D
6.	A	B	●	D	31.	●	B	C	D
7.	A	B	●	D	32.	●	B	C	D
8.	A	B	●	D	33.	A	B	●	D
9.	●	B	C	D	34.	A	●	C	D
10.	A	B	C	●	35.	A	B	C	●
11.	A	B	C	●	36.	A	●	C	D
12.	●	B	C	D	37.	A	B	●	D
13.	A	B	●	D	38.	A	B	●	D
14.	●	B	C	D	39.	A	B	C	●
15.	A	B	C	●	40.	A	B	C	●
16.	●	B	C	D	41.	A	B	C	●
17.	A	B	C	●	42.	A	●	C	D
18.	A	●	C	D	43.	●	B	C	D
19.	A	B	●	D	44.	A	B	●	D
20.	A	B	●	D	45.	●	B	C	D
21.	A	●	C	D	46.	●	B	C	D
22.	●	B	C	D	47.	●	B	C	D
23.	A	B	●	D	48.	A	●	C	D
24.	A	●	C	D	49.	A	B	C	●
25.	A	B	●	D	50.	A	B	C	●

U.S.N.R.C. Site-Specific Written Examination
Millstone Station, Unit 3
Senior Reactor Operator

Name: KEY

SRO

51.	A	●	C	D	76.	A	●	C	D
52.1	A	●	C	D	77.	A	B	●	D
53.	A	B	C	●	78.	A	B	●	D
54.	A	●	C	D	79.1	A	●	C	D
55.1	●	B	C	D	80.	A	B	●	D
56.	●	B	C	D	81.1	●	B	C	D
57.	A	B	C	●	82.1	A	B	C	●
58.	A	B	●	D	83.	●	B	C	D
59.	A	B	●	D	84.	A	●	C	D
60.111	●	B	C	D	85.	A	B	C	●
61.	●	B	C	D	86.1	A	●	C	D
62.11	A	B	C	●	87.	A	B	●	D
63.1	A	B	C	●	88.	A	B	●	D
64.	●	B	C	D	89.	A	B	●	D
65.11	A	B	C	●	90.11	●	B	C	D
66.11	A	B	●	D	91.	●	B	C	D
67.	A	B	●	D	92.111	A	B	●	D
68.	A	B	●	D	93.	A	B	C	●
69.1	A	●	C	D	94.	A	●	C	D
70.	●	B	C	D	95.11	A	B	C	●
71.	A	●	C	D	96.	A	●	C	D
72.	●	B	C	D	97.	A	●	C	D
73.	●	B	C	D	98.	●	B	C	D
74.	A	B	●	D	99.	A	B	C	●
75.	A	B	C	●	100.	A	●	C	D

Attachment 2

RO WRITTEN EXAM W/ANSWER KEY

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

Applicant Information

Name:	Region: I
Date:	Facility/Unit: Millstone Station, Unit Three (3)
License Level: **RO**	Reactor Type: Westinghouse PWR
Start Time:	Finish Time:

Instructions

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

Applicant Certification

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

_____
Applicant's Signature

Results

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

Question: 1

The plant is operating normally at 100% power.

Which of the following conditions require a reactor trip followed by a trip of ONE RCP?

A. VCT temperature increases to 140° F.

B. The "A" train RPCCW containment header isolates.

C. Seal injection flow to the "A" RCP decreases to 5.0 GPM.

D. The "A" RCP bearing oil temperature increases to 200° F.

Question: 2

PLANT CONDITIONS:

- A hurricane warning is in effect for southeastern Connecticut.
- A reactor trip has occurred due to a loss of offsite power, and the crew has cooled down the plant using EOP 35 ES-0.2 NATURAL CIRCULATION COOLDOWN.
- The crew has been holding RCS cold leg wide range temperature stable for the past hour.
- Core Exit Thermocouples are reading 425°F
- Thot in all loops is 424°F
- Tcold in all loops is 392°F

If adequate natural circulation is occurring, what should be the approximate SG pressures, and what is the current Thot trend?

A. SG pressures reading 210 psig, with Thot slowly increasing due to decreasing natural circulation flow rates.

B. SG pressures reading 210 psig, with Thot slowly decreasing due to lowering decay heat levels.

C. SG pressures reading 307 psig, with Thot slowly increasing due to decreasing natural circulation flow rates.

D. SG pressures reading 307 psig, with Thot slowly decreasing due to lowering decay heat levels.

Question: 3

Which of the following conditions would require the crew to initiate immediate boration of the RCS?

A. In MODE 5, with dilution paths NOT isolated and cold calibrated pressurizer level at 80%, core burnup is 9,000 MWD/MTU and RCS boron concentration is 2250 PPM (See attached curves).

B. With the plant at 100% power, an unexplained event is causing Tave to increase to 590°F. Reactor power is increasing, and control rods are inserting.

C. After a reactor trip, with the crew performing ES-0.1 "Reactor Trip Response", the RCS cools down uncontrollably to 540°F.

D. While performing a rapid downpower IAW OP3575, the ROD CONTROL BANKS LIMIT Lo Alarm is received.

Question: 4

With the plant operating at 100% power, a loss of the "A" train of RPCCW occurs.

Which of the following groups of components will be affected?

A. Letdown Heat Exchanger, SI Pump Cooling Surge Tank.

B. Letdown Heat Exchanger, Seal Water Heat Exchanger.

C. Excess Letdown Heat Exchanger, SI Pump Cooling Surge Tank.

D. Excess Letdown Heat Exchanger, Seal Water Heat Exchanger.

Question: 5

The following plant conditions exist:

- The Unit is operating at 100% power
- Pressurizer pressure control is in automatic
- One set of backup Heaters is energized in "ON"
- Actual pressurizer pressure is 2250 psia

The pressurizer Master Pressure Controller malfunctions and the **setpoint** is step changed from 2250 psia to 2000 psia.

Which of the following describes the initial automatic responses in the pressurizer Pressure Control System as a result of this failure?

A. PORV PCV-455A opens, Spray Valves open, and pressurizer control bank heaters go to minimum current.

B. PORV PCV-456 opens, Spray Valves open, and pressurizer control bank heaters go to minimum current.

C. Spray valves open and pressurizer control bank heaters go to minimum current.

D. Spray valves close and control bank heaters go to maximum current.

Question: 6

The crew is responding to four faulted Steam Generators using ECA-2.1 RESPONSE TO FOUR FAULTED STEAM GENERATORS. Narrow range level in all generators is off scale low, and auxiliary feedwater flow has been throttled to 100 gpm to each SG.

Why doesn't the crew completely isolate Aux Feed flow to the SGs?

A. Prevent the water in the feed ring from flashing to steam.

B. Minimize RCS cooldown.

C. Prevent thermal shock to SG components.

D. Minimize the potential for a loss of secondary heat sink.

Question: 7

EOP 35 FR-P.1 RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION provides actions necessary to limit the consequences of overpressure to the reactor vessel during which condition?

A. Low temperatures following an RCS cooldown.

B. MODE 3 temperatures.

C. Normal operating temperature.

D. High temperatures following an RCS heatup.

Question: 8

The following sequence of events occurs:

1. The plant was at 90% power with a thermal backwash in progress on the "A" condenser bay.
2. The only running circulating pump for the "A" condenser bay trips.
3. The crew trips the reactor due to high differential pressure between condenser bays.
4. "A" bay indicates 4 inches Hg absolute, "B" and "C" bays indicate 1 inch Hg absolute.
5. Significant decay heat causes RCS temperature to increase following the trip.

What is the temperature at which RCS Tave will stop increasing after the trip?

A. 551°F

B. 557°F

C. 561°F

D. 567°F

Question: 9

With the plant at 100% power, a loss of all AC power occurred. When the reactor tripped, RCS pressure increased to 2350 psia. The crew is currently preparing to commence a cooldown of the RCS while in EOP 35 ECA-0.0 LOSS OF ALL AC POWER.

By what method was the overpressure event mitigated, and how will the crew cooldown the RCS?

A. Pressure was controlled automatically by the PZR PORVs, and the crew will cooldown the RCS using the Atmospheric Dump Bypass Valves locally.

B. Pressure was controlled automatically by the PZR spray valves, and the crew will cooldown the RCS using the Atmospheric Dump Bypass Valves locally.

C. Pressure was controlled automatically by the PZR PORVs, and the crew will cooldown the RCS using the Atmospheric Dump Valves.

D. Pressure was controlled automatically by the PZR spray valves, and the crew will cooldown the RCS using the Atmospheric Dump Valves.

Question: 10

With the plant at 100% power, VIAC 1 is lost and the crew enters AOP 3564 LOSS OF ONE PROTECTIVE SYSTEM CHANNEL.

AOP 3564, step 3 directs the crew to verify normal letdown in service, and the RO reports that letdown has isolated.

What caused letdown to isolate?

A. Instrument Air has isolated to Containment.

B. Control Power has been lost to the Letdown Orifice Isolation Valves (3CHS*AV8149A, B, or C).

C. Control Power has been lost to the Letdown Containment Isolation Valves (3CHS*CV8152 or 3CHS*CV8160).

D. A Pressurizer level channel has failed low.

Question: 11

The "A" train of service water has been lost and the crew has transitioned from AOP 3560 LOSS OF SERVICE WATER to AOP 3561 LOSS OF RPCCW.

Why will the crew be directed to isolate letdown if an "A" train service water pump can not be started?

A. Maintain RCS inventory control.

B. Prevent flashing in the seal water heat exchanger.

C. Minimize heatup in the "A" train RPCCW system.

D. Prevent a challenge to RCP trip foldout page criteria.

Question: 12

A deep seated electrical cable fire was burning out of control in the cable spreading area, and the crew chose to manually initiate a CO2 discharge into the area.

In EOP 3509.1 CONTROL ROOM, CABLE SPREADING AREA OR INSTRUMENT RACK ROOM FIRE, why is a different Control Room evacuation route required to be taken now that CO2 has discharged in the Cable Spreading area?

A. The Control Building west stairwell may now be uninhabitable.

B. The "A" Train Switchgear room may now be uninhabitable.

C. The "B" Train Switchgear room is now uninhabitable.

D. The Cable Spreading room is now uninhabitable.

Question: 13

The following events occur:

1. A fire in the Instrument Rack Room causes a reactor trip.
2. The crew enters E-O, "Reactor Trip or Safety Injection."
3. The fire makes the Control Room uninhabitable, and EOP 3509, FIRE EMERGENCY directs the crew to implement EOP 3509.1 CONTROL ROOM, CABLE SPREADING AREA OR INSTRUMENT RACK ROOM FIRE.
4. A decision is made to evacuate the Control Room.

What should be done regarding E-0?

A. Evacuate the Control Room then return to the E-0, step in effect

B. Continue with E-0, substituting local actions for Control Room actions

C. Exit E-0 and implement EOP 3509.1

D. Perform both procedures in parallel

Question: 14

The plant has been operating at 100% power when a large break LOCA occurs.

T=0: The reactor trips and safety injection actuates.
T+6 minutes: The crew manually actuates CDA at E-0, step 12, since CTMT pressure is 37 psia and Quench Spray pumps are not running. Both Quench Spray pumps will not start.
T+15 minutes: The crew transitions to EOP 35 FR-Z.1 RESPONSE TO HIGH CTMT PRESSURE.
T+16 minutes: A PEO is dispatched to the ESF building to realign RSS pump "C", using EOP 35 FR-Z.1, Attachment "A".

EOP 35 FR-Z.1, Attachment "A" will align the "C" RSS pump to take a suction on the:

A. RWST and discharge through the RSS CTMT spray ring.

B. CTMT sump and discharge through the RSS CTMT spray ring.

C. RWST and discharge through the QSS CTMT spray ring.

D. CTMT sump and discharge through the QSS CTMT spray ring.

Question: 15

Plant Conditions:

- The reactor has tripped.
- Core Exit Thermocouples are 744°F.
- The crew has transitioned to the appropriate recovery procedure.

While the crew is performing the depressurization of all intact steam generators to 140 psig, the INTEGRITY critical safety function status turns RED.

Which of the following statements describes the actions which should be taken by the crew in response to these conditions?

A. Complete the current step in the recovery procedure, then address FR-P.1.

B. Immediately transition to FR-P.1, and when completed return to the recovery procedure.

C. Perform appropriate actions of FR-P.1 concurrently with the action being performed.

D. Complete the recovery procedure entirely then address FR-P.1.

Question: 16

The plant was initially in HOT STANDBY with Tave at 557°F when RCS specific activity exceeded Technical Specification limits. To comply with Technical Specifications, the crew is currently cooling down the plant to less than 500°F.

What is the basis for maintaining the RCS temperature less than 500°F?

A. Prevent the release of activity should a SG tube rupture, since RCS saturation pressure will be below the lift pressure of the atmospheric relief valves.

B. Minimize thermal stresses on the leaking fuel pins, limiting fission product release to the RCS.

C. Prevent the release of activity to containment should a loss of all AC power occur, by minimizing thermal stresses on the RCP seals.

D. Minimize offsite dose rates if a DBA LOCA occurs, by maintaining RCS temperature limit below the solubility limit for iodine.

Question: 17

The following initial plant conditions exist:

- The plant is at 70% power.
- All stator cooling parameters are normal.
- Tave matches Tref.
- Control bank "D" rods are at 205 steps.
- Rods start to step outward.

The RO places rod control in MANUAL, but this does not stop the rod motion.

Which one of the following actions should the crew take in response to this condition?

A. Increase turbine load to maintain Tave within 1.5°F of Tref utilizing the load limiter.

B. Initiate a boration as necessary to maintain Tave within 1.5°F of Tref.

C. Wait for C-11 to stop outward rod motion. If not, trip the reactor and go to E-0, REACTOR TRIP OF SAFETY INJECTION.

D. Trip the reactor and go to E-0, REACTOR TRIP OF SAFETY INJECTION.

Question: 18

While operating at 100% power, a control bank D group 1 rod drops. The crew has entered AOP 3552 MALFUNCTION OF THE ROD DRIVE SYSTEM and is ready to withdraw the dropped rod.

Shortly before the crew starts withdrawing the dropped rod, AOP 3552, Attachment "B" has the crew reset the control bank D group 1 step counter to zero.

Which of the following describes why the affected group step counter needed to be reset to zero?

A. This ensures that the P/A converter will send the proper rod height data to the RIL circuitry.

B. This ensures that the rod is withdrawn to the proper height with a proper group step counter indication.

C. This prevents a ROD CONTROL URGENT FAILURE (MB4C 4-8) annunciator from coming in during the rod recovery.

D. This prevents a BANK D FULL ROD WITHDRAWAL (MB4C 5-8) annunciator from coming in during the rod recovery.

Question: 19

Initial conditions:

- The reactor has been operating at 100% power for several weeks.
- The TDAFW Pump is tagged out for maintenance.
- Assume that the "B" MDAFW pump can remove 1% decay heat.

A reactor trip occurs, and a PEO reports a mild rubbing sound coming from the "A" MDAFW pump.

About how much time after the trip can the crew stop the "A" MDAFW pump and still remove all of the decay heat with the "B" MDAFW Pump?

A. 4 to 8 seconds

B. 4 to 8 minutes

C. 4 to 8 hours

D. 4 to 8 days

Question: 20

A small break LOCA occurs.

Which of the following Main Board trends can be initially used to diagnose the LOCA as a pressurizer vapor space loss of coolant accident?

A. Pressurizer level and RCS subcooling both increase.

B. Pressurizer level and RCS subcooling both decrease.

C. Pressurizer level increases and RCS subcooling decreases.

D. Pressurizer level decreases and RCS subcooling increases.

Question: 21

INITIAL CONDITIONS:

A reactor trip and safety injection has occurred. The crew is in EOP 35 E-1 LOSS OF REACTOR OR SECONDARY COOLANT

- RCS pressure is 2350 psia, with pressure being controlled by the PZR PORVs.
- SG pressures are 1100 psig and stable.

CURRENT CONDITIONS:

- The crew is preparing to perform E-1, step 10 "Check RCS and SG Pressures".
- The RO reports that RCS pressure is 2200 psia and dropping rapidly.
- PORV 3RCS-PCV455A indicates OPEN.
- SG pressures are 1100 psig and stable

What action must the crew take?

A. Close the PORV. If the PORV will not close, proceed to E-1, step 11 due to decreasing RCS pressure.

B. Close the PORV, and if the PORV will not Close, close its block valve. If RCS pressure starts to increase, return to E-1, step 1.

C. Do not close the PORV. Return to E-1, step 1 due to stable SG pressures.

D. Do not close the PORV. Proceed on to E-1, step 11 due to decreasing RCS pressure.

Question: 22

The following conditions exist:
- A LOCA has occurred
- Reactor Trip/Safety Injection occurred due to low pressurizer pressure
- The operating crew has completed the appropriate actions of E-0 and transitioned to E-1 LOSS OF REACTOR OR SECONDARY COOLANT.
- RCS pressure is stable at 600 psia
- RHR pumps have just been stopped per E-1, step 9.
- The following conditions exist inside containment:
    - Temperature, 170°F
    - Pressure, 22 psia
    - Radiation levels, 10 R/hr

Under which of the following conditions will the RHR pumps be required to be restarted?

A. RCS pressure drops to less than 300 psia.

B. Pressurizer level drops to less than 16%.

C. Containment temperature increases to 180°F.

D. Containment radiation increases to 10^4 R/hr.

Question: 23

The plant tripped from 100% power, and the following conditions exist:

- RCS pressure is 1780 psia and is slowly decreasing
- Abnormally high radiation alarms in the Aux Building
- All ECCS systems are operating per design
- Containment conditions are normal
- The crew has entered E-0 REACTOR TRIP OR SAFETY INJECTION.

Assuming plant conditions do not significantly change and the leak is unable to be isolated, what is the expected flow path through the EOP Network after exiting E-0?

A. E-1 "Loss of Reactor or Secondary Coolant", to ES-1.2 "Post LOCA Cooldown and Depressurization"

B. ECA-1.2 "LOCA Outside Containment", to E-1 "Loss of Reactor or Secondary Coolant"

C. ECA-1.2 "LOCA Outside Containment", to ECA-1.1 "Loss of Emergency Coolant Recirculation"

D. E-1, "Loss of Reactor or Secondary Coolant", to ECA-1.2 "LOCA Outside Containment", to ECA-1.1 "Loss of Emergency Coolant Recirculation"

Question: 24

PLANT CONDITIONS:

- The crew is performing the actions of ES-1.2, "Post-LOCA Cooldown and Depressurization."
- Both SIH pumps have been stopped
- The one running charging pump has been realigned to its normal charging path.
- The next major action category is to "Depressurize the RCS to minimize RCS subcooling".

What is the purpose of this action?

A. Minimize pressure stress to reduce PTS concerns.

B. Minimize break flow and reduce RCS makeup requirements.

C. Reduce pressure to inject the accumulators.

D. Reduce pressure to allow RHR to inject into the RCS.

Question: 25

The following sequence of events has occurred:

1. The plant was initially at 100% power when an RCS LOCA occurred.
2. When attempting to swap over to cold leg recirculation, the crew was unable to provide a flowpath from the CTMT sump to the RCS.
3. The crew entered EOP 35 ECA-1.1 "Loss of Containment Recirculation"
4. SIS flow has been reduced to one train in order to delay RWST depletion.
5. Technical support reports that emergency coolant recirculation capability has been restored via the "C" RSS Pump.

What action should the crew take?

A. Establish minimum ECCS flow by starting and stopping RHR and/or SI pumps as necessary.

B. Establish normal charging and operate any of the ECCS pumps to maintain the required flow.

C. Transition to EOP 35 ES-1.3 TRANSFER TO COLD LEG RECIRCULATION.

D. Transition to EOP 35 ECA-1.2 LOCA OUTSIDE CONTAINMENT.

Question: 26

The plant was at 100% power when a Safety Injection occurred.

The current plant conditions exist at the completion of E-0 step 14:

- SI has occurred.
- All SI equipment started.
- Containment Temperature is 110°F.
- RCS pressure is 2280 psia and increasing.
- CET's are 550°F and slowly decreasing.
- Pressurizer level is 50% and slowly increasing.
- SG levels are 10% narrow range and increasing.
- SG pressures are 1090 psig.
- All radiation monitors read normal.

Assuming conditions do not significantly change, in which procedure will the crew stop the SIH pumps?

A. E-1 - Loss of Primary or Secondary Coolant

B. ES-1.1 - SI Termination.

C. ES-1.2 - Post LOCA Cooldown and Depressurization.

D. ES - 1.3 - Transfer to Cold Leg Recirculation.

Question: 27

The plant is at 100% power when the RO notices letdown flow oscillating due to flashing downstream of the letdown orifices.

What could have caused the flashing to occur?

A. The Regenerative Heat Exchanger has developed a tube leak.

B. 3CHS*PCV131, Letdown Pressure Control Valve, has failed closed.

C. RPCCW flow to the Letdown Heat Exchanger has increased.

D. 3CHS*FCV121, Charging Line Flow Control Valve, has failed closed.

Question: 28

INITIAL CONDITIONS:

- The plant was at 100% power.
- NIS Power Range Channel N41 has failed high. All appropriate bistables have been tripped.
- A plant shutdown is commenced due to an approaching hurricane.

How will the shutdown be affected if an additional power range channel sticks at its 100% value during the shutdown?

A. Outward rod motion in automatic will not be blocked when power is reduced below 15% power.

B. The reactor will automatically trip when power is reduced below 10% power.

C. Both source range channels will have to be manually energized from MB4.

D. Both source range channels can not be energized automatically or manually from MB4.

Question: 29

The plant is at 100% power and the following conditions exist:

- All PZR heaters are energized
- Letdown flow is 75 gpm
- Charging Flow Controller 3CHS*FKV121 output has increased and charging flow indicates 88 gpm.
- SG levels are 50%
- Tave/Tref are matched

Which of the following events may be in progress?

A. The controlling PZR level channel has failed high.

B. An atmospheric dump valve has failed open.

C. A PZR spray valve has failed open.

D. A SG Tube Leak has occurred.

Question: 30

The plant is at 100% power with both TDMFPs in service, and the MDMFP in "pull-to-lock". Numerous annunciators alarm on MB5, and the BOP operator reports the following:

- The steam flow-feed flow recorders for all SGs indicate 0 mpph feed flow and 3.8 mpph steam flow.
- Both TDMFPs are still running.

Which of the following events may be in progress?

A. Main Feed header pressure instrument has failed low.

B. Main Steam header pressure instrument has failed low.

C. The "A" SG narrow range level instrument has failed high.

D. Turbine impulse pressure instrument has failed high.

Question: 31

A loss of secondary heat sink has occurred. Bleed and Feed has been initiated using one PORV.

Which of the following describes Bleed and Feed cooling effectiveness using only one PORV?

A. Bleed and Feed cooling effectiveness decreases since less RCS depressurization allows less subcooled SI flow .

B. Bleed and Feed cooling effectiveness will not be affected since RCS depressurizes to saturation in either case.

C. Bleed and Feed cooling effectiveness will not be affected since RCS pressure rises to the PORV setpoint in either case.

D. Bleed and Feed cooling effectiveness increases since less RCS mass is lost through a single PORV.

Question: 32

With the plant at 100% power, an accidental gaseous release occurs from the turbine building stack. Shortly after the release, radiation monitors 3HVC*RE16A and 3HVC*RE16B go into high alarm.

Assuming no operator action, how will the Control Room air pressurization system respond?

A. The emergency pressurization air dump valves, 3HVC*SOV74A and 3HVC*SOV74B will open after a 60 second time delay.

B. Control building air intake ventilation valves, 3HVC*AOV25 and 3HVC*AOV26 will close after a 60 second time delay.

C. Control building emergency air recirc dampers, 3HVC*AOD119A and 3HVC*AOD119B immediately open.

D. No valves or dampers will reposition since no Control Building Isolation signal is present.

Question: 33

A tube rupture has occurred on the "C" steam generator, and the crew is progressing through EOP 35 E-0 REACTOR TRIP OR SAFETY INJECTION.

Which of the following describes the BOP operator's responsibility concerning isolating AFW flow during this event?

A. The BOP must receive permission from the SM/US prior to isolating flow to the three intact SGs.

B. The BOP must receive permission from the SM/US prior to isolating flow to the affected SG.

C. The BOP may isolate AFW flow to any SG without direction from the SM/US as long as he or she is not performing immediate actions.

D. The BOP may isolate AFW flow to any SG without direction from the SM/US as long as minimum heat sink requirements are met.

Question: 34

The plant was at 100% power with all control systems in AUTO.
The crew commences a downpower using OP 3204 AT POWER OPERATIONS.
The pressurizer level controller 3CHS-LK459 level setpoint sticks at its original value.

If the PZR level controller is left in AUTO, which of the following describes Charging Flow Control Valve 3CHS*FCV121 response during the downpower?

A. 3CHS*FCV121 will remain in the same position and letdown will isolate on low pressurizer level.

B. 3CHS*FCV121 will open fully and the reactor will trip on high pressurizer level.

C. 3CHS*FCV121 will throttle open and maintain PZR level at 61.5%.

D. 3CHS*FCV121 will remain at the same position and maintain PZR level at 61.5%.

Question: 35

Offsite power has been lost and the crew is preparing to perform a cooldown using ES-0.2 NATURAL CIRCULATION COOLDOWN. Only one CRDM fan is available.

How does having only 1 CRDM fan impact the natural circulation cooldown?

A. The crew should go to ES-0.3, NATURAL CIRCULATION COOLDOWN WITH STEAM VOID IN VESSEL (with RVLMS).

B. The crew should wait at step 1 of ES-0.2, NATURAL CIRCULATION COOLDOWN until an RCP can be started.

C. The crew should maintain the natural circulation cooldown rate LESS THAN 80° F/hr, and subcooling should be maintained greater than 132°F.

D. The crew should align a reactor vessel head vent letdown path and then conduct the cooldown in the same manner as if two CRDM fans are running.

Question: 36

The operators have manually tripped the plant due to a complete loss of instrument air, and are currently stabilizing the plant using EOP 35 ES-0.1 REACTOR TRIP RESPONSE.

What equipment is available to the operators for control of major plant parameters?

A. A letdown path is available through the loop drain valves, RCS temperature control via the atmospheric dump valves, and PZR pressure control via heaters and PORVs.

B. A letdown path is available through the loop drain valves, RCS temperature control via the atmospheric dump bypass valves, and PZR pressure control via heaters and auxiliary spray valves.

C. A letdown path is available through the head vent path, RCS temperature control via the atmospheric dump valves, and PZR pressure control via heaters and auxiliary spray valves.

D. A letdown path is available through the head vent path, RCS temperature control via the atmospheric dump bypass valves, and PZR pressure control via heaters and PORVs.

Question: 37

INITIAL CONDITIONS:

- Plant is at 50% power.
- A load increase is in progress per OP3204 AT POWER OPERATIONS.
- A lift coil fuse blows for a Control Bank "D", Group 1 rod.

Which of the following describes the response of the rod control system to the next "outward" control rod demand signal?

A. The affected rod will drop while the rest of Control Bank "D" will move out.

B. The affected rod will move in while the rest of Control Bank "D" will move out.

C. The affected rod will not move while the rest of Control Bank "D" will move out.

D. All of Control Bank "D" will not move and an "urgent failure" alarm will come in.

Question: 38

INITIAL CONDITIONS:

- The plant is at 100% power.
- I&C is performing testing on the reactor protection system.
- The "B" Reactor Trip Bypass Breaker is closed.

The following sequence of events occurs:

- I&C testing results in an inadvertent train "B" SIS.
- The crew enters E-0 REACTOR TRIP OR SAFETY INJECTION.
- The "B" Reactor Trip and Bypass breakers fail to open.
- A PEO is dispatched to locally open the breakers.
- The PEO fails to open the "B" Reactor Trip Bypass breaker.
- Per E-0 step 7, the crew manually actuates the "A" train of SIS.

What operational implication, if any, is there in having the "B" Reactor Trip Bypass breaker remain closed?

A. There are no operational implications.

B. All valves associated with FWI will have to be manually closed.

C. The steam dumps are still controlled by the load reject controller.

D. Neither train of SI can be reset.

Question: 39

The plant is in MODE 3 with a reactor shutdown in progress. The Reactor Operator begins inserting shutdown Bank "E".

Which of the following describes the effect this action will have on both SHUTDOWN MARGIN (SDM) and the amount the reactor is Shutdown?

A. SDM and the Amount the Reactor is Shutdown will remain the same.

B. SDM will remain the same and the Amount the Reactor is Shutdown will increase.

C. SDM will decrease and the Amount the Reactor is Shutdown will remain the same.

D. SDM and the Amount the Reactor is Shutdown will increase.

Question: 40

Which of the following RCP components helps to mitigate the consequences of a partial loss of reactor coolant flow?

A. Anti-rotation device.

B. Lower radial bearing.

C. Thrust bearing.

D. Flywheel.

Question: 41

With the plant operating at 30% power, the "D" RCP trips.

Which of the following describes the status of steam flow from the "A", "B", and "C" SGs one minute after the pump trip?

A. Decreased due to "D" SG temperature increasing to approximately RCS T-hot.

B. Increased due to "D" SG temperature decreasing to approximately RCS T-cold.

C. Decreased due to decreased steam pressure in the "A", "B", and "C" SGs.

D. Increased due to increased steam pressure in the "A", "B", and "C" SGs.

Question: 42

With the plant at 100% power, an LOP occurs, and the "B" EDG failed to start. The crew is currently performing EOP 35 ES-0.1 REACTOR TRIP RESPONSE.

Which of the following pumps is running?

A. "A" RHR Pump

B. "A" Charging Pump

C. "A" SIH Pump

D. "A" Quench Spray Pump

Question: 43

An operator commences a fairly large dilution while raising power from 50% to 80%.

What adverse condition could occur if "Alternate Dilute " is used for the entire dilution?

A. RCS Oxygen concentration could increase.

B. RCS Hydrogen concentration could increase.

C. RCS Tritium concentration could increase.

D. A reactivity excursion could occur, especially late of life.

Question: 44

The crew has entered AOP 3566 IMMEDIATE BORATION, and can not get emergency boration valve 3CHS*MV8104 to open.

Which of the flowpaths listed below are acceptable boration flowpaths?

A. 35 gpm from the RWST, or 35 gpm from the gravity boration path.

B. 35 gpm from the RWST, or 110 gpm from the gravity boration path.

C. 110 gpm from the RWST, or 35 gpm from the gravity boration path.

D. 110 gpm from the RWST, or 110 gpm from the gravity boration path.

Question: 45

With the plant at 100% power, a loss of all feedwater occurs.

- The SGs reach the LO-LO level reactor trip setpoint, but the reactor fails to trip.
- The crew is NOT successful at tripping the reactor manually.
- The crew enters FR-S.1, RESPONSE TO NUCLEAR POWER GENERATION - ATWS.

Why is it imperative that the main turbine is tripped shortly after the onset of this event?

A. Prevent missile generation from turbine overspeed when the main generator output breakers open.

B. Shut down the reactor by allowing the RCS to heat up.

C. Prevent the RCS from exceeding its emergency pressure limit.

D. Rapidly transfer heat load to the condenser steam dumps.

Question: 46

A loss of VIAC 2 occurs. The operators verify that the plant is still stable at 100% power, and send a PEO out to investigate.

Which of the following signals, setpoints and coincidences will cause a main steam isolation (MSI) signal during current plant conditions?

A. HI-2 containment pressure signal greater than 18 psia on 1 of 2 remaining channels.

B. Hi-3 containment pressure signal greater than 23 psia on 1 of 3 remaining channels.

C. Low steam line pressure signal less than 1092 psig on 1 of 3 remaining channels on 1 of 4 steam generators.

D. Hi steam line pressure negative rate signal 100 psig drop, 1 of 2 remaining channels on 1 of 4 steam generators.

Question: 47

Initial conditions:
- Reactor is at 100% power.
- Rod Control is in automatic.

One of the power range nuclear instruments rapidly fails high and Control Bank "D" rods start to drive in.

Assuming no operator action, rods will continue to move in until:

A. the power mismatch signal decays. Rods will remain partially inserted.

B. temperature error causes rods to withdraw back to their original height.

C. all control rods are on the bottom.

D. C-5 actuates. Rods will remain partially inserted.

Question: 48

During a significant feed heater level transient, HI-HI levels are received in all 3 first point feed heaters and extraction steam isolates to all 3 first point heaters. The following indications exist in the control room:

- Electrical output has dropped by 15 Mwe.
- Tcold has dropped by 2°F.
- Tave is being maintained 2°F higher than Tref.
- NIS power has increased to 102%.
- An OPΔT runback commences.

What is the relationship between NIS indicated power and actual reactor power?

A. NIS Power indicates higher than actual power due to higher Tav.

B. NIS Power indicates lower than actual power due to higher Tav.

C. NIS Power indicates higher than actual power due to lower Tcold.

D. NIS Power indicates lower than actual power due to lower Tcold.

Question: 49

While responding to a failed NIS Power Range channel, the crew operates the "Power Mismatch Bypass Switch" at the NIS Cabinet.

The Power Mismatch Bypass Switch defeats Power Range Input to which of the following?

A. Rod Control Unit and the feed regulating bypass valves.

B. Overpower Rod Stop logic.

C. Channel Deviation alarm .

D. High flux Deviation/Auto Defeat alarms on Main Board 4.

Question: 50

A loss of VIAC 1 occurs, resulting in the 'A' Train Inadequate Core Cooling RVLMS cabinet being deenergized.

How will the Plant Process Computer respond?

A. All CETs and one train of RVLMS will have 'X' quality tags indicated.

B. All CETs and both trains of RVLMS will still indicate properly.

C. Half of all CETs and both trains of RVLMS will have 'X' quality tags indicated.

D. Half of all CETs, and one train of RVLMS will have 'X' quality tags indicated.

Question: 51

A valid CIA signal occurs.

Which of the following loads, normally supplied by Reactor Plant Chilled Water (CDS), will now be cooled by RPCCW?

A. "A" and "B" CAR fans and CRDM shroud cooling

B. Neutron shield tank cooler and "A" and "B" CAR fans

C. Neutron shield tank cooler and RCP Motor Air Coolers.

D. CRDM shroud cooling and RCP motor air coolers.

Question: 52

With the plant at 100% power, one of the two running Reactor Plant Chilled Water (CDS) pumps trips, resulting in one of the running chillers to trip as well.

What will be the first concern for the crew?

A. Reaching a CTMT temperature Technical Specification limit.

B Reaching a CTMT pressure Technical Specification limit.

C. Overheating RCPs

D. Overheating CRDMs

Question: 53

With the plant at 100% power, one of the running Main Condensate pumps trips. Operators attempt to start the standby pump, but it does NOT start.

What impact will this have on plant operation?

A. Feed pump discharge pressure will drop, and the Motor Driven Main Feed pump will auto-start on low feed pump discharge header pressure. This will restore feed header pressure to normal.

B. Feed pump suction pressure will drop, and the Motor Driven Main Feed pump will auto-start on low feed pump suction pressure. This will restore feed header pressure to normal.

C. Feed pump discharge pressure will drop, and all Main Feed pumps will trip on low feed pump discharge pressure. This will result in a LO-LO SG Level reactor trip.

D. Feed pump suction pressure will drop, and all Main Feed pumps will trip on low feed pump suction pressure. This will result in a LO-LO SG Level reactor trip.

Question 54

With the plant at 48% power, the crew is placing the second Turbine Driven Main Feed Pump 3FWS-P2B in service. While the BOP operator was raising feed pump speed using the manual speed control switch 3TFC-M1B, turbine speed stopped increasing at approximately 2200 rpm. The BOP then raised the manual speed control switch to the high speed stop.

How should the BOP operator continue to raise "B" TDMFP speed?

A. Depress the RAISE pushbutton on the feed pump master speed controller 3FWS-SK509B.

B. Take the Dahl controller 3FWS-SK46B toggle to the RAISE direction.

C. Adjust the Dahl 3FWS-SK46A bias control knob to above zero.

D. Energize the "B" TDAFW pump hydraulic jack by taking the selector switch at Main Board 5 to ON.

Question: 55

PLANT CONDITIONS:

- A reactor trip has occurred.
- The crew has just entered EOP 35 ES-0.1, REACTOR TRIP RESPONSE.
- PZR level is 25% and slowly decreasing.
- Steam Generator pressures are approximately 990 psig and slowly decreasing.
- Tave is 555°F and slowly decreasing.
- RCS pressure is 2020 psia and slowly decreasing.

What action must be taken by the crew per ES-0.1 to address the cooldown?

A. Throttle AFW flow.

B. Commence immediate boration.

C. Initiate SI and return to step 1 of E-0.

D. Close the MSIVs and MSIV bypass valves.

Question: 56

Given the following situation:

- The "D" Steam Generator is faulted outside of Containment upstream of the MSIVs.
- Both MDAFW Pumps are running.
- All 3 steam supply valves (3MSS*AOV31) to the TDAFW Pump turbine are open.
- All 4 MSIVs and bypass valves are closed.
- The crew is performing E-2 FAULTED STEAM GENERATOR ISOLATION, step 4.

What actions, if any, concerning the TDAFW pump must be taken?

A. No action is required, since the "D" SG does not supply the TDAFW Pump turbine.

B. No action is required, since the TDAFW Pump steam supply lines are downstream of the MSIVs.

C. Stop the TDAFW pump by isolating all 3 steam supply paths.

D. Close the TDAFW pump steam supply isolation valve from the faulted "D" SG.

Question: 57

Which of the following radiation monitors monitors for releases from Unit 3 and has automatic actions associated with it?

A. 3HVR*RE10A, Reactor Plant Ventilation Exhaust Monitor.

B. 3HVR-RE19B, SLCRS Exhaust to Unit 1 Stack.

C. 3SWP-RE60B, "B" RSS Heat Exchanger Service Water Outlet Monitor.

D. 3LWS-RE70, Liquid Rad Waste Discharge Monitor.

Question: 58

What daily check does the primary rounds operator make on the process gas receiver, and why is the check made?

A. Verifies radiation levels are within limits to ensure backflow of radioactive gas from the Unit 1 stack is not occurring.

B. Verifies radiation levels are within limits to minimize personnel exposure due to Oxygen-17 decay.

C. Verifies hydrogen and oxygen concentrations are within limits to ensure that flammable concentrations of do not exist.

D. Verifies hydrogen and oxygen concentrations are within limits to minimize corrosion in the process gas receiver.

Question: 59

The plant is in MODE 1. Spent Fuel is being transferred from one location in the fuel pool to another location in the fuel pool.

The alarm circuitry for one of the Fuel Pool area monitors fails. I&C is investigating. No other operator actions have been taken.

Which of the following describes the required ACTION, if any, to be taken regarding the fuel movement in progress?

A. No ACTION required, all LCOs are satisfied, fuel movement may continue.

B. Fuel movement may continue for up to 4 hours while repairing the failed instrument.

C. Fuel movement may continue for up to 72 hours.

D. Fuel movement must be suspended until an appropriate portable monitor is provided.

Question: 60

The plant is in MODE 5 after completing a refueling outage. The crew has drained the RCS to mid-loop conditions using OP 3270A REDUCED INVENTORY OPERATION in order to perform emergent work on a leaking RCS loop stop valve. The "A" train of RHR is in service with 1,000 gpm flow through RHR heat exchanger flow control valve 3RHS*HCV606.

An unexplained increase in RCS temperature is occurring, and the RO throttles open on RHR heat exchanger flow controller 3RHS*HC606.

What will happen to RHR flow through the "A" RHR heat exchanger?

A. Flow will remain the same since a stem locking device has been installed on 3RHS*HCV606 that limits flow to 1,000 gpm.

B. Flow will remain the same since power has been removed to 3RHS*HCV606 with flow set to 1,000 gpm.

C. Flow will increase to a maximum of 4,000 gpm, since this is the procedural flow limit while in reduced inventory operations.

D. Flow will decrease since vortexing will occur in the RHR suction piping from the RCS loop hot leg.

Question: 61

The plant is at 100% power in a normal electrical lineup. The "A" RHR pump is running for a surveillance run.

Which of the following describes the power supply path for the "A" RHR pump if a fast transfer occurs on the "A" train?

A.
- NSST "A" FEEDER - OPEN
- 34A/34C Bus Tie - CLOSED
- RSST "A" FEEDER - CLOSED

B.
- NSST "A" FEEDER - OPEN
- 34A/34C Bus Tie - OPEN
- RSST "A" FEEDER - CLOSED

C.
- NSST "A" FEEDER - CLOSED
- 34A/34C Bus Tie - CLOSED
- RSST "A" FEEDER - OPEN

D.
- NSST "A" FEEDER - CLOSED
- 34A/34C Bus Tie - OPEN
- RSST "A" FEEDER - OPEN

Question: 62

A rapid load reduction is being performed from 100% power. Shortly after the downpower is commenced, the pressurizer backup heaters energize even though spray valves are open.

Which of the following describes why the heaters are energized?

A. The pressurizer pressure controller is responding to the rate/lag compensated pressure channel inputs.

B. The controlling pressure channel has failed low.

C. The pressurizer level controller is responding to a greater than 5% outsurge from the downpower.

D. The pressurizer level controller is responding to a greater than 5% insurge from the downpower.

Question: 63

Pressurizer level transmitter LT459 is selected for control when its variable leg develops a leak near the transmitter.

Which of the following describe anticipated instrument or plant response?

	LT-459 PZR Level Indication	LT-460 & 461 PZR Level Indication	VCT Level
A.	Increasing	Decreasing	Increasing
B.	Decreasing	Increasing	Increasing
C.	Increasing	Decreasing	Decreasing
D.	Decreasing	Increasing	Decreasing

Question: 64

With the plant at 100% power, power range channel N41 fails low.

How are power range N41 HI FLUX and RATE TRIP bistables placed in the trip condition?

A. The control power fuses are removed from the Power Range N41 drawer.

B. The instrument power fuses are removed from the Power Range N41 drawer.

C. The Comparator Channel Defeat switch is taken to the N41 position at the Comparator and Rate Drawer.

D. An I&C technician trips the bistables from the instrument rack room.

Question: 65

Control Bank "D" rods were at 200 steps when one of the Bank "D", Group 1 rods dropped. The crew has entered AOP 3552 MALFUNCTION OF THE ROD DRIVE SYSTEM, and is currently recovering the dropped rod.

During the recovery of the rod, a "Bank D Full Rod Withdrawal" alarm is received on MB4C.

Which of the following describes the required response by the crew?

A. Stop the recovery and check the rod disconnect switches. Another Bank D rod is likely moving.

B. Stop the recovery and match Tave to Tref. Verify SHUTDOWN MARGIN is adequate.

C. Continue the alignment. This annunciator is expected since the bank overlap unit still receives the outward demand signal.

D. Continue the alignment. This annunciator is expected since the P/A converter still receives the outward demand signal .

Question 66

Plant operating at 100% power.

Loop 1 narrow range Thot fails HIGH.

Which of the statements describes the response of loop 1 OPΔT and OTΔT setpoints?

A. - OPΔT setpoint DOES NOT CHANGE.
- OTΔT setpoint DECREASES.

B. - OPΔT setpoint INCREASES.
- OTΔT setpoint DOES NOT CHANGE.

C. - OPΔT setpoint DECREASES.
- OTΔT setpoint DECREASES.

D. - OPΔT setpoint INCREASES.
- OTΔT setpoint INCREASES.

Question: 67

A CDA occurred and the crew is progressing through the EOP network. The CTMT Recirc (RSS) pumps have just started, and the RO is verifying that equipment is in the desired lineup.

What should be the position of the RPCCW heat exchanger service water inlet isolation valves (3SWP*MOV50A/B), and the service water inlet valves to the containment recirc coolers (3SWP*MOV54A/B/C/D)?

A. Both the RPCCW heat exchanger service water inlet isolation valves and the service water inlet valves to the containment recirc coolers should be OPEN.

B. The RPCCW heat exchanger service water inlet isolation valves should be OPEN and the service water inlet valves to the containment recirc coolers should be CLOSED.

C. The RPCCW heat exchanger service water inlet isolation valves should be CLOSED and the service water inlet valves to the containment recirc coolers should be OPEN.

D. Both the RPCCW heat exchanger service water inlet isolation valves and the service water inlet valves to the containment recirc coolers should be CLOSED.

Question: 68

Which automatic actions occur on high radiation inside containment as detected by RMS-41 or RMS-42?

A. If running, the CAR fans trip.

B. CTMT Isolation Phase "A" (CIA) actuates.

C. The CTMT Purge Supply and Exhaust Valves close.

D. If running, the Containment Purge Fans trip.

Question: 69

With the plant at 100% power, the seal fails in the gate between the spent fuel pool and the empty transfer canal. Level in the spent fuel pool starts to slowly decrease, and the "Fuel Pool Level Lo" annunciator comes in at MB1.

What will be the first source of makeup water supplied to the spent fuel pool?

A. Water will be manually made up from the primary grade water system.

B. Water will be manually made up from RWST.

C. Water will be automatically made up from the primary grade water system.

D. Water will be automatically made up from the RWST.

Question: 70

The unit is at 25% power when the "A" MSIV inadvertently closes during partial stroke testing.

Assuming the reactor does not immediately trip, which of the following parameters would show an INITIAL DECREASE following the "A" MSIV closure?

A. "A" Steam Generator level.

B. "A" RCS Loop Cold Leg temperature.

C. "B" RCS Loop ΔT.

D. Rod insertion limit.

Question: 71

PARAMETER:	CURRENT VALUE:	TREND:
Reactor power	58%	Increasing
RCS pressure	2225 PSIA	Decreasing
Auctioneered high Tave	569°F	Decreasing
Turbine power	595 MWe	Decreasing
S/G NR levels	52%	Increasing
Steam pressure	1030 PSIG	Decreasing
Containment pressure	15 PSIA	Increasing

Based on the plant conditions, which of the following events is in progress?

A. Small LOCA

B. Steamline break

C. Continuous rod withdrawal

D. Steam generator tube rupture

Question: 72

The plant is operating at 100% power.
A large tube leak occurs in the "A" Steam Generator.
Air Ejector Radiation Monitor, 3ARC-RE21, goes into alarm.

How will the Blowdown System respond to the Air Ejector Radiation Monitor, 3ARC-RE21, alarm?

A. A close signal will be sent to all Steam Generator blowdown flow control valves (3BDG-HV20A-D).

B. No response; blowdown from the affected Steam Generator is isolated, so the monitor will not detect the event.

C. No response; automatic functions associated with 3ARC-RE21 have been bypassed.

D. A close signal will be sent to all Steam Generator blowdown containment isolation valves (3BDG*CTV22A-D).

Question: 73

With the plant operating at 100% in a normal electrical lineup, the "Bus 34A Differential" alarm is received on MB8.

What will be the expected electrical distribution response as a result of the 34A differential?

A. Bus 34A de-energizes, bus 34C slow transfers to the RSST.

B. 34C fast transfer to the RSST, the tie breaker remains closed allowing 34A to remain energized.

C. Bus 34A de-energizes, bus 34C is powered from the "A" emergency diesel.

D. Bus 34A deenergizes, bus 34C fast transfers to RSST.

Question: 74

The plant has tripped and the crew is in EOP 35 ES-0.1 REACTOR TRIP RESPONSE. Numerous MB8 annunciators are received and the BOP operator reports that the Battery 1 DC volt meter indicates zero volts.

How will the loss of DC Bus 301A-1 affect the "A" Emergency Diesel (EDG)?

A. The "A" EDG auto-started as soon and the DC bus was lost.

B. If an LOP occurs, the "A" EDG will not auto-start, but can still be started from MB8.

C. The "A" EDG can only be started locally using the air start valve levers.

D. The "A" Train Sequencer is not energized.

Question: 73

PLANT CONDITIONS:

* The "A" EGLS is in "Test 1"
* A "CDA" test is being conducted.
* Charging pump "A" is in "Test"
* All other components are in "Inhibit"
* The "B" Charging pump is running.

A valid "SIS" signal is received.

How will the "A" EGLS respond?

A. The EGLS sees both inputs, prioritizes CDA, and starts all equipment except charging pump "A".

B. The EGLS sees both inputs, prioritizes CDA, and starts only charging pump "A".

C. The EGLS comes out of CDA Test and responds to the SIS signal by starting all equipment except charging pump "A".

D. The EGLS comes out of CDA Test and responds to the SIS signal by starting all equipment including charging pump "A".

Question: 76

Approximately 1 hour ago, a radiation release to the environment occurred at MP3. Control Room Makeup Air Supply Radiation Monitors 3HVC-RE16A and B have "high" alarmed, resulting in a CBI signal. Currently, the crew is aligning the Control Room Pressure Envelope Emergency Ventilation System for recirculation with outside filtered air.

What will be the relationship between control room pressure and atmospheric (outside air) pressure while in operation with recirculated outside filtered air?

A. Control Room pressure will be equal with outside air pressure.

B. Control Room pressure will be greater than outside air pressure.

C. Control Room pressure will be at a set pressure independent of outside air pressure.

D. Control Room pressure will be less than outside air pressure.

Question: 77

What is the purpose of manually tripping the circ water pumps on a containment depressurization actuation signal?

A. To prevent pump damage due to the loss of lube water.

B. To minimize plant electric load as the turbine is tripped.

C. To support the shutdown of unnecessary plant equipment.

D. Maximize Service Water flow to the ESF loads.

Question: 78

The secondary rounds PEO reports an air leak on the instrument air ring header in the turbine building. The RO reports that instrument air header pressure is at 91 psig and decreasing slowly.

The RO is observing instrument air pressure for indications of service air to instrument air cross tie valve 3IAS-AOV14 opening and service air supply valve 3SAS-AOV33 closing.

If the added capacity of the service air compressor is capable of compensating for the leak, how should instrument air header pressure respond prior to any local actions by PEOs?

A. IAS pressure will continue to drop, since local actions by a PEO is required to align 3IAS-AOV14 and 3SAS-AOV33 to supply instrument air.

B. When IAS header pressure lowers to 80 psig, pressure will start to recover since 3IAS-AOV14 opens. Pressure will to drop again when IAS header pressure increases to 85 psig, when 3SAS-AOV33 reopens. Pressure will then cycle between 80 and 85 psig.

C. When IAS header pressure lowers to 85 psig, pressure will start to recover as 3IAS-AOV14 and 3SAS-AOV33 realign. Pressure will start to drop again when IAS header pressure increases to 103 psig, since the valves will realign to their original positions.

D. When IAS header pressure lowers to 85 psig, pressure will start to recover as 3IAS-AOV14 and 3SAS-AOV33 realign. Pressure will start to drop again when IAS header pressure increases to 110 psig, since the running instrument air compressors will unload.

Question: 79

A deep seated fire started 10 minutes ago in the computer room, and the Halon system automatically actuated. The crew desires to enter the computer room prior to ventilating the area in order to inspect for damage.

Which of the following is in accordance with the Halon related precautions of OP 3341B FIRE PROTECTION HALON SYSTEM?

A. The computer room may be ventilated now since ten minutes is adequate to ensure that a deep seated fire is out.

B. A self contained breathing apparatus must be used for entry.

C. A filter type or canister mask may be used for entry.

D. The area may be entered alone.

Question: 80

A large break LOCA has occurred. While performing EOP 35 ES-1.3 TRANSFER TO COLD LEG RECIRCULATION, the crew has improperly performed a step and the RSS to RHR cross-connect valve 3RSS*MV8837B fails to open from MB2.

Which of the following conditions could be preventing 3RSS*MV8837B from opening?

A. The RHR to SI cross-connect valve (3RHS*MV8804B) is closed.

B. The RSS to RHR cross-connect valve (3RSS*MV8838B) is open.

C. The RWST suction isolation valve (3RHS*MV8812B) is open.

D. RHR pump suction valve (3RHS*MV8702B) is closed.

Question: 81

The plant is being cooled down per OP 3208 PLANT COOLDOWN.
The operating crew is preparing to align the "B" RHR train for cooldown.

The crew is directed to OP 3330A REACTOR PLANT COMPONENT COOLING WATER to align the RPCCW system for plant cooldown operations.

Aligning RPCCW for cooldown operations will help prevent exceeding:

A. 8100 gpm through the RPCCW heat exchanger.

B. RPCCW Containment header flow limit.

C. 140°F on the RPCCW return line from the RHR heat exchanger.

D. RPCCW pump runout limit.

Question: 82

During a refueling outage, a surveillance is performed on the Trisodium phosphate (TSP) is stored in on the floor or in containment. The surveillance fails due to the TSP being below the minimum allowed volume.

If a LOCA had occurred prior to shutting the plant down for refueling, what adverse effect could the low TSP volume have had on the accident?

A. Excessive crud deposits from the RCS would increase post-LOCA radiological hot spots.

B. Excessive corrosion in CTMT, and excessive radioactive iodine in the CTMT atmosphere.

C. Excessive radiolytic decomposition of CTMT sump water, raising post-LOCA CTMT hydrogen concentration.

D. Excessive clogging of the ESF sump screens during long term recirculation of CTMT sump water.

Question: 83

Following a design basis LOCA, the "A" hydrogen recombiner is placed in service, but CTMT hydrogen concentration continues to increase.

Which of the following describes how hydrogen recombiner gas heater power requirements change as CTMT hydrogen concentration increases?

A. Heater power will decrease as hydrogen concentration increases.

B. Heater power will increase as hydrogen concentration increases.

C. Heater power does not change since it is not related to hydrogen concentration.

D. Heater power does not change since heater power is not variable.

Question: 84

What is the purpose of the upload limit interlock on the new fuel elevator?

A. Prevent dropping a new fuel assembly from excessive heights should the elevator cable fail.

B. Prevent raising an irradiated fuel assembly so that the minimum required depth of water shielding is maintained.

C. Prevent raising the elevator guide rollers out of the water, since the rollers are water lubricated.

D. Prevent raising the elevator when either cable binding is taking place or an obstruction is in the cart's path.

Question: 85

With the plant initially at 100% power, a safety injection occurs. CTMT pressure has reached 20 psia and the crew is checking the ESF status panel at E-0, step 14. The following valves are all noted to be OPEN:

- Service water supply to TPCCW 3SWP*MOV71A
- Service water supply to RPCCW 3SWP*MOV50A
- Service water return from the EDG 3SWP*AOV39A

What action, if any, should the crew take regarding these three valves?

A. Leave all of the valves in their current positions.

B. CLOSE service water supply to TPCCW 3SWP*MOV71A.

C. CLOSE service water supply to RPCCW 3SWP*MOV50A.

D. CLOSE service water return from the EDGs 3SWP*AOV39A.

Question: 86

A station blackout is in progress and the only source of power is the SBO diesel, supplying the "B" Train electrical busses.

Which of the following SBO diesel trip conditions is bypassed during this emergency operation?

A. Primary lockout relay tripped.

B. High water temperature.

C. Low lube oil pressure.

D. Engine overspeed.

Question: 87

Which of the following describes why RCPs are tripped during E-0 REACTOR TRIP OR SAFETY INJECTION step 11 "Check if CDA Required", if a CDA has actuated?

A. Prevents excessive RCS inventory loss.

B. Minimizes the energy released to containment.

C. Protects the RCPs due to a loss of cooling.

D. Minimizes heat input into the RCS.

Question: 88

The crew is preparing to perform a surveillance using a "General Level of Use" procedure.

Which of the following describes the procedure performance requirements for this procedure?

A. The user must read each step just prior to performing that step.

B. The user must reference the procedure after each step to verify that each step has been performed correctly.

C. The user may read as many steps as can be easily remembered , and then perform the steps as remembered.

D. The user does not need to reference the procedure before or during the activity as long as his or her level of proficiency has been maintained.

Question: 89

A PEO is sent out to perform an independent verification of a valve lineup. During the verification, the PEO finds a valve closed that is required to be open.

Which one of the following actions is required?

A. Do not reposition the valve, document the wrong position on the valve lineup sheet, and continue with the verification.

B. Reposition the valve, initial the appropriate box on the valve lineup sheet, and continue with the verification.

C. Do not reposition the valve, and immediately notify the Shift Manager or Unit Supervisor of the discrepancy.

D. Reposition the valve, and then notify the Shift Manager or Unit Supervisor of the discrepancy.

Question: 90

INITIAL CONDITIONS:

- The plant is in MODE 5.
- The pressurizer is solid.

What action would the RO take to lower RCS pressure?

A. Place an additional letdown orifice in service.

B. Throttle open auxiliary spray valve 3CHS*AV8145.

C. Throttle open RHR to letdown flow control valve 3CHS*HCV128.

D. Throttle open letdown pressure control valve 3CHS*PCV131.

Question: 91

Which one of the following temporary installations in the plant would require a temporary modification tag to be installed on it per WC10 TEMPORARY MODIFICATIONS?

A. A leaking relief valve on the "A" auxiliary boiler has been gagged shut.

B. A hose has been connected from a service air connection to a temporary sump pump in the main condenser pit.

C. Plastic sheeting has been installed over a Water Treating system pump to protect it from rain water.

D. A drain hose has been connected from a Service Water pipe to a floor drain.

Question: 92

With the plant at 100% power, which of the following RCS temperature / pressure combinations has the greatest potential to violate the Technical Specification Safety Limit for DNB?

A. Low RCS temperature with low RCS pressure.

B. Low RCS temperature with high RCS pressure.

C. High RCS temperature with low RCS pressure.

D. High RCS temperature with high RCS pressure.

Question: 93

The US informs the RO that Safety Injection pump 3SIH*P1A failed its surveillance and the associated ACTION STATEMENT must be entered.

In accordance with OP 3000 CONDUCT OF OPERATIONS, what process is <u>required</u> to track the status of the ACTION STATEMENT?

A. The RO will generate a CR that will be reviewed and approved by the SM.

B. The RO will notify the work control SRO of the ACTION STATEMENT.

C. The RO will notify the system engineer, who will generate an Allowed Outage Time form.

D. The RO will enter the ACTION STATEMENT into the shift log.

Question: 94

A PEO has the following dose history:

- Total lifetime exposure: 1,100 mrem TEDE
- Current year's exposure: 50 mrem TEDE
- No authorizations have been given for extending his administrative dose limit.

While performing a valve lineup in the Auxiliary Building pipe chase area, the PEO is not informed of a demin resin slurry transfer taking place. The PEO receives a dose of 2,500 mrem.

Which of the following is true concerning the PEO's annual dose limits?

A. The dose is within both the annual NU admin limit and the federal limit.

B. The dose exceeds the annual NU admin limit but is within the federal limit.

C. The dose is within the annual NU admin limit but exceeds the federal limit.

D. The dose exceeds both the annual NU admin limit and the federal limit.

Question 95

A Site Area Emergency has been declared due to a LOCA outside CTMT. The LOCA is into the ESF building, a pathway to the environment exists, and limited makeup to the RWST is available. An operator is sent in to the ESF building to locally isolate the leak. This action has all of the required approvals, and would result in a significant reduction in offsite dose.

The operator has a total lifetime exposure of 4200 mrem TEDE and an exposure for the current year of 200 mrem.

What is the maximum exposure the operator may receive while performing this action?

A. 800 mrem TEDE

B. 4800 mrem TEDE

C. 23800 mrem TEDE

D. 25000 mrem TEDE

Question: 96

During an emergency condition after exiting E-0 the RO reports the following conditions:

- Containment - ORANGE path
- Core cooling - RED path
- Heat sink - RED path
- Integrity - ORANGE path

Select the order in which the above conditions should be addressed.

A. Core Cooling, Heat Sink, Containment, Integrity.

B. Core Cooling, Heat Sink, Integrity, Containment.

C. Heat Sink, Core Cooling, Containment, Integrity.

D. Heat Sink, Core Cooling, Integrity, Containment.

Question: 97

A small break LOCA has occurred and no high head injection pumps are running. CETCs are at 1220°F and the operating shift is responding in accordance with the appropriate response procedure.

Which of the following lists the recovery strategies in the correct sequence for the condition?

A. Start ECCS, depressurize RCS, depressurize secondary, start RCPs.

B. Start ECCS, depressurize secondary, start RCPs, depressurize RCS.

C. Depressurize secondary, start ECCS, depressurize RCS, start RCPs.

D. Depressurize secondary, depressurize RCS, start RCPs, start ECCS.

Question: 98

The crew has entered AOP 3561 LOSS OF REACTOR PLANT COMPONENT COOLING WATER. The "B" RPCCW pump has tripped, and the "C" pump can not be started.

Why does the AOP direct the crew to isolate auxiliary steam to the auxiliary building in this situation?

A. Minimizes the potential for a degassifier trip.

B. Minimizes the potential for a boron evaporator trip.

C. Minimizes the potential for an auxiliary boiler trip.

D. Minimizes the potential for an uncontrolled radiation release.

Question: 99

A loss of all service water has occurred, and the crew has entered AOP 3560 LOSS OF SERVICE WATER. No service water pumps can be started, and the crew isolates letdown and trips the reactor.

Which local PEO actions also required by the AOP under these conditions?

A. Trip all RCPs from the 6.9KV switchgear.

B. Start all traveling water screens in fast speed at the intake structure.

C. Isolate seal injection at the Auxiliary Building 4 foot level.

D. Establish feed and bleed to the charging pump cooling system.

Question: 100

With the plant at 100% power, a GEN CORE MONITOR LEVEL HI annunciator comes in on Main Board 7. The dispatched PEO reports back that the local trace had dropped fairly rapidly from 90% to 5%. The US directs the PEO to depress the "FILTER" pushbutton and report the results. The PEO reports that the trace returned to 90% with the FILTER pushbutton depressed.

What action should the crew take?

A. Trip the reactor and go to E-0 REACTOR TRIP OR SAFETY INJECTION, since generator hydrogen purity is low.

B. Trip the reactor and go to E-0 REACTOR TRIP OR SAFETY INJECTION, since generator overheating is occurring.

C. Submit a Trouble Report, since indication of core monitor filter clogging exists.

D. Submit a Trouble Report, since indication of core monitor instrument degradation exists.

U.S.N.R.C. Site-Specific Written Examination
Millstone Station, Unit 3
Reactor Operator

Name:_____

1.	A	B	C	D	26.	A	B	C	D
2.	A	B	C	D	27.	A	B	C	D
3.	A	B	C	D	28.	A	B	C	D
4.	A	B	C	D	29.	A	B	C	D
5.	A	B	C	D	30.	A	B	C	D
6.	A	B	C	D	31.	A	B	C	D
7.	A	B	C	D	32.	A	B	C	D
8.	A	B	C	D	33.	A	B	C	D
9.	A	B	C	D	34.	A	B	C	D
10.	A	B	C	D	35.	A	B	C	D
11.	A	B	C	D	36.	A	B	C	D
12.	A	B	C	D	37.	A	B	C	D
13.	A	B	C	D	38.	A	B	C	D
14.	A	B	C	D	39.	A	B	C	D
15.	A	B	C	D	40.	A	B	C	D
16.	A	B	C	D	41.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
Millstone Station, Unit 3
Reactor Operator

Name:_____

51.	A	B	C	D	76.	A	B	C	D
52.	A	B	C	D	77.	A	B	C	D
53.	A	B	C	D	78.	A	B	C	D
54.	A	B	C	D	79.	A	B	C	D
55.	A	B	C	D	80.	A	B	C	D
56.	A	B	C	D	81.	A	B	C	D
57.	A	B	C	D	82.	A	B	C	D
58.	A	B	C	D	83.	A	B	C	D
59.	A	B	C	D	84.	A	B	C	D
60.	A	B	C	D	85.	A	B	C	D
61.	A	B	C	D	86.	A	B	C	D
62.	A	B	C	D	87.	A	B	C	D
63.	A	B	C	D	88.	A	B	C	D
64.	A	B	C	D	89.	A	B	C	D
65.	A	B	C	D	90.	A	B	C	D
66.	A	B	C	D	91.	A	B	C	D
67.	A	B	C	D	92.	A	B	C	D
68.	A	B	C	D	93.	A	B	C	D
69.	A	B	C	D	94.	A	B	C	D
70.	A	B	C	D	95.	A	B	C	D
71.	A	B	C	D	96.	A	B	C	D
72.	A	B	C	D	97.	A	B	C	D
73.	A	B	C	D	98.	A	B	C	D
74.	A	B	C	D	99.	A	B	C	D
75.	A	B	C	D	100.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
Millstone Station, Unit 3
Reactor Operator

Name: KEY

RO

1.	A	B	C	●	26.	A	●	C	D
2.	A	●	C	D	27.	A	B	C	●
3.	A	●	C	D	28.	A	B	C	●
4.	●	B	C	D	29.	A	B	C	●
5.	A	B	●	D	30.	A	●	C	D
6.	A	B	●	D	31.	●	B	C	D
7.	●	B	C	D	32.	●	B	C	D
8.	A	B	●	D	33.	A	●	C	D
9.	●	B	C	D	34.	A	B	●	D
10.	A	B	C	●	35.	A	B	C	●
11.	A	B	C	●	36.	A	B	C	●
12.	●	B	C	D	37.	A	B	●	D
13.	A	B	●	D	38.	A	B	●	D
14.	●	B	C	D	39.	A	●	C	D
15.	A	B	C	●	40.	A	B	C	●
16.	●	B	C	D	41.	A	●	C	D
17.	A	B	C	●	42.	A	●	C	D
18.	A	●	C	D	43.	●	B	C	D
19.	A	B	●	D	44.	A	B	●	D
20.	A	B	●	D	45.	A	B	●	D
21.	A	●	C	D	46.	●	B	C	D
22.	●	B	C	D	47.	●	B	C	D
23.	A	B	●	D	48.	A	B	C	●
24.	A	●	C	D	49.	●	B	C	D
25.	A	B	●	D	50.	A	B	C	●

U.S.N.R.C. Site-Specific Written Examination
Millstone Station, Unit 3
Reactor Operator

Name: KEY

51.	A	●	C	D	76.	A	●	C	D
52.	A	●	C	D	77.	●	B	C	D
53.	A	B	C	●	78.	A	B	●	D
54.	A	●	C	D	79.	A	●	C	D
55.	●	B	C	D	80.	A	B	●	D
56.	A	B	C	●	81.	A	B	●	D
57.	A	B	C	●	82.	A	●	C	D
58.	A	B	●	D	83.	●	B	C	D
59.	A	B	C	●	84.	A	●	C	D
60.	●	B	C	D	85.	●	B	C	D
61.	●	B	C	D	86.	A	●	C	D
62.	A	B	C	●	87.	A	B	●	D
63.	A	B	C	●	88.	A	B	●	D
64.	●	B	C	D	89.	A	B	●	D
65.	A	B	C	●	90.	A	B	C	●
66.	A	B	●	D	91.	●	B	C	D
67.	A	B	●	D	92.	A	B	●	D
68.	A	B	●	D	93.	A	B	C	●
69.	A	●	C	D	94.	A	●	C	D
70.	●	B	C	D	95.	A	B	C	●
71.	A	●	C	D	96.	A	●	C	D
72.	A	B	●	D	97.	A	●	C	D
73.	●	B	C	D	98.	A	B	C	●
74.	A	B	●	D	99.	A	B	C	●
75.	A	B	C	●	100.	A	●	C	D