MASTER

SUMMER 99-301

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

Applicant Information	
Name:	Region: II
Date: 10/5/99	Facility/Unit: V. C. SUMMER
License Level: RO	Reactor Type: W
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	100 Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

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POLICIES AND GUIDELINES FOR TAKING NRC EXAMINATIONS

PART A - GENERAL GUIDELINES

1. Cheating on any part of the examination will result in a denial of your application and/or action against your license.

2. If you have any questions concerning the administration of any part of the examination, do not hesitate asking them before starting that part of the test.

4. SRO applicants will be tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor, or whatever the title of the position may be).

5. You must pass every part of the examination to receive a license or to continue performing license duties. Applicants for an SRO-upgrade license may require remedial training in order to continue their RO duties if the examination reveals deficiencies in the required knowledge and abilities.

6. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all the examinations are complete.

PART B - WRITTEN EXAMINATION GUIDELINES

1. After you complete the examination, sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination.

2. To pass the examination, you must achieve a grade of 80.00 percent or greater; grades will not be rounded up to achieve a passing score. Every question is worth one point.

3. For an initial examination, the time limit for completing the examination is five hours.

4. You may bring pens, pencils, and calculators into the examination room. Use black ink to ensure legible copies; dark pencil should be used only if necessary to facilitate machine grading.

5. Print your name in the blank provided on the examination cover sheet and the answer sheet. You may be asked to provide the examiner with some form of positive identification.

6. Mark your answers on the answer sheet provided and do not leave any question blank. Use only the paper provided and do not write on the back side of the pages. If you are using ink and decide to change your original answer, draw a single line through the error, enter the desired answer, and initial the change.

7. If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate asking them before answering the question. Ask questions of the NRC examiner or the designated facility instructor *only*. When answering a question, do *not* make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question. For example, you should not assume that any alarm has activated unless the question so states or the alarm is expected to activate as a result of the conditions that are stated in the question.

8. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.

9. When you complete the examination, assemble a package including the examination questions, examination aids, answer sheets, and scrap paper and give it to the NRC examiner or proctor. Remember to sign the statement on the examination cover sheet indicating that the work is your own and that you have neither given nor received assistance in completing the examination. The scrap paper will be disposed of immediately after the examination.

10. After you have turned in your examination, leave the examination area as defined by the proctor or NRC examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.

11. Do you have any questions?

NRC Reactor Operator Licensing Examination

Summer

Question: 1

Given the following.

- The plant was initially at 100% power when a Reactor Trip occurred.
- The CRS implemented EOP-1.0, "Reactor Trip/Safety Injection Actuation", and the NROATC & BOP performed their immediate Operator Actions.
- During the event, the NROATC reports that one PZR PORV opened.
- The NROATC closed the one open PORV when PZR pressure decreased to 1825 psig.
- No other operator actions have been taken to this point.

Plant conditions are now as follows:

- Charging flow on flow indicator FI-122 is 85 gpm
- Letdown flow on FI-150 is 105 gpm
- RCS pressure is 1900 psig and increasing
- Charging pressure is 2735 psig
- VCT level is 35 % and stable.

Given the plant conditions above, which one of the following describes SI status and the required crew response?

A NOT initiated and is NOT required. The crew should transition to EOP-1.1, "Reactor Trip Recovery", to stabilize the plant.

B Automatically initiated but is not required. The crew should manually initiate SI and continue in EOP-1.0 until SI can be terminated.

C Automatically initiated and is required. The crew should manually initiate SI and continue in EOP1.0.

D NOT initiated but is required. The crew should manually initiate SI and continue in EOP-1.0.

NRC Reactor Operator Licensing Examination

Summer

Question: 2

The following plant conditions exist:

- The initial startup is in progress, per GOP-4, out of Refueling Outage 11.
- The reactor is initially at 12 - 15% power with all initial conditions of GOP-4 complete.
- The Main Turbine has not been rolled to 1800 rpm.
- Trips associated with Permissive P-10 have been blocked.
- Fouling of the circ water screens has caused a reduction in condenser flow.
- Condenser vacuum decreases to indicate 6.0 inches Hg absolute .

Assuming no operator action, choose the statement below which describes the effect on the plant.

A The reactor will trip on OTDT.

B The reactor will trip on NIS PR HI FLUX HI Setpoint.

C RCS temperature will increase until auxiliary steam loads and ambient losses equal RCP heat input

D RCS temperature will increase until Steam Generator safeties or SG PWR reliefs open.

NRC Reactor Operator Licensing Examination

Summer

Question: 3

Given the following:

- The plant is operating at 75% power with normal lineup for performing a calorimetric.
- During the calorimetric, the NROATC is in the process of adjusting N-44 when a turbine trip occurs.
- PT-446, turbine 1st stage impulse chamber pressure, fails high when the turbine trips.
- The reactor does not trip automatically, and an attempt to manually trip the reactor is unsuccessful.
- Tavg is 584 °F and increasing.
- The CRS directs the NROATC to use the preferred method of rod insertion for these conditions.

Based on these conditions, the NROATC should:

A Switch to manual from automatic and insert rods.

B Stay in manual and insert rods.

C Stay in automatic until rod speed drops below 48 steps/min, then insert rods in manual.

D Switch to automatic from manual until rod speed drops below 48 steps/min, then insert rods in manual.

NRC Reactor Operator Licensing Examination

Summer

Question: 4

EOP-6.0, " Loss of All ESF AC Power", should be entered if both Diesel Generators are unavailable for starting, coincident with which of the following set of conditions?

A Trip of the 1DA normal incoming breaker, and loss of Parr 115 KV line.

B 1DB overcurrent lockout (51BX-1DB) not reset, and trip/lockout of OCB-8892.

C Trip of 1DB normal incoming breaker, and loss of Parr 115 KV line.

D 1DA overcurrent lockout (51BX-1DA) not reset, and loss of Parr 115 KV line

NRC Reactor Operator Licensing Examination

Summer

Question: 5

Given the following conditions:

- The plant is at 100% power during an A1 maintenance week.
- APN-5901 has been transferred to APN-1FA while work is in progress on XIT-5901.
- The normal feeder breaker for bus 1DA trips open due to a fault in the trip coil.
- "A" DG is tagged out for cylinder inspection.
- The CRS implements AOP-304.1,"Loss of Bus 1DA With the Diesel Not Available", and has reenergized 1DA from alternate power.

Which ONE (1) of the following describes how the "A" Train ESFLS will operate when reenergized locally?

A Loads will be shed and the ESFLS will resume sequencing.

B Loads will be shed, then the ESFLS will be prevented from operating.

C Loads will NOT be shed and the ESFLS will resume sequencing.

D Loads will NOT be shed and the ESFLS will be prevented from operating.

NRC Reactor Operator Licensing Examination

Summer

Question: 6

The following conditions exist:

- A reactor trip without SI has occurred.
- The operators are implementing EOP-1.0, " Reactor Trip /Safety Injection", immediate operator actions.
- A check of rod position indications shows that one control rod has not fully inserted.
- Tavg is stable at 557 °F.
- The operators continue with the procedure without taking action concerning the stuck rod.

Given the conditions above, why is Emergency Boration NOT required at this time?

A Emergency boration will be accomplished following the transition to EOP-1.1, "Reactor Trip Recovery."

B Maintaining adequate shutdown margin is ONLY a concern following a reactor trip with RCS temperature less than 557 °F and decreasing.

C At least three control rods must be stuck to affect shutdown margin to the extent that emergency boration is required.

D Adequate shutdown margin will be maintained in the event of an uncontrolled cooldown.

NRC Reactor Operator Licensing Examination

Summer

Question: 7

Given the following:

With the plant operating at 80 percent power, a reactor trip has occurred.

The control room operators have been directed to EOP-4.0, "Steam Generator Tube Rupture", for the symptoms of a SGTR.

As part of isolating the ruptured S/G, the associated S/G PWR RELIEF Controller Setpoint has been adjusted from 8.4 to 8.85.

Which ONE (1) of the following describes the bases for why the ruptured S/G PWR RELIEF setpoint is adjusted?

A Allows the lowering of the ruptured S/G pressure in preparation for rapid RCS cooldown and backfill.

B Allows for a higher S/G pressure prior to opening the S/G PWR RELIEF, to reduce primary -to-secondary leakage.

C Prevents the S/G PWR RELIEF from opening, as ruptured S/G pressure cannot increase above 1150 psig during an SGTR.

D Minimizes S/G PWR RELIEF operation, while preventing S/G Code Safety Valves from opening.

NRC Reactor Operator Licensing Examination

Summer

Question: 8

The control room operators are responding to a reactor trip without SI. They have verified automatic actuations and have ensured that the primary system will stabilize at no-load conditions. All AC buses are energized by offsite power.

Considering the conditions just described, which of the following explains why the steam pressure mode is preferred over the Tavg mode for condenser steam dump control?

A The steam pressure mode does not require a separate arming signal to operate the steam dumps.

B The steam pressure mode gives more precise control of S/G pressure, and therefore, Tavg.

C The steam pressure mode provides extra protection against excessive cooldown.

D The Tavg mode will eventually be disabled when RCS temperature goes below 552 °F.

NRC Reactor Operator Licensing Examination

Summer

Question: 9

Given the following:

- The reactor trips from 100% power without SI at time 1315.
- The control room operators take actions IAW the appropriate procedure(s) and obtain the required plant/system/component response.
- At 1350, a control room operator checks the NIS instrumentation.
- IR power is indicating 10E-3 % on both channels.
- The SR high flux trips are still blocked.

Which ONE (1) of the following describes the status of nuclear flux for these conditions.

A Neutron flux is as expected, but the SR trip should have reinstated by now (1350).

B Neutron flux decrease is as expected for SR trip reinstatement at approximately 1355.

C Neutron flux is abnormally low for this point in time. SR trips will probably not reinstate before 1405.

D Neutron flux is abnormally high for this point in time. SR trips should have reinstated at approximately 1335.

NRC Reactor Operator Licensing Examination

Summer

Question: 10

The following plant conditions exist:

- Refueling operations are in progress.

- The FUEL XFER CANAL LVL HI/LO annunciator is actuated.

- The level in the fuel transfer canal is 460 feet and decreasing.

The Fuel Handling SRO suspends refueling and orders evacuation of the area because the water level is no longer sufficient to:

A Limit the maximum velocity of the spent fuel shipping cask to an impact velocity of 22 ft/sec.

B Remove 99% of the fission gas activitity that migrates through the fuel clad.

C Limit the maximum velocity of a dropped fuel assembly to an impact velocity of 44 ft/sec.

D Limit the maximum dose rate at the spent fuel pool surface to 2.5 mr/hr during transfer operations.

NRC Reactor Operator Licensing Examination

Summer

Question: 11

Given the following:

- The plant is operating at 100% power with all control systems in automatic.
- A significant leak develops in the controlling SG "C" LT-496 reference leg.
- The condensing pot is unable to keep up with the leak.

Which ONE (1) of the following describes the response of the plant assuming no operator action.

A The actual "C" S/G level will increase but MFP speed will decrease to prevent exceeding the S/G Hi-Hi turbine trip setpoint.

B The actual "C" S/G level will decrease but MFP speed will increase to prevent exceeding the S/G Lo-Lo trip setpoint.

C The reactor will trip on S/G "C" Lo-Lo level.

D The turbine will trip on S/G "C" Hi-Hi level, causing a reactor trip.

NRC Reactor Operator Licensing Examination

Summer

Question: 12

Which ONE (1) of the following correctly compares the severity of the plant pressure transient produced by a pegged HIGH failure of pressurizer pressure detector PT-444 versus the severity of the plant pressure transient produced by the same failure of PT-445?

Assume that the plant is stable at full power with all controls in AUTO prior to each failure, and the failures occur separately. NO operator response action is taken in either case.

A The pressure drop rate will be larger for the PT-444 failure, and the final plant pressure will be lower for the PT-444 failure.

B The pressure drop rate will be smaller for the PT-444 failure, but the PT-444 failure will result in a lower final plant pressure.

C The pressure drop rate will be larger for the PT-445 failure, and the final plant pressure will be lower for the PT-445 failure.

D The pressure drop rate will be smaller for the PT-445 failure, but the PT-445 failure will result in a lower final plant pressure

NRC Reactor Operator Licensing Examination

Summer

Question: 13

Given the following:

- A reactor trip has occurred due to a loss of offsite power .
- SI did NOT actuate. Bus 1DA is re-energized by the "A" D/G.
- The "B" D/G fails to start and re-energize bus 1DB.
- The crew has just tripped the MFPs and has ensured that ALL control rods are fully inserted.
- Prior to the event, the PZR Pressure Control System was in a normal, at-power lineup.
- PZR level is 18% and increasing very slowly.
- PZR pressure is 1980 psig and decreasing.
- EFW flow is >450 gpm.
- The crew ensures that all THREE (3) PZR PORVs are closed and the spray valves are closed.

Which ONE (1) of the following describes the MINIMUM actions that MUST be performed to restore control of PZR pressure?

A Place both ESF LOADING SEQ A(B) RESETS to AUTO-START BLOCKS and allow the PZR Pressure Control System to automatically stabilize conditions.

B Manually actuate SI and return to EOP-1.0, "Reactor Trip/Safety Injection Actuation".

C Increase PZR level, then place the PZR backup heaters control switch to CLOSE.

D Place "A" ESF LOADING SEQ A RESETS to NON-ESF LOCKOUTS, then manually energize PZR backup heaters as necessary.

NRC Reactor Operator Licensing Examination

Summer

Question: 14

Given the following:

- The plant is at 40% power and all control systems are in automatic.
- The PZR LEVEL CNTRL switch is in the 459+460 position.
- The NROATC observes that actual pressurizer level is decreasing.

Which of the following conditions could cause this to occur?

A PZR Level Transmitter LT-459 fails LOW.

B RCS Tcold RTD fails HIGH.

C PZR Level Transmitter LT-460 fails LOW.

D NIS Power Range N-44 fails HIGH.

NRC Reactor Operator Licensing Examination

Summer

Question: 15

Plant conditions are as follows:

- The plant has been operating at 100% power for many days.
- Rod control is in automatic with Bank D at 210 steps.
- Fuel burnup has resulted in a mismatch in Tavg-Tref, causing rod motion.
- A ROD CNTRL SYS FAIL URGENT alarm was received due to the lift coil receiving maximum current for an excessive period of time.

Which ONE of the following is the cause for the above condition?

A A step IN demand caused a regulation failure.

B A step OUT demand caused a regulation failure.

C A step IN demand caused a multiplexing failure.

D A step OUT demand caused a multiplexing failure.

NRC Reactor Operator Licensing Examination

Summer

Question: 16

Fixed on Exams

Plant conditions are as follows:

-The plant is operating steady-state at 100% power, with Bank D at 216 steps.
-N-44 indicates 99% reactor power.
-Turbine first stage pressures are: PT-446=660 psig; PT-447=640 psig.
-Loop Tavg indications are: A=587.0 °F; B=587.4 °F; C=587.2 °F.
-Rod Control is in Auto with the TREF 1ST STAGE PRESS selector switch selected to PT-447.
-The Tavg/Tref deviation is stable at 0 °F.

If the operator selects PT-446 simultaneously with a Loop A Tcold RTD failing high, which ONE of the following describes the response of the rods?

A Rods will step IN because Loop A Tavg fails high

B Rods will step IN because PT-446 power level exceeds N-44 power level.

C Rods will step OUT because Tref is now higher than Loop A Tavg was before the failure.

D Rods will step OUT because PT-446 pressure exceeds PT-447 pressure.

NRC Reactor Operator Licensing Examination

Summer

Question: 17

The plant is operating at 90% power with control rods in automatic. Which ONE of the following Rod Control System components will prevent excessive control rod motion on a small power error signal?

A Rate comparator.

B Non-linear gain unit.

C Variable gain unit

D Tref comparator.

NRC Reactor Operator Licensing Examination

Summer

Question: 18

Plant conditions are as follows:

-The plant is operating steady-state at 90% power.
-Letdown flow is 120 gpm, with pressurizer level control in automatic.
-The selector switch for the letdown orifice isolation valves, 8149 A, B, C, are in the LOCAL position on the CREP.
-Actual VCT level is 40% with reactor make-up control in automatic.
-LT-112 is failed high.

Which ONE of the following describes the response of the plant if Letdown Isolation Valve LCV-459 closes and NO operator action is taken?

A VCT level will cycle between low and high setpoint and the orifice isolation valves will be closed.

B VCT level will continuously DECREASE and the orifice isolation valves will remain open.

C Pressurizer level will continuously INCREASE and the orifice isolation valves will remain open.

D Pressurizer level will remain at setpoint and the orifice isolation valves will be closed.

NRC Reactor Operator Licensing Examination

Summer

Question: 19

Plant conditions are as follows:

The plant is increasing power from 50% to 100%.
A batch dilution of 2000 gallons was commenced, but the dilution was stopped at 1000 gallons.
The totalizer was NOT zeroed when the operator shifted to AUTO and START on the makeup system control switches.

30 minutes later:

-No changes to the makeup system have been made by the operator.
-VCT level transmitter LT-112 indicates 21%.
-VCT level transmitter LT-115 indicates 19%.

Which ONE of the following describes the makeup system response to these conditions?

A Makeup will auto-start when LT-112 decreases to 20%.

B Makeup has started and will stop when LT-115 indicates 40%.

C Makeup will NOT auto-start until the totalizer is zeroed.

D Makeup has started and will stop when the totalizer reaches zero.

NRC Reactor Operator Licensing Examination

Summer

Question: 20

Plant conditions are as follows:

Rods are being withdrawn in manual during a reactor startup.
All systems are operable.
The shutdown rods are fully withdrawn.
The operator begins to withdraw the control banks in manual.

Which ONE of the following describes the status of the DRPI rod bottom lights when the RODS ON BOTTOM annunciator clears?

A BANKS A, B, & C rod bottom lights OFF, & Bank D Rod Bottom lights ON.

B BANKS A, B, C, & D - Rod Bottom lights OFF.

C BANK A - Rod Bottom lights OFF; BANKS B, C, & D - Rod Bottom Lights ON.

D BANKS A & B - Rod Bottom lights OFF; BANKS C & D - Rod Bottom Lights ON.

NRC Reactor Operator Licensing Examination

Summer

Question: 21

Plant conditions are as follows:

The reactor is at 80% power with rods in AUTO.
Power Range Channel N-41 abruptly failed low and is being removed from service per the applicable ~~ARP~~. AOP.
The operator assigned to pull control power fuses on Channel N-41 inadvertently pulls the control power fuses on Channel N-44.

FIXED ON STUDENT'S EXAM
PLANT'S REMOVED PER AOP

Which ONE of the following describes the response of the plant?

A The OTDT TRIP will actuate.

B PR HI FLUX TRIP will actuate.

C Reactor remains critical, rods step in.

D Reactor remains critical with no rod motion.

NRC Reactor Operator Licensing Examination

Summer

Question: 22

The plant is operating at 75% power.
Normal Delta I (DI) at 75% power is 0%.
Undamped xenon oscillations are occurring.
NO operator action is taken.

Which ONE of the following describes how the loop Overtemperature Delta-T trip setpoints will change if the core xenon fluctuations cause the output currents from the Power Range NI detectors to change as follows:

- Upper detector currents increase from normal 75% value to normal 100% value.
- Lower detector currents decrease from normal 75% value to normal 50% value.

A INCREASE because the DI's will be excessively POSITIVE.

B DECREASE because the DI's will be excessively POSITIVE.

C INCREASE because the DI's will be excessively NEGATIVE.

D DECREASE because the DI's will be excessively NEGATIVE.

NRC Reactor Operator Licensing Examination

Summer

Question: 23

Plant parameters are as follows:

The 10 highest Core Exit Thermocouples read as follows:
T-9 = 571°F T-11=569 °F T-17=574 °F T-20=567°F T-21=568°F T-30=565°F T-32=566°F T-38=568°F T-39=567°F T-42=565°F.
Pressurizer Pressure instruments read as follows: PT-455=1342 psig PT-456=1360 psig PT-457=1343 psig.
RCS Pressure instruments read as follows: PT-402=1373 psig PT-403=1353 psig.
Assuming the Subcooled Margin Monitors are in their normal display mode, which ONE of the following is the expected subcooled margin display for channel A?

A Channel A= 10°F

B Channel A=12°F

C Channel A =13°F

D Channel A= 19°F

NRC Reactor Operator Licensing Examination

Summer

Question: 24

Which ONE of the following is the basis for the configuration of the high-pressure and/or low-pressure taps on the RCS loop flow instruments?

A The rupture of a single high-pressure or low-pressure tap will neither cause nor prevent a loop low RCS flow trip signal.

B The rupture of a single high-pressure tap will cause a loop low RCS flow trip signal.

C The rupture of a single low-pressure tap will cause a loop low RCS flow trip signal.

D The rupture of at least two high-pressure taps or two low-pressure taps is required to cause a loop low RCS flow trip signal.

NRC Reactor Operator Licensing Examination

Summer

Question: 25

Given the following conditions:

-Reactor power at 80%.
-Pressurizer level control system in automatic.
-The median Tavg signal to the PZR level control system fails to 500 °F.
-No operator action is taken.

Which ONE of the following describes the effect on the pressurizer?

A Charging will reduce to minimum, pressurizer backup heaters turn on, pressurizer level falls until letdown isolates.

B Charging flow will increase, pressurizer level will increase to 60% and stabilize.

C Charging will reduce to minimum, pressurizer backup heaters turn on, pressurizer level falls to 25% and stabilizes.

D Charging flow will increase, pressurizer level will increase until the reactor trips on high pressurizer level at 92%.

NRC Reactor Operator Licensing Examination

Summer

Question: 26

- The plant was operating at 100% power.
- Train "B" Reactor Protection System testing was in progress.
- A reactor trip and safety injection occurred due to testing errors, which have been corrected.
- Reactor Trip Bypass Breaker "B" remains closed and will NOT open; all other reactor trip breakers are open.
- "PZR PRESS LO" reactor trip and "PZR SI" annunciators are illuminated.
- RCS pressure is 2235 psig and slowly decreasing.
- RCS temperature is trending toward 557 °F.

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

A The main turbine will NOT receive a trip signal.

B The feedwater regulating valves will NOT receive a feedwater isolation signal.

C The steam dumps will receive an open signal, but will NOT arm.

D Manual reset of both SI actuation signals from the main control board will NOT be possible.

NRC Reactor Operator Licensing Examination

Summer

Question: 27

- The plant reactor power is at 100%.
- During the last shift, the Loop "B" T-cold circuit developed erroneous readings, requiring the associated bistables to be placed in trip.
- The Loop "C" T-cold RTD has just developed an open circuit at one connection, causing the circuit to fail.
- The reactor has not tripped.

Using the attached specifications, which ONE of the following describes the minimum action(s) required to be taken?

A Trip bistables associated with Loop "C" T-cold within 1-hour.

B Initiate action within 1 hour to shut down the unit to Hot Standby within 6 hours.

C Bypass Loop "B" bistables up to 4 hours to allow repair of Loop "C" RTD.

D Take the actions of EOP-1.0 "Reactor Trip / Safety Injection Actuation".

NRC Reactor Operator Licensing Examination

Summer

Question: 28

Plant conditions are as follows:

The plant is commencing a plant startup following an outage.
During the outage about 25 tubes were plugged in each steam generator.

Which ONE of the following describes the effect the plugged Steam Generator tubes will have on subsequent reactor plant operations for a given electrical megawatt output level?

A DNBR will be larger.

B Reactor coolant Tavg will be lower.

C Steam generator pressure will be lower.

D The difference between the actual heat flux and the critical heat flux will be larger.

NRC Reactor Operator Licensing Examination

Summer

Question: 29

- The plant is operating at 90% power with a cycle burnup of 20,000 MWd/MTU.
- Tavg on all three loops is 584 °F.
- One "A" steam generator safety valve GRADUALLY fails open; after about 15 seconds, the safety sticks in the full open position.
- Rod control is in AUTO with ROD CNTRL SYS FAIL URGENT alarm activated.

Assuming NO operator action is taken, which ONE of the following describes the median Tavg response to the stuck open valve? (Using the Attached Curves)
Median Tavg will ...

A decrease to approximately 557 °F.

B decrease to approximately 576 °F

C increase to approximately 587 °F

D remain the same 584 °F.

NRC Reactor Operator Licensing Examination

Summer

Question: 30

The plant is at 100% power.
The pressurizer level control selector switch is in position 460+461.

Which ONE of the following describes the annunciator/response if pressurizer level transmitter LT-461 sensing bellows ruptures?

A PZR LCS DEV HI/LO and PZR LVL HI alarms actuate only.

B PZR LCS DEV HI/LO and PZR LVL HI alarms actuate and pressurizer backup heaters turn on.

C PZR LCS DEV HI/LO alarm actuates and all pressurizer heaters turn off.

D PZR LCS DEV HI/LO alarm actuates and letdown isolation valve LCV-459 closes.

NRC Reactor Operator Licensing Examination

Summer

Question: 31

Each steam line is equipped with an RM-G19 monitor. What is the purpose of this monitor?

A Provides high range gamma detection between the relief and safety valves to indicate steam activity in the event of a faulted steam generator.

B Provides high range gamma detection upstream of the relief and safety valves to indicate steam activity in the event of a ruptured steam generator.

C Provides high range gamma and neutron detection between the relief and safety valves to indicate steam activity in the event of a faulted steam generator.

D Provides high range gamma detection downstream of the relief and safety valves to indicate steam activity in the event of a ruptured steam generator.

NRC Reactor Operator Licensing Examination

Summer

Question: 32

Given the following plant conditions:

Small break LOCA has occurred.
Pressurizer pressure has dropped rapidly to 1005 psig.
Containment temperature has risen from 105 °F to 205 °F.
Indicated pressurizer level is 35% on LT-461.

Select the combination below that completes the following statement.

Due to the effects of the low pressurizer pressure, actual pressurizer level will be ____(X)____ indicated level; and due to the effects of the high containment temperature, actual level will be ____(Y)____ indicated level.

A (X) Below; (Y) Below

B (X) Below; (Y) Above

C (X) Above; (Y) Below

D (X) Above; (Y) Above

NRC Reactor Operator Licensing Examination

Summer

Question: 33

Plant steady -state conditions at noon are as follows:

-Power level - 100%
-Steam generator levels: "A" - 58%, "B" - 57.5%, and "C" - 58.5%
-Main feedwater regulating valve positions: FCV-478 - 75%, FCV-488 - 74%, and FCV-498 - 76%

5 minutes later, the plant steady-state conditions are as follows:

-Power level - 100%
-Steam generator levels: "A" - 57.5%, "B" - 57%, "C" - 60%
-Main Feedwater regulating valve positions: FCV-478 - 74%, FCV-488 - 73%, and FCV-498 - 72%

Which ONE of the following is the most probable cause for the above indications? (Assume the above indications are accurate.)

A A steam leak on "C" SG.

B A tube leak on "C" SG

C Steam pressure detector on "C" SG failed high.

D A feedwater leak on "C" SG.

NRC Reactor Operator Licensing Examination

Summer

Question: 34

Plant conditions are as follows:

- The plant was operating at 98% power when a loss of MFP "A" occurred.
- Rod control is in AUTO.
- Normal makeup to the VCT has just been completed.
- The crew is taking the required immediate actions.
- Tavg-Tref mismatch is 3 °F and Tavg is increasing.
- CRB INSRT LMT LO annunciator has just alarmed.

Which one of the following actions caused the alarm, and what is the appropriate corrective action?

A The operator has decreased the boron concentration too much and should withdraw rods to clear the alarm.

B The operator has driven rods in too far for the existing boron concentration and should borate from the RWST.

C The operator has decreased turbine load too far and should stabilize turbine load.

D The operator has caused the steam dumps to open and should decrease the rod insertion rate.

NRC Reactor Operator Licensing Examination

Summer

Question: 35

Given the following plant conditions:

The plant is operating at 50% power.
PORV block valve MVG-8000A is closed because of excessive seat leakage in PORV PCV-445A.
Excessive seat leakage has just developed in PORV PCV-445B.
Both PORV block valves are operable.

Which ONE of the following is the minimum action that must be accomplished within one hour to allow the unit to continue to operate at power indefinitely per TS 3.4.4, "Relief Valves"?

A Close PORV Block Valve MVG-8000~~B~~C. Place PCV-445B in manual control and remove power from block valve MVG-8000A.

B Close PORV block valve MVG-8000~~B~~C and remove power from both block valves.

C Close PORV block valve MVG-8000~~B~~C and maintain power to both block valves.

D Close PORV block valve MVG-8000~~B~~C and remove power from block valve MVG-8000~~B~~C.

STUDENTS WERE TOLD TO CHANGE 8000 B TO 8000 C IN ALL CHOICES

NRC Reactor Operator Licensing Examination

Summer

Question: 36

Plant conditions are as follows:

- A reactor startup is in progress.
- Reactor power is at 8%.
- Intermediate range channel N-36 failed low and was removed from service 10 minutes ago: estimated time to repair is unknown.
- Intermediate range channel N-35 has just lost compensating voltage.
- A reactor trip did NOT occur.

Which ONE of the following describes the ACTION required by the Technical Specifications?

A Hold power above the P-6 setpoint until N-35 or N-36 is restored to operable conditions.

B Decrease power to less than P-6 and hold power below P-6 setpoint until N-35 or N-36 are restored to operable condition.

C Continue the startup, but ensure that power does not increase above 10 % prior to returning at least ONE channel to operable status.

D Within an hour, initiate action to place the plant in Hot Standby per LCO 3.0.3.

NRC Reactor Operator Licensing Examination

Summer

Question: 37

Plant conditions are as follows:

The plant is operating at 85% power.
Control Bank D group step counters indicate 192 steps.
CBD rod B8 DRPI indicates 206 steps.
Rod B8 was found to be movable per AOP 403.5 "Stuck or Misaligned Control Rod".

Which ONE of the following is the method used to realign rod B-8 with control bank D?

A With Rod Control Bank Selector Switch in CBD, disconnect the lift coils of the unaffected rods and insert rod B8 to 192 steps.

B With Rod Control Bank Selector Switch in MAN, disconnect the lift coils of the unaffected rods and insert rod B8 to 192 steps.

C With Rod Control Bank Selector Switch in MAN, disconnect the lift coil of the affected rod, and withdraw bank D to 206 steps.

D With Rod Control Bank Selector Switch in CBD, disconnect the lift coil of the affected rod, and withdraw bank D to 206 steps.

NRC Reactor Operator Licensing Examination

Summer

Question: 38

Plant conditions are as follows:

- A LOCA has occurred.
- The shift crew is performing EOP-2.0, Loss of Reactor or Secondary Coolant".
- Containment temperature is 180° F.
- Containment pressure is 27 psig.

Which ONE of the following plant parameters has alternate limits during these conditions?

A S/G levels due to containment temperature exceeding 120 °F.

B RCS T-cold temperature due to containment temperature exceeding 120 °F.

C Core exit thermocouple (CETC) temperature due to RB pressure exceeding Hi-1.

D PZR Level due to RB pressure exceeding Hi-1.

NRC Reactor Operator Licensing Examination

Summer

Question: 39

Plant conditions are as follows:

A reactor trip and SI have occurred.
RCS pressure is 1975 psig and increasing.
RCS subcooling is 92 °F and stable.
Pressurizer level is 18% and increasing slowly.
S/G narrow range levels are "A" - 23%, "C" - 23%; both decreasing slowly.
S/G "B" narrow range level is 10% and steady; S/G "B" has been fully isolated due to a fault.
Both MDEFW pumps are operating.
Containment pressure is 0.2 psig.
Containment and secondary radiation levels are normal.
The shift crew is checking EOP-1.2 "SI Termination" criteria when TDEFW pump trips, reducing total EFW flow to 200 gpm.

Which ONE of the following actions must be completed BEFORE the Control Room SRO can direct termination of SI ?

A Adjust MDEFW flow control valves to obtain an average of greater than 225 gpm EFW flow to each non-faulted S/G.

B Verify that subcooling is stable and greater than 30 °F. Adjust charging flow to raise pressurizer level to at least 18%.

C Adjust MDEFW flow control valves to obtain maximum EFW flow and increase non faulted S/G levels to at least 50%.

D Adjust MDEFW flow to each operable S/G to 140 gpm and increase one S/G narrow range level to greater than 25%.

NRC Reactor Operator Licensing Examination

Summer

Question: 40

Which ONE of the following is the basis for stopping all reactor coolant pumps during EOP- 15.0, "Response to Loss of Secondary Heat Sink", when the initial attempts to establish adequate EFW flow are unsuccessful?

A To allow additional time to establish feedwater flow before bleed and feed is required.

B To obtain increased SI flow for bleed and feed operations by decreasing RCS cold leg pressure.

C To minimize the possibility of a tube rupture when EFW is restored to the steam generators.

D To reduce the total amount of heat that must be removed by the PORVs.

NRC Reactor Operator Licensing Examination

Summer

Question: 41

Plant conditions are as follows:

-The plant is at 100% power.
-The PRT is being drained with the RCDT pump per SOP-101 "Reactor Coolant System".
-CCW SRG TK LVLHI/LO/LO-LO annunciator has actuated.
-LCV- 7090 and LCV -7088 MKUP TO CCW FROM DW STOR TK valves, have opened per AOP-118.1," Loss of Component Cooling Water," and SOP- 118, "Component Cooling Water System".
-CCW surge tank level is now at 40% and increasing slowly.

Which ONE of the following is the location of the intersystem leak?

A RCDT heat exchanger.

B Letdown heat exchanger.

C Seal water return heat exchanger.

D RCP thermal barrier heat exchanger.

NRC Reactor Operator Licensing Examination

Summer

Question: 42

The response of which ONE of the following parameters will allow the operator to distinguish between a steam line break inside containment and a feed line break inside containment, occurring from 100% power.

A Loop Tavg.

B Steam generator pressure.

C Feedwater flow to affected to S/G.

D Containment humidity and pressure.

NRC Reactor Operator Licensing Examination

Summer

Question: 43

Which ONE of the following describes the basis for the LIMIT A curve on the RCS Pressure-Temperature Criteria figure attached to the Status Tree for the Critical Safety Function "INTEGRITY" in EOP-12.0, "Monitoring Critical Safety Function Status Tree"?

A Defines the nil-ductility temperature for the low-carbon steel alloy used in forging the reactor pressure vessel.

B Defines the maximum RCS cooldown rate to prevent creation of a flaw in the reactor pressure vessel wall.

C Indicates the minimum temperature allowed to prevent growth of an existing flaw in the reactor pressure vessel wall.

D Indicates the maximum temperature allowed to prevent permanent plastic deformation of the reactor pressure vessel wall.

NRC Reactor Operator Licensing Examination

Summer

Question: 44

Plant conditions are as follows:

The plant was operating at 100% power.
A loss of offsite and onsite power (station blackout) has occurred.
EOP-6.0, "Loss of All ESF AC Power " is in progress at Step 5 "TRY TO RESTORE POWER TO ANY ESF BUS" when an SI signal is received.
The SE reports the status of the Unit 1 Critical Safety Functions to be as follows:

Core Cooling - Red
Containment - Green
Subcriticality - Green
Inventory - Yellow
Integrity - Green

Which ONE of the following procedures should be used in response to this situation?

A Transition to EOP-6.2, "Loss of All AC Power Recovery with SI Required"

B Transition to EOP-14.0, "Response to Inadequate Core Cooling"

C Transition to EOP-15.0, "Response to Loss of Secondary Heat Sink"

D Remain in EOP 6.0 "Loss of all ESF AC power"

NRC Reactor Operator Licensing Examination

Summer

Question: 45

Plant conditions are as follows:

The Control Room has been evacuated due to a fire.
All components at the CREP have been placed in LOCAL
"A" charging pump is running; "C" charging pump is tagged out.
"B" charging pump is in NORMAL-AFTER-STOP.
A valid SI signal has just been received.

Which ONE of the following describes the "B" charging pump response to the SI signal?

The "B" charging pump will.....

A Automatically start, and cannot be stopped until the SI is reset.

B NOT start, because "C" charging pump automatically starts.

C NOT start, but the operator may start the pump at any time using the CREP switch.

D Automatically start, but the operator may stop the pump at any time using the CREP switch.

NRC Reactor Operator Licensing Examination

Summer

Question: 46

Which ONE of the following conditions represents a loss of containment integrity per Technical Specifications 3.6.1.1, "Containment Integrity"?

A With the reactor at 100% power, an electrician opens the outer airlock door without prior pressure equalization.

B With the RCS average coolant temperature 250 °F, an inspection of the equipment hatch determines that the hatch is NOT sealed.

C During an operability test of two normally open, redundant containment isolation valves at 100% power, one of the valves fails to close.

D During an Integrated Leakage Rate Test in Mode 5, containment leakage exceeds the maximum allowable Technical Specification leakage rate.

NRC Reactor Operator Licensing Examination

Summer

Question: 47

The plant has been operating at 95% power for several days following a S/G replacement outage in which new S/Gs were installed. Which of the following Radiation Monitors would be the first to alarm if fuel failure were to occur?

A RM-L1

B RM-L3

C RM-A9

D RM-A4

NRC Reactor Operator Licensing Examination

Summer

Question: 48

The plant is at 28% power during a plant startup per GOP-4.
"B" RCP has just been inadvertently tripped.

Which ONE of the following actions is required?

A Place the reactor in at least HOT STANDBY within one hour.

B Immediately restart the "B" RCP.

C Immediately trip the reactor.

D Place pressurizer spray valves in manual and closed

NRC Reactor Operator Licensing Examination

Summer

Question: 49

Given the following plant conditions:

A reactor trip and safety injection have occurred due to a steam line rupture with the plant at full power.
The crew was performing EOP-3.0, "Faulted Steam Generator Isolation" when an ORANGE path was noted on INTEGRITY.
The crew is now working through EOP-16.0, " Response to Imminent Pressurized Thermal Shock".
The INTEGRITY CSF status tree currently indicates ORANGE.
All other CSF status trees currently indicate GREEN.

Which ONE of the following is the ONLY condition that would require the shift crew to transition out of EOP-16.0 before it is complete?

A When SUBCRITICALITY CSF status tree indicates YELLOW.

B When CORE COOLING CSF status tree indicates ORANGE.

C When CONTAINMENT CSF status tree indicates ORANGE.

D When HEAT SINK CSF status tree indicates ORANGE.

NRC Reactor Operator Licensing Examination

Summer

Question: 50

A member of the search and rescue team of volunteers has received 2 REM TEDE this year. He spent 15 minutes in an area with a general area radiation level of 32 R/hr gamma , while searching for missing persons known to be injured in a waste gas decay tank explosion. Relief searchers are standing by.

Which ONE of the following is the MAXIMUM additional whole body exposure that this individual may voluntarily obtain in accordance with EPP-011, "Personnel Search And Rescue", while searching for other victims?

A 0 Rem

B 2 Rem

C 15 Rem

D 17 Rem

NRC Reactor Operator Licensing Examination

Summer

Question: 51

In-plant entry teams during an emergency are dispatched into the plant and are under the control of the:

A Shift Supervisor.

B TSC Controller.

C. OSC Supervisor.

D Operations Supervisor

NRC Reactor Operator Licensing Examination

Summer

Question: 52

The following "A" reactor coolant pump conditions exist:

An inadvertent manipulation has resulted in loss of Component Cooling Water to Reactor Coolant Pump A.
D/P across the No. 1 seal is 250 psid.
Motor bearing temperature is 200 °F.
RCP shaft composite vibration is 10 mils.
RCP frame vibration is 2 mils.

Which ONE of the following is the reason the "A" RCP should be TRIPPED immediately?

A RCP frame vibration is HIGH.

B Delta P across the #1 seal is HIGH.

C Motor bearing temperature is HIGH.

D RCP shaft vibration is HIGH.

NRC Reactor Operator Licensing Examination

Summer

Question: 53

A small-break LOCA has occurred.
Containment pressure is 5 psig.
Pressurizer pressure is 1850 psig.
Steam generator pressures are: A - 850 psig; B - 775 psig; and C - 825 psig.
The control room operators have carried out the required immediate actions, transitioned to EOP-2.0, "Loss of Reactor or Secondary Coolant", and are ready to secure the RHR pumps. The operators attempt to reset SI, but it does not reset.

A likely reason that SI will not reset is:

A The time-delay timer has failed to actuate and/or supply the proper output.

B Containment pressure has not decreased to the bistable reset point.

C PZR pressure is still less than PZR low-pressure SI setpoint.

D A steamline low pressure SI signal exists.

NRC Reactor Operator Licensing Examination

Summer

Question: 54

The plant has just tripped from 100% power. Which ONE of the following will result in the reactor building cooling unit fans automatically shifting to slow speed?

A Two channels of containment pressure reading 3.5 psig

B Two channels of pressurizer pressure reading 1845 psig.

C Two channels of containment temperature reading 125 °F.

D Three undervoltage conditions on one reactor coolant pump.

NRC Reactor Operator Licensing Examination

Summer

Question: 55

The plant is operating at 80% power when an atmospheric dump on S/G "A" opens. Which one of the following parameters will directly cause main feedwater pump speed to decrease? Consider each parameter separately.

A Feed pump discharge pressure.

B Total Feed Flow

C Steam Header Pressure

D Total Steam Flow

NRC Reactor Operator Licensing Examination

Summer

Question: 56

Which ONE of the following is required prior to resetting safety injection following an actuation?

A Containment isolation Phase A must be reset.

B Any ECCS pumps which started must be stopped.

C Less than 60 seconds must have elapsed since SI was actuated.

D The reactor trip breakers and associated bypass breakers must be open.

NRC Reactor Operator Licensing Examination

Summer

Question: 57

Given the plant is operating at full load, which ONE of the following groups of instrument readings should generate an automatic reactor trip signal?

A S/G 'B' NR level (percent): 30 31 32

B Power range (percent): 107 108 108 109

C PZR level (percent): 91 92 93

D PZR pressure (psig): 2390 2370 2365

NRC Reactor Operator Licensing Examination

Summer

Question: 58

The plant is being cooled down on RHR to cold shutdown following a planned reactor shutdown.
A control room operator observes that water level in CCW surge tank A is increasing unexpectedly.
While the operator investigates, a high-radiation alarm is received for CCW train A.

A probable cause of these conditions is:

A A CCW heat exchanger 'A' tube failure.

B An RHR heat exchanger 'A' tube failure.

C A CCW heat exchanger 'A' shell break.

D A seal water return heat exchanger tube leak.

NRC Reactor Operator Licensing Examination

Summer

Question: 59

During a safety injection, the service water booster pumps start to supply the reactor building cooling units. Which ONE of the following correctly describes the reason service water booster pumps are needed, rather than industrial cooling water?

A The service water booster pumps provide more flow to aid in cooling the reactor building.

B The service water booster pumps provide higher pressure to prevent backleakage from the reactor building.

C The service water booster pumps can be started on an emergency diesel generator.

D The service water booster pumps can take a suction on the reactor building sump if needed.

NRC Reactor Operator Licensing Examination

Summer

Question: 60

Which ONE of the following describes the logic used by the Reactor Protection System to determine if a turbine trip has occurred?

A 2/3 Low EHC Oil Pressures AND 4/4 Turbine Stop Valves Closed

B 3/3 Low EHC Oil Pressures OR 3/4 Turbine Stop Valves Closed

C 3/3 Low EHC Oil Pressures AND 3/4 Turbine Stop Valves Closed

D 2/3 Low EHC Oil Pressures OR 4/4 Turbine Stop Valves Closed

NRC Reactor Operator Licensing Examination

Summer

Question: 61

What runout protection is provided for the Motor Driven Emergency Feedwater pumps?

A A control circuit limits the opening of the EFW flow control valves (IFV-3531, 3541, 3551) between 1150 psig and 1350 psig.

B A flow orifice located in the discharge line limits flow rate to less than 730 gpm.

C Locked throttle valves are installed for flow balancing and limit maximum flow from an individual pump.

D EFW Flow control valves (IFV-3531, 3541, 3551) close if emergency feedwater flow rate exceeds 515 gpm.

NRC Reactor Operator Licensing Examination

Summer

Question: 62

With the plant operating at 100% power, the INSTRUMENT AIR PRESS LOW/FLOW HI annunciator is received. Steam Generator levels are A - 60%; B - 58%; and C - 61%. Which ONE of the following is the correct response if Feed Regulating Valve FCV-498 indicated closed?

A Trip the reactor.

B Start the Diesel Air Compressor and try to reopen the FCV.

C Open the feedwater flow control valve in manual.

D Isolate service air.

NRC Reactor Operator Licensing Examination

Summer

Question: 63

- NIs indicate 30% power.
- Turbine load is 280 MWe.
- CNDSR A VACUUM LO annunciator is lit.
- Condenser vacuum is 6 inches Hg absolute

Which ONE of the following is the FIRST action required?

A Trip the reactor, trip the turbine, and enter EOP-1.0 "Reactor Trip/Safety Injection Actuation".

B Start the standby Main Condenser and auxiliary vacuum pump and reduce turbine load to 20% at 5% per minute.

C Trip the turbine.

D START additional Circulating Water pumps and observe condenser pressure trend to determine if additional measures are necessary.

NRC Reactor Operator Licensing Examination

Summer

Question: 64

Which of the following set of plant conditions does NOT exceed the limits of Technical Specification 2.1 SAFETY LIMITS?

A RCS Tavg - 615 °F PZR Press - 1990 psig PWR-60 %

B RCS Tavg - 600 °F PZR Press - 1900 psig PWR-100%

C RCS Tavg - 640 °F PZR Press - 2400 psig PWR-85%

D RCS Tavg - 595 °F PZR Press - 1700 psig PWR-110%

NRC Reactor Operator Licensing Examination

Summer

Question: 65

You are making rounds in the Auxiliary Building when you come to a room posted "Locked High Radiation Area". Which one of the following describes the minimum additional requirements needed to enter the room?

A RWP/SRWP only.

B RWP/SRWP and a survey instrument.

C RWP/SRWP, survey instrument and an alarming dosimeter.

D RWP/SRWP, survey instrument, and an HP tech.

NRC Reactor Operator Licensing Examination

Summer

Question: 66

The plant has experienced an under voltage condition on 1DA. Assuming all systems function as designed , Which one of the following correctly describes the positioning of the Emergency Feedwater steam supply side valves?

A 2802A, 2802B, 1012, 1036, and 2030 fully open. Valve 2813 fully closes. Valve 2865 will remain fully open.

B 2802A, 2802B, 2034, 1036, and 2030 fully open. Valve 2813 fully closes. Valve 2865 will remain fully open.

C 2802A, 2802B, and 2030 will fully open. Valve 2813 will remain closed. Valve 2865 will remain fully open.

D 2802A, 2802B, and 2865 will remain fully open. Valves 2813, and 2030 will remain closed.

NRC Reactor Operator Licensing Examination

Summer

Question: 67

The plant has experienced a large break LOCA. The crew has transitioned from EOP 1.0 , "Reactor Trip/Safety Injection Actuation", to EOP 2.0, "Loss of Reactor or Secondary Coolant". The following conditions exist:

-'A' SG N/R level is 38%, EFW flow is 120 gpm.
-'B' SG N/R level is 42%, EFW flow is 110 gpm.
-'C' SG N/R level is 42%, EFW flow is 110 gpm.
-RCS pressure is 100 psig and decreasing
-No RCPs are operating.
-Core Exit T/C are 705 ° F
-RVLIS Narrow Range Level is 53%
-Containment pressure is 37 psig

What is the correct procedure to use for these conditions?

A Transition to EOP-14.1, "Response to Degraded Core Cooling"

B Transition to EOP-17.0, "Response to High Reactor Building Pressure"

C Transition to EOP-15.0, "Response to Loss of Secondary Heat Sink"

D Transition to EOP-14.0, "Response to Inadequate Core Cooling"

NRC Reactor Operator Licensing Examination

Summer

Question: 68

Which one of the following AUTOMATIC actions results from a HIGH radiation condition on Liquid Waste Effluent Monitor, RM-L5?

A Liquid Radioactive Waste discharge Control Valve, RCV-018, CLOSES.

B Waste Monitor Tank pumps TRIP.

C Liquid waste flow is diverted to the Nuclear Blowdown Monitor Tank.

D Liquid Effluent to Fairfield Penstocks Valve, PDV-6910, CLOSES.

NRC Reactor Operator Licensing Examination

Summer

Question: 69

While responding to inadequate core cooling, the operators are unable to establish high head safety injection Core Exit T/Cs are 1450 °F and RCS pressure is 165 psig.

Which ONE of the following states the bases for starting the RCPs under these conditions?

A Flush hydrogen/nitrogen from S/G tubes so natural circulation flow can be established in subsequent steps.

B Provide single phase forced steam flow for temporary cooling to reduce Core Exit T/Cs to < 1200 °F.

C Force borated water from the loops into the voided core to refill the vessel.

D Provide forced primary flow for heat transfer during S/G depressurization.

NRC Reactor Operator Licensing Examination

Summer

Question: 70

Which ONE of the following describes the length of time the reactor shall be subcritical before movement of irradiated fuel is allowed in the reactor pressure vessel per V.C. Summer Technical Specifications?

A 48 hours

B 72 hours

C 100 hours

D 120 hours

NRC Reactor Operator Licensing Examination

Summer

Question: 71

One of the major actions in EOP-15.0, "Response to Loss of Secondary Heat Sink", is to establish reactor decay heat removal by bleed and feed operations.

Which ONE of the following describes the sequence of actions required to establish bleed and feed heat removal?

A "Bleed" is established by opening all pressurizer PORVs, and THEN "Feed" is established by initiating safety injection.

B "Feed" is established by initiating safety injection, and THEN "Bleed" is established by opening at least two pressurizer PORVs.

C "Bleed" is established by opening two reactor vessel head vent valves THEN "Feed" is established by initiating EFW to the SGs.

D "Feed" is established by initiating EFW to a SG, and THEN "Bleed" is established by opening two reactor vessel head vent valves.

NRC Reactor Operator Licensing Examination

Summer

Question: 72

Which ONE of the following describes the normal power source for a safety-related 125 VDC bus?

A Safety-related 480V bus through an inverter to the DC bus.

B Safety-related 480V Bus through a battery charger to the DC battery to the bus.

C Safety-related 480V MCC through an inverter to the DC battery to the DC bus.

D Safety-related 480V MCC through a battery charger to the DC bus.

NRC Reactor Operator Licensing Examination

Summer

Question: 73

The plant is operating at 100% power when the PRT LVL LO/TEMP/ LVL/PRESS HI annunciator alarms. Investigation reveals increasing PRT level and pressure. NO other annunciators are in alarm. The lifting of which ONE of the following relief valves is the cause for the PRT annunciator?

A Letdown relief.

B RCP Seal return relief.

C RHR suction relief.

D Pressurizer PORV.

NRC Reactor Operator Licensing Examination

Summer

Question: 74

Which ONE of the following is the major concern during the performance of EOP-6.0, "Loss of All ESF AC Power"?

A Capability of maintaining DC power (designed battery capacity).

B Decay heat removal capability.

C RCP seal degradation.

D RCS reactivity control capability.

NRC Reactor Operator Licensing Examination

Summer

Question: 75

Control rod P8 has just been withdrawn 15 steps to realign it with control bank D (CBD) at 208 steps in accordance with AOP-403.5, "Stuck or Misaligned Control Rod". After the rod was realigned the P/A converter for CBD was NOT reset to original bank height.

Which ONE of the following conditions/annunciators will occur due to this oversight when rod motion is demanded? (Assume rod control has been returned to AUTO)

A ROD CONTROL URGENT FAILURE alarm when outward rod motion is demanded.

B ROD CONTROL URGENT FAILURE alarm when inward rod motion is demanded.

C Rods will not move when outward rod motion is demanded.

D Rods will not move when inward rod motion is demanded.

NRC Reactor Operator Licensing Examination

Summer

Question: 76

In EOP-14.1, "Response to Degraded Core Cooling", what is the basis for tripping one reactor coolant pump if all reactor coolant pumps are running?

A Because RCP seal flow has been isolated.

B To minimize secondary side inventory depletion.

C Because adequate core cooling has been established.

D To save an RCP for future use.

NRC Reactor Operator Licensing Examination

Summer

Question: 77

Which ONE of the following combinations of signals is needed for Reactor Building Spray to automatically actuate under accident conditions?

A Containment High-3 pressure and a Phase B containment isolation.

B Containment High-2 pressure and a Phase A containment isolation

C Containment High-3 pressure and a Phase A containment isolation.

D Containment High-2 pressure and a Phase B containment isolation

NRC Reactor Operator Licensing Examination

Summer

Question: 78

The unit is operating at 48% power with two condensate pumps operating. Which ONE of the following conditions will eventually result in a trip of all running Main Feedwater Booster Pumps? Assume no operator action.

A High-High level Deaerator Storage Tank alarms.

B One condensate pump trips on motor overload.

C Low Condensate Storage Tank level alarms.

D High Main Feedwater Booster Pump discharge pressure alarms

NRC Reactor Operator Licensing Examination

Summer

Question: 79

Which ONE of the following is the reason four (4) Main Feedwater Booster Pumps (MFBPs) are normally used above 85% power?

A To provide adequate NPSH for the Main Feedwater Pumps if a MFBP is lost.

B To provide adequate recirculation flow to the Deaerator Storage Tank.

C To prevent an automatic turbine runback if a MFBP is lost.

D To minimize load on each of the MFBPs.

NRC Reactor Operator Licensing Examination

Summer

Question: 80

While performing EOP-14.0, "Response to Inadequate Core Cooling", which ONE of the following containment hydrogen concentrations is the MAXIMUM concentration below which the Hydrogen Recombiners may be placed in service?

A 0.5%

B 4%

C 6%

D 8%

NRC Reactor Operator Licensing Examination

Summer

Question: 81

Given the following plant conditions:

The plant has experienced a reactor and turbine trip.
"B" charging pump is out of service for maintenance.
"A" & "C" Charging Pumps are tripped.
Containment Phase A and B isolation were inadvertently actuated during the transient.
Pressurizer level is 16% and decreasing.

Prior to starting a charging pump, EOP-18.1, "Response to Low Pressurizer Level", directs the operator to locally isolate RCP seal injection.

Which ONE of the following statements is the reason for isolating RCP seal injection?

A Prevents thermal shock to the RCP seals.

B Protects the RCP seals from excessive differential pressure.

C Prevents possible crud injection into the RCP seal cavity.

D Protects the charging pump from a runout condition.

NRC Reactor Operator Licensing Examination

Summer

Question: 82

Following a station blackout, which ONE of the following describes the status of the vital 120 VAC power to instrumentation and control?

A Deenergizes because all AC is lost during blackouts.

B Switches to the alternate AC source through the static switch.

C Is automatically supplied by the 1E batteries thru the inverters.

D Is momentarily lost, then re-energized when the diesel starts 10 seconds later.

NRC Reactor Operator Licensing Examination

Summer

Question: 83

Which ONE of the following actions should be performed FIRST by the observer of a fire on site in accordance with EPP-013, "Fire Emergency"?

A Attempt to control/extinguish the fire.

B Contact the control room and report the fire.

C Evacuate personnel to a safe area.

D Report to the OSC and brief the Fire Brigade.

NRC Reactor Operator Licensing Examination

Summer

Question: 84

The plant is in a refueling outage with:
N31 indicating 50 cps
N32 indicating 60 cps.

An event occurs causing both source range nuclear instrument counts to increase to 100 cps.

Which ONE of the following will occur?

A Neither the SR HI FLUX AT SHUTDOWN annunciator or the Reactor Building evacuation alarm will actuate.

B The SR HI FLUX AT SHUTDOWN annunciator will not alarm but the Reactor Building Evacuation alarm will automatically actuate.

C The SR HI FLUX AT SHUTDOWN annunciator will alarm and the Reactor Building evacuation alarm should be manually actuated.

D The SR HI FLUX AT SHUTDOWN annunciator and the Reactor Building Evacuation alarm will automatically actuate.

NRC Reactor Operator Licensing Examination

Summer

Question: 85

If the two safety-related 125 VDC storage batteries are fully charged, which ONE of the following describes the MINIMUM amount of time the batteries must be capable of supplying all loads following a loss of all AC power?

A 30 minutes

B 1 hour

C 4 hours

D 8 hours

NRC Reactor Operator Licensing Examination

Summer

Question: 86

Instrument Air pressure is 60 psig and the reactor was manually tripped while performing the actions of AOP-220.1, "Loss of Instrument Air". ALL MSIVs are closed. The SRO dispatched one operator to take local control of S/G A PORV to reduce Tavg to 557 °F.

Which ONE of the following could occur as a result of dispatching only one operator and using only one SG PORV?

A A loss of heat transfer could occur.

B A safety injection could occur.

C Excessive RCS pressure increase and lifting PZR PORVs could occur.

D Other SG PORVs may fail open causing excessive cooldown.

NRC Reactor Operator Licensing Examination

Summer

Question: 87

Given the following plant conditions:

Plant is operating at 30% power.
Seal leakoff flows are:
"A" = 1.2 gpm, steady
"B" = 1.3 gpm, steady
"C" = 5.0 gpm. increasing slowly

"C" RCP #1 seal D/P is 190 psig.
"C" RCP #1 seal leakoff temperature is 198 °F and increasing slowly.
"C" RCP shaft vibration is 12 mils and steady.
"A" and "B" RCP shaft vibrations are normal.
All seal injection flows are within specifications

Which ONE of the following describes the correct crew response to these conditions?

A Trip the reactor, trip the "C" RCP, and go to EOP-1.0, "Reactor Trip/Safety Injection Actuation".

B Trip "C" RCP and commence shutdown in accordance with GOP-4 and GOP-5.

C Trip the "C" RCP, trip the reactor and go to EOP-1.0.

D Ensure PVT-8141C, C RCP SEAL LKOFF, is open

NRC Reactor Operator Licensing Examination

Summer

Question: 88

Given the following conditions:

Core Burnup = 16,500 MWD/MTU
MODE 3, normal operating pressure and temperature
RCS Boron concentration = 320 ppm
GOP-6, Plant Shutdown from Hot Standby to Hot Shutdown is in progress in preparation for refueling outage.

Using the provided excerpts from the Station Curve Book, which ONE of the following provides the approximate amount of Boric Acid required to allow RCS cooldown to 150 °F while maintaining 4% Shutdown Margin?

A 1191 gal

B 6935 gal

C 10000 gal

D 8750 gal

NRC Reactor Operator Licensing Examination

Summer

Question: 89

A Station Blackout has occurred and the crew is attempting to restore power in accordance with EOP-6.0, " Loss of All ESF AC Power". Assuming all diesel generator auxiliaries were in AUTO, which ONE of the following describes the cause for the diesel generator trip?

A ESF bus 1DA overcurrent.

B Low lube oil pressure.

C High crankcase pressure.

D Loss of generator field.

NRC Reactor Operator Licensing Examination

Summer

Question: 90

Given the following plant conditions:

The plant was initially at 95% power and increasing following a refueling outage.
The reactor has tripped.
Compensating voltage on N-35, Intermediate Range NI, is set too high.

Which ONE of the following describes the response of Intermediate Range N-35 to the improperly set compensating voltage?

A Indicates LOW; causing P-6 to Reinstate the Source Range HI FLUX TRIP prematurely.

B Indicates HIGH; preventing P-6 from automatically reinstating the Source Range instruments.

C Indicates HIGH; the Source Range HI FLUX TRIP will be reinstated by P-6 from the other IR channel (N-36).

D Indicates LOW, the Source Range HI FLUX TRIP will be reinstated when P-6 is satisfied by the other IR channel (N-36).

NRC Reactor Operator Licensing Examination

Summer

Question: 91

Which ONE of the following will cause the amount of natural circulation present to decrease? Assume RCS saturated.

A A change in S/G level from 50% NR to 20% NR.

B A change in S/G level from 40% WR to 70% WR.

C Go from 45% Pressurizer level to 92% RVLIS Narrow Range.

D Go from 70% RVLIS Narrow Range to 90% RVLIS Narrow Range.

NRC Reactor Operator Licensing Examination

Summer

Question: 92

The reactor was in Mode 4 on RHR cooling with the RCS intact. A loss of RHR cooling occurred for approximately 20 minutes. One RHR pump has been restored to operation. Which one of the following cooldown rate limit(s) is required in this situation?

A 100 °F per hour with Tavg less than 200 °F and 50 °F per hour with Tavg greater than 200 °F.

B 100 °F per hour with Tavg greater than 200 °F and 50 °F per hour with Tavg less than 200 °F.

C <100 °F per hour .

D <50 °F per hour.

NRC Reactor Operator Licensing Examination

Summer

Question: 93

Operators responding to a LOCA outside containment using EOP-2.5, "LOCA Outside Containment". Safety injection has actuated and RWST Lo-Lo level has been reached. Assuming the leak is UNISOLABLE, which one of the following identifies the procedure which must be entered to mitigate the current plant conditions?

A EOP-2.0, "Loss of Reactor or Secondary Coolant"

B EOP-2.1, "Post-LOCA Cooldown and Depressurization"

C EOP-2.2, "Transfer to Cold Leg Recirculation"

D EOP-2.4, "Loss of Emergency Coolant Recirculation"

NRC Reactor Operator Licensing Examination

Summer

Question: 94

Which ONE of the following describes a condition that would prevent successful transition to Cold Leg Recirculation and ~~provide~~ thereby prevent adequate core cooling ?

CLARIFIED TO STUDENTS DURING EXAM.

A Only one of the RHR Pump Suction Isolation valves, MVG-8701A or MVG-8701B, can be energized.

B Only one of the RHR Suction from RWST valves, MVG8809A or MVG-8809B, is energized.

C Containment Recirculation Sump Isolation valves, MVG-8811A and MVG-8812B, will not open.

D Containment Recirculation Sump Isolation valves, MVG-8812A and MVG-8811A, will not open.

NRC Reactor Operator Licensing Examination

SUMMER

Question: 95

The unit was operating at 84% power. No equipment was out of service. Ten minutes ago the following events occurred:

- The CRS directed the RO to initiate Phase 'A' Containment Isolation.
- The RO attempts to actuate the Phase 'A' switches, but inadvertently actuates one containment spray switch and one Phase 'A' switch.
- The operator realizes his mistake and informs the CRS.

Assuming no further operator actions, which of the following will occur?

A Containment Spray will actuate. SI will actuate.

B Containment Spray will actuate. SI will NOT actuate

C Containment Spray will NOT actuate. SI will NOT actuate.

D Containment Spray will NOT actuate. SI will actuate

NRC Reactor Operator Licensing Examination

Summer

Question: 96

After transferring waste gas decay tank "A" volume to waste gas decay tank "G", waste gas decay tank "G" is inadvertently drained to the VCT. What is the potential adverse consequence of this action?

A Lifting the VCT relief valve.

B Inadvertent positive reactivity addition.

C Letdown isolation.

D Damage to the RCP seals.

NRC Reactor Operator Licensing Examination

Summer

Question: 97

Power is inadvertently secured from the running reactor coolant drain tank pump which is recirculating the RCDT through the RCDT heat exchanger. You are directed to immediately start the redundant reactor coolant drain pump and re-establish recirculation flow. Why is it essential to re-establish RCDT recirculation flow?

A To prevent possible RCDT pump cavitiation.

B To minimize hot spot development for ALARA concerns.

C To prevent potential hydrogen accumulation.

D To prevent possible damage to the RCP seals.

NRC Reactor Operator Licensing Examination

Summer

Question: 98

Power is inadvertently secured from XFN-17A and XFN-17B fails to auto-start. Using the drawing provided, what automatic actions are expected?

A XFN-26A and XFN-26B should close.

B XDP-25A and XDP-25B should open.

C XFN-25B should open and XFN-26A and XFN-26B receive an open permissive.

D XFN-25A should close, and XFN-26A and XFN-26B should open.

NRC Reactor Operator Licensing Examination

Summer

Question: 99

The unit is operating at 85% power. PZR LEVEL CNTRL switch is in the 459+460 position. A steam leak develops on the 3/4" vent line of the condensate pot for PZR level transmitter LT-459. Which one of the following describes the response of the plant to this event? Assume no operator actions are taken.

A Actual PZR level will decrease. Charging flow will increase to restore level to setpoint.

B Actual PZR level increases slightly due to swell. Charging flow decreases to restore level to setpoint, HI level PZR B/U heater logic energizes B/U heaters.

C Actual PZR level decreases. Charging flow will decrease. Letdown isolation valve LCV-460 will close and PZR heaters will deenergize.

D Charging flow will increase due to indicated level decreasing. Actual level will increase to the HI level PZR Trip setpoint.

NRC Reactor Operator Licensing Examination

Summer

Question: 100

Which of the following is the fixed fire extinguishing system for the TSC Equipment Room and the BOP Relay and Computer rooms of the Control Building?

A Carbon Dioxide System

B Halon 1301 System

C Preaction Sprinkler System

D Wet Pipe Sprinkler System

RO Answer Key

Summer

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