

Final Submittal
(Blue Paper)

McGuire 2007-301

March, 29, 2007

Senior Operator Written Examination

MCGUIRE MARCH 2007 EXAM

EXAM NOS. 05000369, 370/2007301

MARCH 19 - 22, 2007

MARCH 29, 2007 - WRITTEN

U.S. Nuclear Regulatory Commission	
Site-Specific SRO Written Examination	
Applicant Information	
Name:	
Date:	Facility/Unit: McGuire
Region: II	Reactor Type: Westinghouse
Start Time:	Finish Time:
Instructions	
<p>Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with a 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.</p>	
Applicant Certification	
All work done on this examination is my own. I have neither given nor received aid.	
_____ Applicant's Signature	
Results	
RO/SRO-Only/Total Examination Values	_____ / _____ / _____ Points
Applicant's Score	_____ / _____ / _____ Points
Applicant's Grade	_____ / _____ / _____ Percent

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

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

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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

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Question 001

The following conditions exist:

- "1A NC Pump Seal Leakoff Hi" has been increasing slowly and is now 6.5 gpm.
- "1A NC Pump L/B Temp" is 200 degrees.
- "1A NC Pump Seal Outlet Temp" is 212 degrees.
- "1A" NC Pump Seal D/P is off scale high.
- "1A" NC Pump Standpipe high level alarm is dark.
- The plant is at 50% RTP.

Which ONE (1) of the following describes the status of 1A NC Pump seals and the actions that must be taken concerning the 1A NC Pump as a result of these conditions?

- A. #2 seal has failed. Initiate a plant shutdown to Mode 3. When reactor trip breakers are open, trip 1A NC Pump.
- B. #1 seal has failed. Initiate a plant shutdown to Mode 3. When reactor trip breakers are open, trip 1A NC Pump.
- C. #2 seal has failed. Trip the reactor and then trip 1A NC Pump. Isolate seal return within 3 to 5 minutes.
- D. #1 seal has failed. Trip the reactor and then trip 1A NC Pump. Isolate seal return within 3 to 5 minutes.

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Question 002

Which ONE (1) of the following describes a condition that will prevent 1A NC Pump from starting when its control switch is placed in START?

- A. #1 Seal DP 190 psig.
- B. #1 Seal Leakoff rate 7.2 gpm.
- C. Oil Lift pressure is 550 psig.
- D. Oil Lift Pump operating for less than 1 minute.

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Question 003

Which ONE (1) of the following describes where the circuit breaker for Boric Acid Transfer Pump "A" on Unit 1 is located?

- A. 1ELXA
- B. 1EMXA
- C. 1MXJ
- D. 1MXK

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Question 004

Given the following conditions:

- Both trains of residual heat removal (ND) are in service.
- ND heat exchanger outlet valves are throttled to 2000 gpm each.
- NC Cooldown rate is 25 degrees F per hour.
- The instrument air line to Train "B" ND heat exchanger outlet valve breaks off.

Which ONE (1) of the following would represent the **INITIAL** ND System response to this event?

	<u>Total ND System Flow</u>	<u>NC System Cooldown rate</u>
A.	Goes UP	Goes UP
B.	Goes UP	Remains the Same
C.	Goes DOWN	Goes DOWN
D.	Goes DOWN	Remains the Same

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Question 005

Which ONE (1) of the following describes the operation of ECCS during the injection phase of a LOCA?

- A. ND pumps aligned to NV and NI pump suctions to ensure maximum ECCS flow for all LOCA sizes.
- B. ND, NV, NI pumps are aligned to provide parallel flowpaths to ensure adequate NPSH for all LOCA sizes.
- C. ND, NV, NI pumps are aligned to provide parallel flowpaths to ensure maximum ECCS flow for all LOCA sizes.
- D. ND pumps aligned to NV and NI pump suctions to ensure maximum ECCS discharge head for all LOCA sizes.

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Question 006

Which ONE (1) of the following describes how FWST temperature is normally controlled?

- A. One heater bank automatically cycles on and off to maintain FWST temperature at approximately 75°F. Two additional banks are operated manually if necessary.
- B. One heater bank automatically cycles on and off to maintain FWST temperature at approximately 75°F. Two additional banks will automatically energize if FWST temperature drops to 72°F.
- C. All three heater banks are operated manually as necessary to maintain FWST temperature between 70°F and 80°F.
- D. All three heater groups are operated automatically to maintain FWST temperature at approximately 75°F.

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Question 007

Given the following conditions:

- Unit 1 is operating at 100% RTP.
- A transient has occurred causing a PZR PORV to momentarily lift.
- The following alarm is received in the control room:
 - PRT HIGH PRESS
 - PRT HIGH TEMP
- PRT pressure indicates 8.5 psig and has stabilized.
- PRT temperature is 125 degrees F and stable.

Which ONE (1) of the following describes the method used to restore PRT conditions to normal in accordance with OP/1/A/6150/004, PRT Operations?

- A. Vent the PRT to Containment
- B. Vent the PRT to the "B" Waste Gas Shutdown Tank
- C. Cool the PRT using the NCDT heat exchanger
- D. Drain the PRT and refill with Primary Grade water

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Question 008

Given the following:

- A reactor trip has occurred.
- The crew is performing E-0, Reactor Trip or Safety Injection.
- ONE (1) PZR safety valve has stuck partially open.
- PRT pressure is 32 psig and going up.
- Containment pressure is 0.1 psig and stable

Which ONE (1) of the following describes the highest indicated PRT pressure that will exist just prior to Containment pressure rising due to this event?

- A. 85.4 psig
- B. 100.1 psig
- C. 104.8 psig
- D. 114.8 psig

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Question 009

Which ONE (1) of the following describes the NORMAL and BACKUP makeup supplies to the KC Surge Tank?

- | | <u>NORMAL</u> | <u>BACKUP</u> |
|----|---------------|---------------|
| A. | NB | RN |
| B. | YM | NB |
| C. | YM | RN |
| D. | RN | YM |

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Question 010

Which ONE (1) of the following states the power supplies to PZR Heater Group "D"?

- | | <u>6 Banks</u> | <u>1 Bank</u> |
|----|----------------|---------------|
| A. | LXG | LXC |
| B. | ELXA | SMXG |
| C. | LXG | SMXG |
| D. | LXC | LXG |

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Question 011

A reactor startup is in progress on Unit 1.

- Intermediate Range Power indicates 5 E^{-11} amps on both channels.
- Source Range High Flux trips have NOT been blocked.

Which ONE (1) of the following describes the unit response to (1) a blown instrument power fuse, or (2) a blown control power fuse, on Source Range channel N31?

	<u>Instrument Power Fuse</u>	<u>Control Power Fuse</u>
A.	Reactor Trip	Reactor Trip
B.	Reactor Trip	NO Reactor Trip
C.	NO Reactor Trip	Reactor Trip
D.	NO Reactor Trip	NO Reactor Trip

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Question 012

Given the following on Unit 1:

- 100% power.
- At 0900, 1B NV Pump OOS for seal maintenance.
- At 0930, Train B SSPS is declared INOPERABLE for IAE periodic testing.
- At 1000, Train A NS is declared INOPERABLE due to an oil leak on the "A" NS Pump.
- At 1030, Train B SSPS is returned to OPERABLE status.
- At 1100, Train A NS is returned to OPERABLE status.

Which ONE (1) of the following describes the Technical Specification implications of these activities?

- A. At 0900, Train B NV operability is affected. At 1000, TS 3.0.3 must be entered, and may not be exited prior to 1100.
- B. At 0930, Train B NS operability is affected. At 1000, TS 3.0.3 must be entered and may not be exited prior to 1030.
- C. At 0900, Train B NV operability is affected. At 0930, TS 3.0.3 must be entered, and may not be exited prior to 1100.
- D. At 0930, Train B NS operability is affected. At 0930, TS 3.0.3 must be entered, and may not be exited prior to 1030.

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Question 013

Given the following conditions:

- An inadvertent SI signal was received during IAE testing.
- The reactor tripped.
- Reactor Trip Breaker "A" did NOT open and has been opened locally.
- BOTH SI RESET pushbuttons have been depressed.
- During realignment per ES-1.1, *SI Termination*, "A" RTB would NOT reclose.

If a large LOCA occurs at this time, which ONE (1) of the following would occur, and what is the effect on core cooling?

- A. Both trains of SI will automatically actuate. Core cooling requirements will be maintained throughout the event.
- B. ONLY Train B will automatically actuate but will be insufficient to maintain minimum core cooling requirements. Train A must be manually actuated.
- C. ONLY Train B will automatically actuate, and will be sufficient to maintain minimum core cooling requirements. Train A must be manually actuated.
- D. Neither train of SI will automatically actuate. Both trains of SI must be manually actuated to ensure minimum core cooling requirements are met.

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Question 014

Given the following plant conditions:

- Unit 2 is operating at 50% RATED THERMAL POWER with all systems in normal alignment for this plant condition.
- Containment Pressure has increased from 0.1 psig to 0.6 psig over the last 6 hours during an NC SYSTEM Leak.
- Subsequently the reactor is manually tripped.
- Containment pressure goes up to approximately 1.2 psig.
- Assume NO additional operator action.

Which ONE (1) of the following provides the expected alignment of Containment Ventilation Systems approximately 5 minutes later?

- A. The VU AHU(s) and their associated Return Fans are all RUNNING in the configuration that was present prior to the reactor trip.
- B. The VL AHU(s) are running in HIGH speed, powered from their Emergency Power Source.
- C. The Containment Pipe Tunnel Booster Fans are RUNNING in Low Speed.
- D. The Incore Instrumentation Room Ventilation Units are OFF.

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Question 015

Which ONE (1) of the following describes the effect of 1NFTT-6310, temperature transmitter controlling 1NF-848, (NF Floor Cooling Slab Temp Control Valve) failing LOW with no action taken?

1NF-848 will...

- A. OPEN. Excessive sublimation may cause ice buildup around the base of the Ice Condenser Inlet doors and inhibit the doors from opening.
- B. OPEN. Increased risk of buckling may occur as a result of freeze/thaw cycles in the Ice Condenser Wear Slab and potentially inhibit doors from opening.
- C. CLOSE. Excessive sublimation may cause ice buildup around the base of the Ice Condenser Inlet doors and inhibit the doors from opening.
- D. CLOSE. Increased risk of buckling may occur as a result of freeze/thaw cycles in the Ice Condenser Wear Slab and potentially inhibit doors from opening.

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Question 016

Given the following:

- A LOCA has occurred on Unit 2.
- Containment Pressure indicates 4 psig and rising.
- NC Pressure indicates 1400 psig and going down.
- The breaker for 2NS-3B, (Train 'B' NS Pump Suction valve from FWST) has tripped, and cannot be reclosed.
- All other equipment is operating as designed.

Which ONE (1) of the following describes the effect on the unit?

- A. NS Pump "B" will have no suction source until initiation of Containment Sump Recirculation.
- B. ONLY Train 'B' Containment Sump Isolation Valve 2NS-1B will NOT open.
- C. Train 'B' Containment Sump Isolation Valves 2NS-1B and 2NI-184B, will NOT open.
- D. ONLY Train 'B' Containment Sump Isolation Valve 2NI-184B, will NOT open.

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Question 017

Given the following conditions:

- A LOCA has occurred.
- Off-Site power was lost.
- NCS pressure is 1100 psig and stable.
- Containment pressure is 5 psig and stable.
- The crew is performing actions contained in EP 1/A/5000/ES-1.2, Post LOCA Cooldown and Depressurization.

Which ONE (1) of the following describes the method that will be used to perform cooldown of the NC System?

Perform cooldown using...

- A. Condenser steam dumps at maximum achievable rate until ND can be placed in service. Place steam dumps in Bypass Interlock when the P-12 status light is lit. NC system cooldown rate limits do NOT apply for this condition.
- B. Condenser steam dumps at less than 100 degrees F per hour until ND can be placed in service. Place steam dumps in Bypass Interlock when the P-12 status light is lit.
- C. S/G SM PORVs at the maximum achievable rate until ND can be placed in service. NC system cooldown rate limits do NOT apply for this condition.
- D. S/G SM PORVs at less than 100 degrees F per hour until ND can be placed in service.

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Question 018

With the Unit at 80% power, which ONE (1) of the following describes the **CF Pump Speed Control** response, if the Feedwater Header Pressure transmitter failed high over 10 minutes?

Assuming no operator action, the FWPT speed would:

- A. Increase until it tripped on overspeed
- B. Increase until a P-14 signal is generated
- C. Decrease until a Lo Lo S/G reactor trip signal is generated
- D. Decrease, but S/G level would be maintained at a lower programmed level

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Question 019

With Unit 1 at 50% RTP, Channel 42 of Nuclear Instrumentation fails to 120%.

If the S/G level program select switch is in the "Normal" position, which of the following describes the effect this failure will have on the S/G level control system?

- A. The feedwater regulating valves on "A" and "D" S/G will open to increase the levels to 65% since NI Channel 42 is now the controlling channel for these S/G's
- B. The feedwater regulating valves on "A" and "B" S/G will open to feed the S/G's to 65%. Since the programmed level is a "High Select" circuit, Channel 42 will be controlling.
- C. All feedwater regulating valves will open to feed all S/G levels to 65%. Since the programmed level is a "High Select" circuit, Channel 42 will be controlling
- D. The feedwater regulating valves on "B" and "C" S/G will open to increase the levels to 65% since NI Channel 42 is now the controlling channel for these S/G's

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Question 020

Given the following:

- Unit 1 is performing a plant heatup.
- NC Temperature is 425 degrees F.
- NC pressure is 920 psig.

Which ONE (1) of the following describes the MINIMUM CA pump(s) required for this condition in accordance with ITS 3.7.5 (Auxiliary Feedwater System)?

- A. One Motor Driven Pump only
- B. The Turbine Driven Pump only
- C. Two Motor Driven Pumps
- D. Two Motor Driven Pumps and the Turbine Driven Pump

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Question 021

Given the following on Unit 1:

- A reactor trip from 100% power has occurred.
- Bus 1ETA locked out.
- The TD CA Pump tripped on overspeed upon starting.

Assuming NO action has been taken, which ONE (1) of the following describes the status of the CA system?

CA is being supplied to...

- A. A and B SGs at up to 450 gpm
- B. C and D SGs at up to 450 gpm.
- C. A and B SGs at up to 900 gpm.
- D. C and D SGs at up to 900 gpm.

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Question 022

Unit 1 is shutdown in mode 3 with the following alignment of NCPs:

- All NCPs are running and powered from their normal sources
- Buses TA and TC are running off bus-line 1A
- Buses TB and TD are running off bus-line 1B
- A Generator –Switchyard protective lockout occurs on 1B Bus Line.

Which ONE (1) of the following describes the effect of the lockout on the B NC pump and bus TB?

- A. NCP B continues to run. Bus TB automatically fast transfers to the alternate power supply.
- B. NCP B continues to run. Bus TB automatically slow transfers to the alternate power supply.
- C. NCP B trips. Bus TB automatically fast transfers to its alternate power supply.
- D. NCP B trips. Bus TB automatically slow transfers to the alternate power supply.

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Question 023

Given the following conditions on Unit 1:

- The unit is at 100% power.
- The following annunciator is received in the Control Room:
 - BATT EVCA GROUND

Which ONE (1) of the following describes the indication available if the ground is on the positive leg of battery EVCA, and the resulting operation of the DC Bus?

- A. Ground indication light on the back of the Main Control Board will be brightly lit. Equipment malfunctions are NOT expected with a ground on one side.
- B. Ground indication light on the back of the Main Control Board will be brightly lit. Equipment malfunctions are expected with a ground on either the positive OR negative terminal.
- C. Ground indication light on the back of the Main Control Board will be extinguished. Equipment malfunctions are NOT expected with a ground on one side.
- D. Ground indication light on the back of the Main Control Board will be extinguished. Equipment malfunctions are expected with a ground on either the positive OR negative terminal.

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Question 024

Given the following:

- Unit 1 is operating at 100% power.
- D/G 1A is out of service.
- A loss of off-site power occurs.
- The crew enters E-0, Reactor Trip or Safety Injection.
- While determining if SI is required, D/G 1B trips.

Which ONE (1) of the following actions is required?

- A. Immediately enter AP/1/A/5500/07, Loss of Electrical Power. Return to E-0 when actions are complete.
- B. Continue in E-0 while attempting to restore D/G 1B, until directed to transition to another procedure.
- C. Refer to AP/1/A/5500/07, Loss of Electrical Power, while continuing in E-0.
- D. Immediately enter ECA-0.0, Loss of all AC Power.

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Question 025

While performing daily surveillance checks on 1EMF-33, CSAE, you determine that the OPERATE light is OFF.

Which ONE (1) of the following actions is required in accordance with PT/1/A/4600/003, Daily Surveillance items?

- A. Perform a source check to ensure the EMF alarm setpoints remain valid.
- B. Perform a source check to determine if the EMF is operable.
- C. Place the sample pump in RUN and determine if the OPERATE light illuminates.
- D. Place the sample Pump in OFF and then back to RUN to reset the OPERATE light.

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Question 026

Given the following:

- Unit 1 is operating at 100% power.
- Low Pressure Service Water (RL) Pump 1A trips on overcurrent and CANNOT be started.
- RL Pump 1B trips when attempting to start it.
- RL Pump 1C is running in MANUAL, and subsequently trips.

Which ONE (1) of the following describes the component that will immediately increase in temperature for this event?

- A. Isolated Phase Bus Duct.
- B. Turbine Lube Oil.
- C. Generator Stator.
- D. Generator Seal Oil.

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Question 027

Given the following:

- A loss of VI has occurred.
- The reactor was manually tripped.
- VI has NOT been restored.
- The crew is performing actions of AP/22, Loss of VI.
- The TSC is considering aligning VG to VI.

Which ONE (1) of the following describes the concern related to this alignment, and the action that will be taken if the alignment is performed?

- A. Concern is maintaining enough VG pressure for auto start of EDGs. EDGs will be started prior to performing the alignment.
- B. Concern is maintaining enough VG pressure for auto start of EDGs. EDGs will remain in standby and a dedicated operator will ensure VG pressure remains within limits.
- C. Concern is capacity of VG system to supply VI loads. VI to VS is manually isolated prior to performing the alignment.
- D. Concern is capacity of VG system to supply VI loads. ALL non-essential equipment supplied by VI is isolated prior to performing the alignment.

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Question 028

A reactor trip and safety injection has occurred.

The following conditions currently exist:

- NC pressure is 1500 psig.
- Tavg is 518°F.
- Containment pressure is 2.9 psig on 2 channels, 3.1 psig on 2 channels.
- SG pressures are 875 psig.
- SG levels are 5% NR and slowly rising.

Which ONE (1) of the following ESF actuations has/have occurred?

- A. Phase A only
- B. Phase A and Main Steam Line Isolation only
- C. Phase A and Phase B only
- D. Phase A , Phase B, and Main Steam Line Isolation

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Question 029

While at 8% power with a power ascension in progress, NC Pump 2C trips on overcurrent.

No operator action has been taken and no rod motion has occurred.

Which ONE (1) of the following describes the reactor and NCS loop C response?

- A. A reactor trip WILL occur and indicated Loop C Tavg will INCREASE.
- B. A reactor trip WILL occur and indicated Loop C Tavg will DECREASE.
- C. A reactor trip WILL NOT occur and indicated Loop C Tavg will INCREASE.
- D. A reactor trip WILL NOT occur and indicated Loop C Tavg will DECREASE.

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Question 030

Which ONE (1) of the following describes AFD target at the end of a Fuel Cycle as opposed to the AFD Target at the middle of the Fuel Cycle, and why?

- A. Less negative at end of cycle due to Moderator Temperature Coefficient being less negative at the End of the Fuel Cycle.
- B. Less negative at end of cycle due to the power shift caused by fuel depletion in the lower part of the core.
- C. More negative at end of cycle due to Moderator Temperature Coefficient being more negative at the End of the Fuel Cycle.
- D. More negative at end of cycle due to the power shift caused by fuel depletion in the lower part of the core.

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Question 031

Which ONE (1) of the following describes how iodine is removed from the Containment atmosphere following a LOCA?

- A. During the Injection phase by providing a spray of subcooled borated water from the FWST into the upper containment volume.
- B. During the Injection phase by providing a spray of water with an alkaline pH from the FWST into the upper containment volume.
- C. During the Recirculation phase by providing a spray of subcooled borated water from the containment sump into the upper containment volume.
- D. During the Recirculation phase by providing a spray of water with an alkaline pH from the containment sump into the upper containment volume.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 032

A reactor trip and SI actuation have occurred.

- Actions of E-0, Reactor Trip or Safety Injection, are complete
- Subsequent ECCS failures have caused transition to FR-C.2, Response to Degraded Core Cooling.
- The Hydrogen Analyzers have been placed in service.
- The NF AHUs have been secured.
- The Hydrogen Igniters have been energized.
- Hydrogen concentration has risen to 4.2%.

Which ONE (1) of the following describes the appropriate method for reducing Hydrogen concentration?

- A. Place the hydrogen recombiners in service.
- B. Place the hydrogen recombiners in service AND shut off the hydrogen igniters.
- C. Shut off the hydrogen igniters and obtain a recommendation from Station Management on the best method for hydrogen removal.
- D. Leave hydrogen igniters in service. Leave the hydrogen recombiners off. Obtain a recommendation from Station Management on the best method for hydrogen removal.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 033

Given the following conditions:

- Plant Startup following Refueling.
- Reactor power is at 68%.

Governor Valve #4 drifts OPEN approximately 10% from its initial position.

Assuming no action by the crew, which ONE (1) of the following describes the initial effect of the valve failure?

	<u>Main Steam Pressure</u>	<u>Tave</u>	<u>Reactor Power</u>
A.	Increase	Increase	Decrease
B.	Increase	Decrease	Increase
C.	Decrease	Increase	Decrease
D.	Decrease	Decrease	Increase

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 034

Given the following conditions on Unit 1:

- The unit is at 23% power during a power increase.
- Generator load and reactor power are decreasing.
- The crew has NOT determined the cause.
- The crew enters AP/1/A/5500/003, Load Rejection.
- The unit stabilizes at 4% power.

Which ONE (1) of the following describes the failure that has occurred, and which ONE (1) of the following actions is required to be performed in accordance with AP/1/A/5500/003?

- A. DEH Speed Control signal failed low; Reset C-7A and place steam dumps in the Steam Pressure Mode.
- B. EHC System fluid leak; Trip the reactor and enter EP/1/A/5000/E-0, Reactor Trip or Safety Injection.
- C. DEH Speed Control signal failed low; Trip the reactor and enter EP/1/A/5000/E-0, Reactor Trip or Safety Injection.
- D. EHC System fluid leak; Reset C-7A and place steam dumps in the Steam Pressure Mode.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 035

Given the following:

- The unit is at 100% power.
- All major controls are in AUTO.
- Tave has remained constant.
- Main Generator output has DECREASED 25 Mwe.

Which ONE (1) of the following describes the cause of the above indications?

- A. SG Safety Valve leakage.
- B. Condenser Air in-leakage.
- C. Inadvertent NC System boration.
- D. Inadvertent Control Rod insertion.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 036

Which ONE (1) of the following components will stop the Unit 1 Aux Building Ventilation Unfiltered Exhaust Fans on high radiation in the event of a Waste Gas leak to the Aux Building atmosphere?

- A. 1-EMF-37 (UNIT VENT IODINE HI RAD)
- B. 1-EMF-36 (UNIT VENT GAS HI RAD)
- C. 1-EMF-41 (AUX BLDG VENT HI RAD)
- D. 1-EMF-50 (WASTE GAS DISCHARGE HI RAD)

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 037

Given the following conditions:

- A Loss of Instrument Air has occurred.
- The crew is performing actions of AP/1/A/5500/022, Loss of VI.
- VI pressure is 80 psig and going down slowly.

Which ONE (1) of the following is the required action related to 1VI-820, VI to VS Cross-Connect valve in accordance with AP-22?

- A. Check 1VI-820 automatically closed; the valve closes at 90 psig decreasing.
- B. Manually close 1VI-820; the valve has no automatic features.
- C. Check 1VI-820 automatically opens; the valve opens at 90 psig decreasing.
- D. Manually open 1VI-820; the valve has no automatic features.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 038

Conditions in the Fire Protection system are as follows:

- System aligned for automatic operation.
- Pressurizer Tank level is 38 inches.
- System header pressure is 80 psig.

Which ONE (1) of the following describes the operation of Fire Protection System equipment?

- A. 1 Jockey Pump ONLY
- B. 2 Jockey Pumps ONLY.
- C. 1 Jockey Pump and 1 Fire Pump.
- D. 2 Jockey Pumps and 1 Fire Pump

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 039

A reactor trip has occurred from 100% power.

Which ONE (1) of the following describes (1) the MINIMUM time that it takes for the Source Range instruments to energize, and (2) the likely condition that would prevent the Source Range instruments from energizing automatically when required?

- A. (1) 5 - 10 minutes
(2) Undercompensated Intermediate Range
- B. (1) 5 - 10 minutes
(2) Overcompensated Intermediate Range
- C. (1) 11 - 15 minutes
(2) Undercompensated Intermediate Range
- D. (1) 11 - 15 minutes
(2) Overcompensated Intermediate Range

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 040

With Unit 1 at 80% power, a PZR PORV is stuck open.

Which ONE (1) of the following correctly describes how Departure From Nucleate Boiling Ratio (DNBR) and Over Temperature Delta T ($OT\Delta T$) setpoint are affected?

- | | <u>DNBR</u> | <u>$OT\Delta T$ setpoint</u> |
|----|-------------|---|
| A. | Lowers | Lowers |
| B. | Lowers | Rises |
| C. | Rises | Lowers |
| D. | Rises | Rises |

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 041

Given the following conditions:

- A reactor trip has occurred.
- Safety Injection is actuated.
- The crew is performing EP/1/A/5000/E-0, Reactor Trip or Safety Injection.
- NC System pressure is 1300 psig and stable.
- SG pressures are 1050 psig and stable.
- The operators have just completed E-0.

Which ONE (1) of the following describes the plant condition upon transition from E-0?

- A. NV AND NI Pumps are providing flow to the NC system. SGs are required for NC System heat removal.
- B. NV AND NI Pumps are providing flow to the NC system. SGs are NOT required for NC System heat removal.
- C. ONLY NV Pumps are providing flow to the NC system. SGs are required for NC System heat removal.
- D. ONLY NV Pumps are providing flow to the NC system. SGs are NOT required for NC System heat removal.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 042

The crew has entered FR-P.1, Response to Imminent Pressurized Thermal Shock due to a RED condition on the Integrity CSF Status Tree.

Which ONE (1) of the following describes the parameter that determines whether the Red condition on NC System Integrity was caused by a large LOCA or an actual PTS event?

- A. RVLIS level
- B. SG pressure
- C. ND flow rate
- D. NC temperature

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 043

The unit is operating at 55% power.

Of the selections below, which ONE (1) is the MINIMUM condition required to initiate Low NCP Flow reactor trip?

- A. 2/3 channels on 1/4 loops sense less than 95% flow.
- B. 2/3 channels on 1/4 loops sense less than 88% flow.
- C. 1/3 channels on 2/4 loops sense less than 95% flow.
- D. 1/3 channels on 2/4 loops sense less than 88% flow.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 044

The following conditions exist:

- The Unit is in Mode 4 during a plant cooldown
- PZR level is 51% and stable
- NC System pressure is 330 psig
- ND Pump A tripped on a bus fault.
- ND Pump B did **not** start and **cannot** be started
- Containment Closure is in progress

Which ONE (1) of the following actions will be performed **next**, and why, in accordance with AP-19, Loss of ND or ND System Leakage?

- A. Isolate letdown and dump steam from SGs to enhance natural circulation cooling.
- B. Initiate NV flow through the SI header to ensure cooling flow up through the reactor vessel.
- C. Isolate letdown and dump steam from the SGs because NI is not available for makeup in Mode 4.
- D. Initiate NV flow through the SI header because NI is not available for makeup in Mode 4

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 045

Which ONE (1) of the following will cause the KC Heat Exchanger Supply Isolation Valve RN-86A to OPEN when it's AUTO/MANUAL Mode Switch in the MANUAL position?

- A. RN flow to the KC Heat Exchanger falls below 2700 GPM.
- B. Train related RN Pump Control Switch is placed in START.
- C. Blackout or Safety Injection (S_s) signal is received.
- D. KC Heat Exchanger outlet temperature rises above its setpoint.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 046

Given the following conditions:

- Unit 1 is at 100% power.
- The **SETPOINT** for the Pressurizer Pressure Master Controller has failed **high**.

Which ONE (1) of the following describes the PZR Pressure Control System response, and the effect on the PZR Surge Line temperature due to this failure?

- A. ONE (1) PORV will open; Surge line temperature RISES.
- B. ONE (1) PORV will open; Surge line temperature LOWERS.
- C. Backup Heaters will energize; Surge line temperature RISES.
- D. Backup heaters will energize; Surge line temperature LOWERS.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 047

Given the following conditions:

- A Steam Generator Tube Rupture has occurred on the "1A" SG.
- All equipment is operating as designed.
- Actions have been performed up to preparation for cooldown to target temperature.
- The following indications exist:
 - "1A" SG pressure is 1080 psig and trending UP.
 - "1A" SG NR level is 55% and trending UP.

Which ONE (1) of the following describes how pressure will be controlled on "1A" SG prior to completion of the RCS cooldown and depressurization?

- A. Automatically with the SG SM PORV controller in AUTO.
- B. Manually by the condenser steam dump controller demand.
- C. Automatically at the condenser steam dump pressure setpoint.
- D. Manually with the SG SM PORV controller in MANUAL.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 048

Which ONE (1) of the following sets of conditions will result in the MOST SEVERE reactivity excursion during a Main Steam Line Break?

- A. 10% power, RCS Boron = 200 ppm.
- B. 10% power, RCS Boron = 1200 ppm.
- C. 100% power, RCS Boron = 200 ppm.
- D. 100% power, RCS Boron = 1200 ppm.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 049

Which ONE (1) of the following describes the reason for depressurizing the S/Gs to 210 psig in accordance with EP/1/A/5000/ECA-0.0, "*Loss of All AC Power*"?

- A. Initiate Cold Leg Accumulator injection and minimize NC Pump seal leakage.
- B. Initiate Cold Leg Accumulator injection and establish Natural Circulation conditions.
- C. Minimize secondary heat sink requirements and establish Natural Circulation conditions.
- D. Minimize secondary heat sink requirements and minimize NC Pump seal leakage.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 050

A Loss of Off-Site Power has occurred.

D/G '1B' is supplying bus 1ETB, loaded as follows:

- Voltage - 4120 volts.
- Frequency - 59.4 Hz.
- Load - 1800 KW.

Which ONE (1) of the following describes the response of D/G '1B' when the Governor Control Switch is taken to RAISE?

- A. Frequency and voltage remain the same; load increases.
- B. Frequency increases; load remains the same; voltage decreases.
- C. Frequency increases; Load and voltage remain the same or increase slightly.
- D. Frequency and voltage remain the same; load increases and VAR loading decreases slightly.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 051

Given the following conditions:

- The unit is at 100% power.
- Instrument Bus 1EKVA is aligned to 1KRP.
- The following alarm is received in the control room:
 - 1AD-11, H-5, 120 VAC REG PWR KRP TROUBLE

Which ONE (1) of the following describes the status of Instrument Bus 1EKVA?

- A. De-energized because 1KRP is de-energized; 1EKVA must be transferred back to 1EVIA to re-energize.
- B. Energized from 1KRP; 1KRP automatically transferred to its alternate source.
- C. De-energized because 1KRP is de-energized; 1KRP must be manually transferred to alternate source.
- D. Energized from 1EVIA; 1EKVA automatically transferred to inverter power when KRP was de-energized.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 052

Given the following:

- A BLACKOUT has occurred on 1ETA.
- D/G '1A' failed to start due to an 86N relay actuation.
- 1AD11-B4, BATTERY EVCA UNDERVOLTAGE is in alarm.
- EVDA bus voltage is 114 VDC and lowering slowly.

Which ONE (1) of the following describes the event that has occurred, and the action required to restore Bus EVDA in accordance with AP/1/A/5000/007, Loss of Electrical Power?

- A. Loss of DC Bus EVDA. Swap Battery Charger power supply to 2EMXA.
- B. Loss of DC Bus EVDA. Swap Battery Charger power supply to 1EMXH.
- C. Loss of Battery Charger EVCA. Swap Battery Charger power supply to 1EMXH.
- D. Loss of Battery Charger EVCA. Swap Battery Charger power supply to 2EMXA.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 053

Given the following conditions:

- Unit 1 is at 70% power.
- "B" Train in service.
- A loss of RN has occurred.
- The crew is performing actions of AP/20, Loss of RN, Case I, Loss of Operating RN Train.
- 1A RN Pump has been started, aligned to LLI.

Which ONE (1) of the following describes how 1A RN flow rate will be controlled AND the maximum allowable flow rate?

- A. Throttle 1RN-89A, RN to A KC HX Flow Control, to establish desired flow while maintaining 1A RN Pump flow less than 16,000 GPM.
- B. Throttle 1RN-90B, RN to B KC HX Flow Control to establish desired flow while maintaining 1A RN Pump flow less than 16,000 GPM.
- C. Throttle 1RN-89A, RN to A KC HX Flow Control, to establish desired flow while maintaining 1A RN Pump flow less than 11,500 GPM.
- D. Throttle 1RN-90B, RN to B KC HX Flow Control to establish desired flow while maintaining 1A RN Pump flow less than 11,500 GPM.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 054

Which ONE (1) of the following describes the reason that AP/1/A/5500/022, Loss of Instrument Air, directs the crew to manually trip the reactor?

- A. SG level control is lost.
- B. SG pressure control is lost.
- C. Pressurizer level control is lost.
- D. Pressurizer pressure control is lost.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 055

Given the following conditions:

- A LOCA outside containment has occurred.
- The crew is performing the actions in EP 1/A/5000/ECA-1.2, LOCA OUTSIDE CONTAINMENT.

Which ONE (1) of the following describes the FIRST components isolated and the indications used to determine if the leak has been isolated in accordance with ECA-1.2?

- A. Low Pressure Injection is isolated first because it is the most likely break location; NV flow is checked, because when the break is isolated, NV flow will be rapidly reduced.
- B. Low Pressure Injection is isolated first because it is the most likely break location; NC pressure is checked, because when the break is isolated, NV flow will repressurize the NC System.
- C. High Pressure Injection is isolated first because of the piping stress on the line due to LOCA size; Pressurizer level is checked, because when the break is isolated, NC Inventory will rapidly rise.
- D. High Pressure Injection is isolated first because of the piping stress on the line due to LOCA size; RVLIS indication is checked, because when the break is isolated, vessel head voiding will immediately be reduced.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 056

Given the following conditions:

- EP 1/A/5000/ECA-2.1, Uncontrolled Depressurization of All Steam Generators is being performed.
- The crew has reduced CA flow to all steam generators (SG) to minimum as they continue attempts to isolate the SGs.

Which ONE (1) of the following describes the expected plant response to the CA flow reduction and what actions will be taken to mitigate the effect?

- A. NC System hot leg temperatures will eventually begin to increase due to reduction of SG inventory and the crew will then transition to FR-H.1, Response to Loss of Secondary Heat Sink.
- B. NC System hot leg temperatures will eventually begin to increase due to reduction in SG inventory and the crew will then raise CA flow while continuing in ECA-2.1, Uncontrolled Depressurization of All Steam Generators.
- C. The SGs will eventually become completely depressurized due to inadequate secondary heat sink and the crew will then transition to E-2, Faulted Steam Generator Isolation.
- D. The SGs will eventually become completely depressurized due to inadequate secondary heat sink and the crew will then transition to FR-H.1, Response to Loss of Secondary Heat Sink.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 057

The unit is at 11% power during a plant startup prior to synchronizing the Main Generator to the grid.

ONE (1) Control Group C rod drops to the bottom of the core.

Tave indicates the following:

- Loop A – 550 deg F
- Loop B – 551.5 deg F
- Loop C – 551.5 deg F
- Loop D – 550 deg F

Which ONE (1) of the following describes the condition of the reactor and the action required?

Minimum Temperature for Criticality...

- A. Has been exceeded. Place the plant in Mode 2 with $K_{eff} < 1.0$ within 30 minutes because MTC may no longer be within the analyzed range for accident analysis.
- B. Has been exceeded. Restore temperature within 1 hour or be in Mode 2 with $K_{eff} < 1.0$ within the following 30 minutes because MTC may no longer be within the analyzed range for accident analysis.
- C. Has NOT been exceeded. Trip the reactor and enter E-0, Reactor Trip or Safety Injection, because the turbine is not available to stabilize NC System temperature.
- D. Has NOT been exceeded. Stabilize Tave in accordance with AP/1/A/5500/014, Rod Control Malfunction. Recover the rod to prevent power distribution limits from being exceeded.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 058

Given the following plant conditions:

- Unit at 100% RATED THERMAL POWER with all systems normally aligned for this power level.
- Pressurizer Level Control Switch is in the "1&2" position.

The following events occur in the order as listed:

- Charging flow goes down.
- Letdown automatically isolates and PZR heaters (all) de-energize.
- Reactor Trip occurs.

Which ONE (1) of the following describes the PRESSURIZER LEVEL CHANNEL which failed and the associated alarms that will be received?

- A. Channel I failed HIGH. PZR HI LEVEL ALERT and PZR HI LEVEL DEVIATION CONTROL alarms will be received.
- B. Channel I failed HIGH. PZR HI LEVEL DEVIATION CONTROL alarm will be received ONLY.
- C. Channel II failed LOW. PZR LO LEVEL ALERT and PZR LO LEVEL DEVIATION CONTROL alarms will be received.
- D. Channel II failed LOW. PZR LO LEVEL DEVIATION CONTROL alarm will be received ONLY.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 059

Given the following conditions:

- Unit 1 is in Mode 5.
- Source Range Channel 1N-31 failed 2 hours ago and was removed from service.
- Repairs have been made and the channel has been returned to service.

Which ONE (1) of the following describes the indication available for N-31 when it has been returned to service?

- A. HIGH FLUX AT SHUTDOWN switch – NORMAL
S/R HI FLUX ALM BLOCKED (1AD2, D-2) – LIT
S/R OR I/R TRIP BYPASS (1AD2, E-2) – LIT
1/N-31B S/R CHANNEL 1 TRIP BYPASS status light – LIT
- B. HIGH FLUX AT SHUTDOWN switch – NORMAL
S/R HI FLUX ALM BLOCKED (1AD2, D-2) – DARK
S/R OR I/R TRIP BYPASS (1AD2, E-2) – LIT
1/N-31B S/R CHANNEL 1 TRIP BYPASS status light – LIT
- C. HIGH FLUX AT SHUTDOWN switch – NORMAL
S/R HI FLUX ALM BLOCKED (1AD2, D-2) – DARK
S/R OR I/R TRIP BYPASS (1AD2, E-2) – DARK
1/N-31B S/R CHANNEL 1 TRIP BYPASS status light – DARK
- D. HIGH FLUX AT SHUTDOWN switch – BYPASS
S/R HI FLUX ALM BLOCKED (1AD2, D-2) – DARK
S/R OR I/R TRIP BYPASS (1AD2, E-2) – LIT
1/N-31B S/R CHANNEL 1 TRIP BYPASS status light – DARK

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 060

The unit is in Mode 6.

Refueling activities are in progress. An error was made and several fuel assemblies were mispositioned in the core.

Which ONE (1) of the following indications will determine whether an inadvertent criticality is occurring?

- A. Source Range indication and Intermediate Range Startup Rate
- B. Containment Evacuation alarm and Source Range Startup Rate
- C. Wide Range Neutron Detectors and Intermediate Range indication
- D. Intermediate Range Startup Rate and Containment Evacuation alarm

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 061

Given the following:

- Unit 1 has initiated a liquid radioactive waste release from the Ventilation Unit Condensate Drain Tank (VUCDT) through the RC system.
- All lineups and authorizations have been properly made in accordance with OP/0/B/6200/35 using the normal path.
- Three RC pumps are the minimum required under the LWR document.

Given the following initial conditions:

- 3 RC pumps are running
- 1EMF-44 (*CONT VENT DRN TANK OUT*) correctly set for trip 1 and trip 2 activity limits
- Allowable Release Rate = 50 GPM (based on high activity)
- No other releases are in progress

If the release automatically terminates 40 seconds after initiation, which one of the following conditions could have terminated the release?

- A. VUCDT Pumps tripping when 1EMF-44 reached the trip-2 setpoint
- B. 1WM-46 closing automatically when one RC Pump trips
- C. VUCDT Pumps tripping when one RC Pump trips
- D. 1WP-35 closing automatically when 1EMF-44 reached the trip 2 setpoint

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 062

Given the following conditions on Unit 1:

- A Steam Generator Tube Rupture has occurred.
- The crew is preparing to cooldown the ruptured SG.

Which ONE (1) of the following methods of cooldown would cause the least amount of radioactive contamination and mitigate the event?

- A. Process through SG blowdown.
- B. Backfill the ruptured SG to the NC system.
- C. Steam Dump to condenser.
- D. Steam Dump through SG SM PORVs.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 063

Given the following conditions:

- Three days after a LOCA, the VE system is in operation.
- The following alarm is received:
 - AD12-F3, 1A VE Filter Fire
- Filter temperature is 380°F and going up.
- System response is as designed.

Which ONE (1) of the following correctly describes the action(s) required?

- A. Verify 1A VE Fan has automatically tripped. Dispatch an operator to open the Mulsifyre RF isolation valve to spray down the Charcoal Filters.
- B. Verify 1A VE Fan has automatically tripped. Verify automatic actuation of the Mulsifyre RF deluge system.
- C. Manually trip 1A VE Fan. Dispatch an operator to open the Mulsifyre RF isolation Valve to spray down the RF Charcoal Filters.
- D. Manually trip 1A VE Fan. Verify automatic actuation of the Mulsifyre RF deluge system.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 064

Given the following:

- The operating crew initiated a manual SI due to a small break LOCA.
- Equipment failures resulted in a RED condition on the Integrity CSF Status Tree.
- NC Cooldown rate was approximately 220 deg F per hour.
- NC System temperature is currently 240 degrees F.
- The crew is performing a soak in accordance with FR-P.1, Response to Imminent Pressurized Thermal Shock Condition.

Which ONE (1) of the following actions is permitted?

- A. Isolate the Cold Leg Accumulators.
- B. Energize PZR heaters.
- C. Start an NV Pump.
- D. Increase CA flow to SGs.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 065

Given the following:

- The reactor was tripped 45 minutes ago.
- All NC Pumps were tripped.
- NC System Cooldown rate could not be controlled adequately using ES-0.2, Natural Circulation Cooldown.
- The plant cooldown is being performed in accordance with ES-0.3, Natural Circulation Cooldown With Steam Void in Vessel.
- Conditions for starting an NC Pump are established.
- RVLIS Upper Range indication is 80%.

Which ONE (1) of the following describes the requirement for establishing pressurizer level prior to NC Pump start and the reason for the requirement?

- A. Establish PZR level at 90% to prevent overpressurization of the NC System due to heat input when the NC Pump is started.
- B. Establish PZR level at 90% to provide for sufficient inventory when the void is collapsed.
- C. Establish PZR level 25-35% to provide for sufficient inventory when the void is collapsed.
- D. Establish PZR level 25 - 35% to prevent overpressurization of the NC System due to heat input when the NC Pump is started.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 066

Unit 1 is in Mode 3.

Which ONE (1) of the following describes the MAXIMUM NC System pressure allowed by Technical Specifications, and the MAXIMUM time to reduce pressure below the limit if it is exceeded?

- A. 2735 psig; reduce pressure to below the setpoint within 1 hour.
- B. 2735 psig; reduce pressure to below the setpoint within 5 minutes.
- C. 2765 psig; reduce pressure below the setpoint within 1 hour.
- D. 2765 psig; reduce pressure below the setpoint within 5 minutes.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 067

A release of toxic fumes in the control room has rendered it uninhabitable.

Unit 1 is being placed in Hot Standby in accordance with Loss of Control Room, (AP/1/A/5500/17).

NC System temperature continues to decrease uncontrollably below 557°F.

Which ONE (1) of the following describes the action that must be taken and how is it accomplished in accordance with AP-17?

- A. Request IAE to locally initiate SM Isolation
- B. Locally isolate the steam dumps by closing 1SM-15.
- C. Dispatch an operator to the Battery Room to open the EVDA breakers to fail the MSIVs closed.
- D. Dispatch an operator to the Exterior Doghouse to close the MSIVs using the manual loaders

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 068

Which ONE (1) of the following is a responsibility of the OATC during Refueling Operations?

- A. Maintain a 1/M plot during fuel shuffle
- B. Give permission prior to unloading each fuel assembly in the core
- C. Update the Containment Penetration Status Board
- D. Update the Fuel Movement Status Computer for each fuel move as it is performed

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 069

The following Unit 1 conditions exist:

- The reactor was operating at 78% power when a loss of A CF Pump occurred.
- The crew is taking the required actions in accordance with AP/03, "Load Rejection".
- The Reactor Operator was inserting rods in manual to lower T_{ave} .
- T_{ave} is at T_{ref} .
- Annunciator 1AD-2, A-9, CONTROL ROD BANK LO LIMIT, has annunciated.
- The power reduction has stopped.

Which ONE (1) of the following is the correct response to the given plant condition in accordance with AP-03?

- A. Shutdown margin is not sufficient for the given plant conditions and operators should emergency borate to regain the required shutdown margin.
- B. The operator has driven rods in too far for the existing power level and must initiate normal boration until the Control Rod Bank Lo Limit alarm is clear.
- C. Turbine load has decreased too far for the current plant conditions and must be raised until the Control Bank Lo Limit alarm clears.
- D. The operator will ensure the Control Rod Bank Lo Limit alarm clears as Xenon builds in at the current power level.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 070

Given the following:

- Both units are operating at 100% power.
- 'A' Train RN is operating on both units.
- Operations Test Group is performing 'B' Train RN Valve Stroke Timing.
- One section of this test is to stroke 0RN-284B, Train 1B and 2B Discharge to RC.

Which ONE (1) of the following describes the potential consequence, if any, of stroking this valve?

- A. No consequence because Train 'A' RN is running on both units.
- B. The RN Non-Essential Header will be isolated on Unit 1.
- C. The RN Non-Essential Header will be isolated on Unit 2.
- D. The RN Non-Essential Header will be isolated on BOTH Units.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 071

A rapid load reduction from 100% power to 60% power was performed on Unit 1 approximately 3 hours ago.

The following alarms are received in the control room:

- 1EMF-48 REACTOR COOLANT HI RAD
- 1EMF-18, REACTOR COOLANT FILTER 1A

Chemistry confirms that the elevated activity is due to a crud burst.

Which ONE (1) of the following actions is subsequently performed to limit the release of activity?

- A. A cation bed is placed in service
- B. Letdown flow is raised to 120 GPM
- C. S/G SM PORV setpoints are raised
- D. Maximum Condensate Polishers are placed in service

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 072

A Duke employee has received radiation exposure (TEDE) of 1649 mRem this year.

Which ONE (1) of the following describes the MAXIMUM amount of exposure he may receive without reaching the Duke Administrative limit, and the MAXIMUM amount of exposure he may receive prior to reaching the 10CFR20 limit?

- A. 150 mRem; 1350 mRem
- B. 150 mRem; 3350 mRem
- C. 350 mRem; 1350 mRem
- D. 350 mRem; 3350 mRem

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 073

Given the following plant conditions:

- Unit 2 is at 50% power.
- All systems are in automatic.
- "A" Train KC is in operation.

Which ONE (1) of the following lists of conditions would require entry into AP/2/A/5500/21, Loss of KC or KC System Leakage?

- A. KC surge tank level increasing;
NCP stator winding temperatures increasing;
Thermal barrier KC auto isolation.
- B. KC-132, Letdown Heat Exchanger outlet temperature control valve, throttling open;
NCP motor bearing temperature increasing;
NCP lower bearing low flow alarm.
- C. KC-132, Letdown Heat Exchanger outlet temperature control valve, throttling closed;
NCP motor bearing temperature increasing;
RN non-essential header pressure low.
- D. KC surge tank abnormal level alarm;
NCP seal temperature increasing;
NCP stator winding temperature increasing.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 074

Given the following:

- Unit 1 is at 100% power.
- Annunciator 1AD-13, E6, "OAC TROUBLE" is received.
- IAE subsequently determines the OAC is inoperable and it will take approximately 6 hours to repair

Which ONE (1) of the following describes the action required while the OAC is inoperable?

- A. Record QPTR within one hour and every hour until OAC is restored.
- B. Record AFD within one hour and every hour until OAC is restored.
- C. Perform a manual AFD calculation within 1 hour and every 4 hours until OAC is restored.
- D. Verify each control rod is within 24 steps of its group demand position within 1 hour and every 4 hours until OAC is restored.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 075

Given the following conditions:

- SI actuated due to a LOCA.
- BOTH NI Pumps are TRIPPED.
- NC pressure is 1050 PSIG.
- NC System Subcooling is -1°F
- Containment pressure is 2.8 psig.
- All other equipment is running per design.
- The crew is performing actions of EP 1/A/5000/E-0, Reactor Trip or Safety Injection.

Which ONE (1) of the following describes the required action and reason for the action with respect to the NC Pumps?

- A. Stop all NC Pumps to minimize fluid mass loss out of the break.
- B. Stop all NC Pumps to prevent mechanical damage to the pump and motor.
- C. Leave all NC Pumps running to provide reflux cooling of the NC System.
- D. Leave all NC Pumps running to prevent phase separation of NC liquid.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 076

Given the following on Unit 1:

- The Unit is in Mode 3, normal NC temperature and pressure.
- Shutdown Banks are withdrawn.
- Preparations are being made to perform a reactor startup.
- A problem in the DRPI Cabinet results in loss of DRPI indication on the Main Control Board and OAC.

Which ONE (1) of the following actions is required in accordance with Technical Specifications/SLC?

- A. Immediately open the reactor trip breakers to ensure compliance with control rod alignment and insertion limits.
- B. Verify Shutdown Margin requirements are met within 1 hour because DRPI is normally required to verify Shutdown Margin.
- C. Restore DRPI within 1 hour or open the reactor trip breakers because DRPI is normally required to verify Shutdown Margin.
- D. Initiate a boration within 1 hour to ensure compliance with control rod alignment and insertion limits.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 077

Given the following conditions:

- Unit 1 is at 100% power.
- The following annunciator is received in the control room:
 - 1EMF 46A TRAIN A KC HI RAD
- OAC points for NC Pump Thermal Barrier Outlet flow trends indicate:
 - A NC Pump 42 GPM
 - B NC Pump 43 GPM
 - C NC Pump spiked to 122 GPM, now indicates 30 GPM.
 - D NC Pump 42 GPM
- 1KC-345A (C NC Pump Thermal Barrier Outlet Valve) indicates closed.
- KC Surge Tank Level is rising slowly.

Which ONE (1) of the following describes (1) the operation of 1KC-122, KC Surge Tank Vent Valve, and (2) the procedure required based on current plant conditions?

- A. (1) 1KC-122 is closed
(2) AP/1/A/5500/08, Malfunction of NC Pump
- B. (1) 1KC-122 is closed
(2) AP/1/A/5500/10, NC System Leakage Within the Capacity of Both NV Pumps
- C. (1) 1KC-122 is open
(2) AP/1/A/5500/08, Malfunction of NC Pump
- D. (1) 1KC-122 is open
(2) AP/1/A/5500/10, NC System Leakage Within the Capacity of Both NV Pumps

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 078

The following conditions exist:

- Unit 1 is in Mode 1, 100% power.
- "A" and "B" Train KC pumps are running.
- All available makeup has been established to the KC surge tanks.
- "A" KC Surge tank level is decreasing 0.04 ft/min.
- "B" KC Surge Tank level is decreasing at 0.03 ft/min.
- "A" KC Surge Tank level is presently 3.2 ft.
- "B" KC Surge Tank level is presently 3.4 ft.
- NCP bearing temperatures are approximately 180 degrees F and rising slowly.

Which ONE (1) of the following describes the action and procedure use required?

- A. Enter AP/08, NC Pump Malfunctions, and trip NC Pumps.
- B. Trip the reactor; enter E-0, Reactor Trip or Safety Injection. Trip NCPs and trip "A" KC Pumps.
- C. Enter AP/21, Loss of KC or KC System Leakage, and Isolate KC Non-Essential Headers in accordance with Enclosure 2.
- D. Enter AP/21, Loss of KC or KC System Leakage, and isolate "A" KC train from "B" KC train.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 079

Given the following:

- Unit 1 is operating at 100% power.
- PZR Pressure Control is selected to Position 1-2
- PZR Level control is selected to Position 1-2.
- The common sensing line for PZR Pressure Channel 1 and PZR Level Channel 1 develops a leak.

Which ONE (1) of the following describes the effect on the Unit and the procedure selection required?

- A. PZR Heaters will energize; Charging flow will go up. Enter AP-11, Pressurizer Pressure Anomalies ONLY.
- B. Pressurizer Spray Valves will open; Letdown will isolate. Refer to Technical Specifications for action applicable to minimum NC Pressure, and AP-12, Loss of Letdown, Charging, or Seal Injection.
- C. PZR Heaters will energize; Charging flow will go down. Enter AP-11, Pressurizer Pressure Anomalies, and associated Annunciator Response Procedures.
- D. Pressurizer Spray Valves will open; Letdown will isolate. Refer to Technical Specifications for action applicable to minimum NC Pressure, and associated Annunciator Response Procedures.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 080

Given the following conditions:

- An ATWS has occurred on Unit 1.
- The crew is performing FR-S.1, Response to Nuclear Power Generation/ATWS.
- NC Boration is in progress.
- SI has actuated.
- All SG pressures are approximately 800 psig and trending down.
- NC Temperature is approximately 490 degrees F and trending down.
- Reactor Power indicates approximately 7% and trending down slowly.

Which ONE (1) of the following describes the mitigation strategy for the event in progress?

- A. Remain in FR-S.1 and perform Enclosure 2 (Faulted SG Isolation). Transition to E-0, Reactor Trip or Safety Injection when Enclosure 2 is complete.
- B. Remain in FR-S.1 and perform Enclosure 2 (Faulted SG Isolation). Transition to E-0, Reactor Trip or Safety Injection when reactor power is less than 5%.
- C. Exit FR-S.1; Transition to E-0, Reactor Trip or Safety Injection to ensure actuated components are in their correct alignments.
- D. Exit FR-S.1; Transition to E-0, Reactor Trip or Safety Injection and ONLY perform steps of subsequent EOPs that do not contradict the actions taken in FR-S.1.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 081

Given the following conditions:

- A Station Blackout has occurred.
- Unit 1 is performing ECA-0.0, Loss of All AC Power.
- NC Subcooling is (-)1 degree F.
- A RED Path exists on the Heat Sink CSF Status Tree.
- 1A D/G has been started and is supplying its associated bus.
- The crew is preparing to transition to the appropriate recovery procedure.

Which ONE (1) of the following describes the recovery strategy?

- A. Transition to FR-H.1 upon exit from ECA-0.0. Perform ECA-0.1, Loss of All AC Power Recovery Without SI Required, when FR-H.1 is complete.
- B. Transition to FR-H.1 upon exit from ECA-0.0. Perform ECA-0.2, Loss of All AC Power Recovery with SI Required, when FR-H.1 is complete.
- C. Transition to ECA-0.1, Loss of All AC Power Recovery Without SI Required, and enter FR-H.1 when directed by ECA-0.1.
- D. Transition to ECA-0.2, Loss of All AC Power Recovery with SI Required, and enter FR-H.1 when directed by ECA-0.2.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 082

Given the following conditions on Unit 2:

- The Unit is stable at 54% power following a load reduction due to Loss of a Bus Line.
- Bank D Step Counters are at 172 steps on Group 1 and Group 2.
- All Bank D rods indicate approximately 170 steps with the exception of M-12, which is at 200 steps, and H-8, which is at 0 steps.
- QPTR is 1.023

Which ONE (1) of the following describes the action required for this condition?

- A. Enter AP-14, Rod Control Malfunction, and perform Enclosure 2 for misaligned Control Rods.
- B. Enter AP-14, Rod Control Malfunction, and perform Enclosure 1 for dropped Control Rods (misaligned more than 24 steps).
- C. Enter AP-14, Rod Control Malfunction. Trip the reactor and enter E-0, Reactor Trip or Safety Injection.
- D. Initiate a load reduction using AP/1/A/5500/04, Rapid ^{DOWNPOWER.} ~~Power~~ Load Reduction may be stopped when QPTR is within limits.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 083

Given the following events and conditions on Unit 1:

- 45% RTP
- 1A RC pump is tagged for motor repair
- 1B RC pump motor breaker tripped due to overcurrent 2 minutes ago
- While responding to the 6.9 KV switchgear room an NLO accidentally trips open the 1C RC pump breaker

Which ONE (1) of the following statements describes the correct plant response and sequence of procedure implementation?

- A. C-9 permissive will be lost and the unit will runback due to OTDT. AP/1/A/5500/23 (*Loss of Condenser Vacuum*) and AP/1/A/5500/02 (*Turbine Generator Trip*) will be implemented.
- B. C-9 permissive will be lost and the unit will runback due to OTDT. AP/1/A/5500/03 (*Load Rejection*) and AP/1/A/5500/23 (*Loss of Condenser Vacuum*) will be implemented.
- C. Condenser vacuum will go down until the turbine trips. AP/1/A/5500/23 (*Loss of Condenser Vacuum*) and EP/1/A/5000/E-0 (*Reactor Trip or Safety Injection*) will be implemented.
- D. Condenser vacuum will go down until the turbine trips. AP/1/A/5500/23 (*Loss of Condenser Vacuum*) and AP/1/A/5500/02 (*Turbine Generator Trip*) will be implemented.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 084

Given the following:

- Unit 1 is in Mode 6.
- Refueling Operations are in progress.
- A spent fuel assembly is being withdrawn from the core.
- The following annunciator is received in the control room:
 - 1 EMF 16, CONTAINMENT REFUELING BRIDGE
- The RO verifies that 1EMF-16 is above the Trip 2 setpoint.
- **No** other EMFs are in alarm status.
- The assembly was replaced in the core.

Which ONE (1) of the following describes the plant condition, and the action required?

- A. A Containment Evacuation alarm was received. Containment Evacuation should be performed and ensure at least 1 train of VC outside air pressure filtration is in service.
- B. A Containment Evacuation alarm was received. Verify that Containment Purge automatically stopped; determine whether conditions still exist that require Containment Evacuation, and notify RP.
- C. A Containment Evacuation alarm was NOT received. Notify RP and evacuate Containment if required by RP.
- D. A Containment Evacuation alarm was NOT received. Containment Evacuation should be performed and ensure at least 1 train of VC outside air pressure filtration is in service.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 085

Given the following conditions on Unit 1:

- The unit is in Mode 6.
- Refueling has been suspended due to an NC Pump motor being removed from Containment.
- A report of a ruptured fuel assembly in Containment is received in the control room.
- The crew enters the appropriate procedure.

Which ONE (1) of the following actions must be taken?

- A. Isolate VB and VS Penetrations.
- B. Ensure VF has been placed in 'Filter Mode'.
- C. Notify Maintenance to close the equipment hatch.
- D. Notify the Fuel Handling Crew to move the Fuel Transfer Cart to the Containment.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 086

Given the following plant conditions:

- Unit 1 is operating at 100% RTP.
- NC-32, PZR PORV lifts for no apparent cause
- The RO places the PORV Control Switch in CLOSE.
- PZR Pressure continues to go down with **Red and Green** indication for the PORV.
- The RO closes the associated block valve and PZR Pressure stops going down and is now at 2110 psig and increasing slowly.

Which ONE (1) of the following describes the MINIMUM required actions in accordance with Technical Specifications?

- A. Close and **maintain** power available to associated block valve within one hour; restore NC System pressure to > limits specified in the COLR within 2 hours.
- B. Close and **maintain** power available to associated block valve within one hour; restore NC System pressure to > limits specified in the COLR within 1 hour.
- C. Close and **remove** power from the associated block valve within one hour; restore NC System pressure to > limits specified in the COLR within 1 hour.
- D. Close and **remove** power from associated block valve within one hour; restore NC System pressure to > limits specified in the COLR within 2 hours.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 087

Given the following conditions:

- Unit 1 is in Mode 3, during a plant cooldown to Cold Shutdown.
- NC pressure is 1800 psig.
- NC temperature is 475 degrees F.
- Safety Injection Train 'A' **inadvertently** actuates.

Which ONE (1) of the following describes (1) the procedure to be entered; and (2) the action required with regard to the Ice Condenser?

- A. (1) E-0, Reactor Trip or Safety Injection
(2) Shut off Glycol Pumps and Floor Cooling Pumps because Phase A isolation has occurred.
- B. (1) AP-35, ECCS Actuation During Plant Shutdown
(2) Shut off Glycol Pumps and Floor Cooling Pumps because Phase A isolation has occurred.
- C. (1) E-0, Reactor Trip or Safety Injection
(2) Ensure all available NF AHUs are operating to ensure that design basis accident analysis assumptions are met.
- D. (1) AP-35, ECCS Actuation During Plant Shutdown
(2) Ensure all available NF AHUs are operating to ensure that design basis accident analysis assumptions are met.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 088

Given the following plant conditions:

- The Unit is operating at 50% RTP
- The Turbine Driven CA pump was taken OOS 12 hours ago for bearing replacement.
- A fire occurred 30 minutes ago which damaged both Motor Driven CA pump motors to the point where neither motor will operate.
- No other plant damage occurred in the fire

Which ONE (1) of the following actions is required?

- A. Immediately initiate action to restore one CA train to operable status; power operation may continue with all three CA Pumps Inoperable.
- B. Restore at least 2 CA Pumps to service within 1 hour, or be in Hot Standby within the following 6 hours.
- C. Restore at least 1 CA Pump to service within 1 hour, or be in Hot Standby within the following 6 hours.
- D. Enter the action of TS 3.0.3; be in at least HOT STANDBY within 7 hours from the time it was determined that no CA trains were operable.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 089

Given the following conditions on Unit 1:

- Chemistry had confirmed two leaking fuel rods.
- A large break LOCA occurs.
- The unit is aligned for Cold Leg Recirc.
- E-1 Loss of Reactor or Secondary Coolant is in progress.
- All Red and Orange Paths have been addressed.
- 1EMF 51A is reading 39R/Hr.
- Pressurizer level is 0%.
- The SRO is currently considering implementing Yellow Path procedures.

Which ONE (1) of the following describes proper procedure implementation?

- A. Go to FR-I.3, (Response to Voids in the Reactor Vessel) and exit E-1
- B. Stay in E-1 and implement FR-I.3 concurrently
- C. Go to FR-Z.3, (Response to High Containment Radiation Level) and exit E-1
- D. Stay in E-1 and implement FR-Z.3 concurrently

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 090

Given the following conditions:

- A plant cooldown is in progress.
- Current conditions are:
 - NC Pressure – 1400 psig
 - NC Temperature – 440 degrees F
 - Cold Leg Accumulators have **NOT** been isolated
 - “B” Train in service

An event occurs:

- NC System pressure starts to go down at approximately 2 psi per minute.
- PZR level is going down at 5% per minute.
- Containment Pressure is rising at 0.1 psig per minute.
- Train “B” Safety Injection actuates.
- Train “A” Safety Injection did NOT actuate.

Which ONE (1) of the following describes (1) the impact on the unit, and (2) the action that must be taken?

- A. (1) NC Pumps will overheat due to loss of RN cooling
(2) Enter E-0, Reactor Trip or Safety Injection, and initiate Train A Safety Injection to restore flow to Train A Essential Header and RB Non-Essential Header
- B. (1) “A” EDG will overheat due to loss of RN cooling
(2) Enter E-0, Reactor Trip or Safety Injection; Reset SI Sequencers and open RN Cross-Connect valves to restore Train A Essential header
- C. (1) NC Pumps will overheat due to loss of RN cooling
(2) Enter AP-34, Shutdown LOCA, and initiate Train A Safety Injection to restore flow to Train A Essential Header and RB Non-Essential Header
- D. (1) “A” EDG will overheat due to loss of RN cooling
(2) Enter AP-34, Shutdown LOCA; Reset SI Sequencers and open RN Cross-Connect valves to restore Train A Essential header

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 091

Given the following:

<u>TIME</u>	<u>DATE</u>	<u>CONDITION</u>
0600	3/11/2007	1 required channel of Core Exit thermocouples was declared inoperable in quadrant 2 due to CETs reading off-scale high.
1130	3/14/2007	1 required channel of Core Exit thermocouples was declared inoperable in quadrant 4 due to CETs reading off-scale high.
1200	3/17/2007	Quadrant 2 was returned to full operability.
1400	3/18/2007	1 additional required channel of Core Exit thermocouples was declared inoperable in quadrant 4 due to CETs reading off-scale high.

Which ONE (1) of the following describes the LATEST time that the unit is required to be in Mode 3, and the reason why?

REFERENCE PROVIDED

- A. 2000 on 3/18/2007 due to inoperability because of shorted thermocouples.
- B. 2000 on 3/18/2007 due to inoperability because of open thermocouples.
- C. 2000 on 3/25/2007 due to inoperability because of shorted thermocouples.
- D. 2000 on 3/25/2007 due to inoperability because of open thermocouples.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 092

Which ONE (1) of the following describes the MAXIMUM load allowed over the Spent Fuel Pool and the reason for the limitation in accordance with SLC 16.9.20?

- A. (1) 2000 lbs;
(2) prevent exceeding 10CFR100 Site Boundary limits in the event of a dropped assembly or cask.
- B. (1) 3000 lbs;
(2) prevent exceeding 10CFR100 Site Boundary limits in the event of a dropped assembly or cask.
- C. (1) 2000 lbs;
(2) prevent exceeding 10CFR20 radioactive release to unrestricted area limits in the event of a dropped assembly or cask.
- D. (1) 3000 lbs;
(2) prevent exceeding 10CFR20 radioactive release to unrestricted area limits in the event of a dropped assembly or cask.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 093

Given the following conditions:

- Unit 1 is at 100% power.
- A Xenon oscillation is occurring.
- Axial Flux Difference (AFD) indicates the following:
 - N-41 -18.5
 - N-42 -17.0
 - N-43 -18.5
 - N-44 -17.5

Which ONE (1) of the following describes the status of AFD and the action that will be required?

- A. AFD exceeds the limit specified in the COLR. Reduce power to less than 50% within 30 minutes using NCS boration and turbine load reduction in accordance with AP/1/A/5500/04, Rapid Downpower.
- B. AFD exceeds the limit specified in the COLR. Restore AFD to within limits in 1 hour or be in Mode 3 within the following 6 hours in accordance with T.S. 3.2.1.
- C. AFD is within the limits specified in the COLR. Restore AFD to target value using NCS boration and turbine load reduction in accordance with Reactor Group guidance.
- D. AFD is within the limits specified in the COLR. Restore AFD to target value using manual rod insertion and turbine load reduction in accordance with Reactor Group guidance.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 094

Given the following:

- Unit 2 is in Mode 1.
- The shift is manned to the minimum composition.
- The shift has 4 hours remaining.
- The RO has become ill and must leave the site for emergency medical treatment.

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

- A. Responsibilities of the RO may be turned over to the BOP for the remainder of the shift.
- B. The RO may leave the site immediately after turnover of responsibilities to another qualified person on shift. A replacement must arrive within 1 hour.
- C. The RO may leave the site immediately after turnover of responsibilities to another qualified person on shift. A replacement must arrive within 2 hours.
- D. The CRS may assume the responsibilities of the RO. The STA may perform duties of CRSRO until normal shift relief.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 095

Given the following plant conditions:

- A loss of all feedwater has occurred.
 - The crew is performing actions of FR-H.1, Response to Loss of Secondary Heat Sink.
 - CA has NOT been restored.
 - NCPs have been tripped.
 - CF Pumps are NOT available.
-
- SG 1A Wide Range Level is 25%
 - SG 1B Wide Range Level is 30%
 - SG 1C Wide Range Level is 28%
 - SG 1D Wide Range Level is 23%
 - All SG Pressures are 1050 psig
 - NC System pressure is 2250 psig and rising slowly
 - NC System Thot is 588°F and rising slowly.
 - NC System Tcold is 550°F and stable

Which ONE (1) of the following describes the strategy for restoring heat sink?

- A. Initiate Safety Injection and open two (2) PZR PORVs
- B. Depressurize ALL SGs to initiate CM flow
- C. Depressurize at least ONE (1) SG to initiate CM flow
- D. Initiate Safety Injection and open three (3) PZR PORVs

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 096

A Temporary Modification is being installed on the CF System.

The modification requires verification of Red-Marking of drawings by the CRSRO.

Which ONE (1) of the following describes where the red-marked drawings must be identified?

- A. Control Room drawings ONLY.
- B. Control Room drawings and Tag-Out office ONLY.
- C. Control Room and Work Control Center drawings ONLY.
- D. Control Room, Work Control Center, and Tag-Out Office drawings.

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 097

Given the following:

- A release of WGDT "A" is in progress.
- 1EMF-36 L is **OPERABLE**.
- Trip 2 is received on 0EMF-50 (Waste Gas Discharge)
- The release is secured.
- Radwaste completes a purge of 0EMF-50 and reports that the release may be re-initiated.

Which ONE (1) of the following describes the requirements associated with the release?

- A. The CRSRO may authorize only ONE (1) restart of this release without re-sampling.
- B. The CRSRO may authorize up to TWO (2) restarts of this release without re-sampling.
- C. 0EMF50 may be jumpered; the release may be restarted as long as grab samples are taken once per 4 hours during the release.
- D. The release must be terminated. A new GWR permit must be generated after resampling WGDT "A".

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 098

Given the following:

- Unit 1 is in Mode 5 preparing to conduct a containment purge in accordance with OP/1/A/6450/015 (*Containment Purge System*).
- 1-EMF-39 has been declared inoperable due to miscalibration.

Which ONE (1) of the following describes the effect on the planned purge?

- A. The purge may NOT be initiated until 1-EMF-39 is restored to operable status
- B. Prior to initiating the purge, compensatory actions must be taken in accordance with the ODCM.
- C. Prior to initiating the purge, 1-EMF-36 must be determined to be operable.
- D. The purge may NOT be initiated until 1-EMF-39 is restored to operable status AND 1-EMF-36 is determined to be operable

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 099

Given the following conditions:

A fire has occurred in the Unit 1 Control Room while the unit is in Mode 1.

Which ONE (1) of the following describes the Assured Shutdown Train and the procedure that will be performed if the control room becomes uninhabitable?

- A. SSS; AP/1/A/5500/17, Loss of Control Room
- B. SSS; AP/1/A/5500/24, Loss of Plant Control Due to Fire or Sabotage
- C. Train A; AP/1/A/5500/17, Loss of Control Room
- D. Train A; AP/1/A/5500/24, Loss of Plant Control Due to Fire or Sabotage

U.S.N.R.C. site-Specific Written Examination
McGuire
Senior Reactor Operator

Question 100

Given the following conditions:

A transient has occurred on Unit 1 resulting in the following alarms:

- OTDT RUNBACK/ROD STOP ALERT
- ROD CONTROL URGENT FAILURE
- OPDT REACTOR TRIP

Reactor power indicates the following:

- N41 – 105.2%
- N42 – 106.2%
- N43 – 105.9%
- N44 – 106.1%
- Tavg is 581 degrees F

Which ONE (1) of the following has occurred, and which procedure(s) is/are required to be implemented?

- A. Uncontrolled Rod Withdrawal; E-0, Reactor Trip or Safety Injection.
- B. Uncontrolled Rod Withdrawal; AP-14, Rod Control Malfunctions.
- C. SG Safety Valve opened coincident with a rod control failure; E-0, Reactor Trip or Safety Injection.
- D. SG Safety Valve opened coincident with a rod control failure; AP-01, Steam Leak and AP-14, Rod Control Malfunctions.