

Final Submittal

(Blue Paper)

McGUIRE MAY 2008 - 301

AS-GIVEN

SRO - FINAL

WRITTEN EXAMINATION

Pearson NCS Test Sheet 100

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KEY ID
A B C D E

SCORING & PRINTING OPTIONS:

☐ RESCORE ☐ MULTIPLE ANSWER SCORING
☐ CORRECT ANSWER ☐ MARK X ☐ TOTAL ONLY

MARK ONLY ONE

↑ FEED IN THIS DIRECTION

T F

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100 A B C D E

ANSWER KEY INFO.

OF KEYS
ITEM COUNT

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PERFORMANCE ASSESSMENT

	% OF TOTAL SCORE		POINTS EARNED	
	00 = 100%			
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5	5	5	5	5
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9	9	9	9	9

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↑ FEED IN THIS DIRECTION

NUMBER CORRECT	
PERCENT CORRECT	
ROSTER NUMBER	
SCORE	
RESCORE	

PEARSON
NCS

COMBINED POINTS EARNED	
COMBINED PERCENT CORRECT	
LETTER GRADE	
SCORE	
RESCORE	

100
ITEM

MARKING INSTRUCTIONS

Use a No. 2 Pencil

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Fill oval completely

A B C D E

Erase cleanly

STUDENT ID NUMBER

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

Name:

Date:

Facility/Unit:

McGuire 1 and 2

Region:

II

Reactor Type:

Westinghouse

Start Time:

Finish Time:

Instructions

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.

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 1/2
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
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16.	A	B	C	D	41.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

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
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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
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70.	A	B	C	D	95.	A	B	C	D
71.	A	B	C	D	96.	A	B	C	D
72.	A	B	C	D	97.	A	B	C	D
73.	A	B	C	D	98.	A	B	C	D
74.	A	B	C	D	99.	A	B	C	D
75.	A	B	C	D	100.	A	B	C	D

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 001

With Unit 1 at 100% power, the following occurs:

- A leak in the Letdown Line develops outside Containment.
- NC Pressure drops to 1825 psig and stabilizes.

All systems operate as designed.

Which ONE (1) of the following identifies the systems, if any, that have been isolated from the Reactor Coolant Pump (NCP)?

- A. RN, KC and Seal Water Return.
- B. Seal Water Return ONLY.
- C. RN and KC flow ONLY.
- D. No systems have been isolated.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 002

Unit 2 is collapsing the Pzr steam bubble and placing the Pzr in a water solid condition in accordance with OP/2/A/6100/SD-8, Water Solid Operations.

Which ONE (1) of the following describes the reason for placing the Pzr in a water-solid condition?

- A. Facilitate placing LTOP in service.
- B. Ensure a complete crud burst cleanup.
- C. Maintain NC System cooldown rate within limits.
- D. Facilitate degasification of the NC System.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 003

The following conditions exist on Unit 1:

- Plant shutdown and cooldown to 100°F is in progress.
- NC System temperature 180°F.
- Both trains of ND are in service in accordance with station procedures.

The power supplies to 1ND-1B and 1ND-2AC are 600V _____1_____ Load Centers and the status of their motor breakers are _____2_____.

- A. (1) Unit
(2) OPEN
- B. (1) Unit
(2) CLOSED
- C. (1) Essential
(2) OPEN
- D. (1) Essential
(2) CLOSED

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 004

While Unit 1 is at power, a Reactor Trip/Safety Injection occurs and all systems operate as designed. The following trend is observed over the next 15 minutes for NC System pressure:

<u>Time after Trip/SI</u>	<u>NC Pressure</u>
1 minute	1800 psig
4 minutes	1600 psig
8 minutes	1400 psig
10 minutes	1200 psig

Which ONE (1) of the following is an NI Pump first observable response in the Control Room?

- A. Discharge pressure starts to DECREASE and motor amps start to INCREASE between 4-7 minutes.
- B. Discharge flow starts to INCREASE and motor amps start to DECREASE between 4-7 minutes.
- C. Discharge pressure starts to DECREASE and motor amps start to INCREASE between 8-10 minutes.
- D. Discharge flow starts to INCREASE and motor amps start to DECREASE between 8-10 minutes.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 005

While Unit 1 is at 100% power the Seal Water Return Filter becomes completely clogged.

Which ONE (1) of the following parameters is indicative of this failure?

- A. Seal Water supply flow on all four NC Pumps increase.
- B. Seal Water return flows on all four NC Pumps decrease to 0 gpm.
- C. NC Pump number 2 seal leakoff flows decrease.
- D. PRT level increase.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 006

With Unit 2 at 100% power, the following conditions exist:

- B Train equipment in operation.
- The 2B1 KC Pump trips on overcurrent and is NOT available.
- The operator implements the appropriate response procedures and restores the KC System to normal operation.

Which ONE (1) of the following identifies the electrical power source(s) supplying the operating Component Cooling (KC) Pump(s)?

- A. 2ELXA and 2ELXB.
- B. 2ETA and 2ETB.
- C. 2ELXA ONLY.
- D. 2ETA ONLY.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 007

Unit 1 is operating at 30% power with the following conditions:

- Train B KC is in operation with both the 1B1 and 1B2 KC Pumps operating.
- Train A KC is in standby with both the 1A1 and 1A2 KC Pumps off.

Which ONE (1) of the following events will automatically start the 1A1 KC Pump?

- A. The 1B2 Pump trips on overcurrent OR an event causing containment pressure to increase to 1.5 psig.
- B. An event causing containment pressure to increase to 1.5 psig ONLY.
- C. The normal supply breaker to 1ETB opens OR a leak on the shell side of the 1B KC heat exchanger occurs.
- C. The normal supply breaker to 1ETB opens ONLY.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 008

Unit 2 is operating at 100% with the Pzr Pressure Control Selector Switch in the **1-4** position.

Which ONE (1) of the following Pzr Pressure Channel failure events would result in 2EMF 38, Containment Particulate Radiation Monitor, going into alarm?

(assume no operator action is taken)

- A. Channel 1 failing low OR Channel 3 failing high.
- B. Channel 1 failing low ONLY.
- C. Channel 1 OR Channel 4 failing low.
- D. Channel 4 failing low ONLY.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 009

Unit 2 is at 100% power.

- All SSPS Channel I bistable status lights simultaneously illuminate.
- Power Range NI Channel N-41 indication is lost.
- Intermediate Range Channel N-35 indication is lost.
- Power Range Channels N-42, N-43, and N-44 indicate 100%.

Which ONE (1) of the following describes the failure that has occurred, AND the response of the Reactor Protection System?

- A. Loss of DC Bus DCA;
Train A SSPS General Warning Alarm is received.
- B. Loss of DC Bus DCA;
The PCS Power Supply Failure Protection Cabinet 1 & 2 alarms are received.
- C. Loss of 120 VAC Bus EKVA;
The SSPS Train A General Warning Alarm is received.
- D. Loss of 120 VAC Bus EKVA;
The PCS Power Supply Failure Protection Cabinet 1 & 2 alarms are received.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 010

Unit 1 is at 100% power.

Pzr Pressure Protection Channel III (1NC-PT-5170) fails and is properly removed from service.

Which ONE (1) of the following identifies the Reactor Trip and Safety Injection actuation logic required (from the remaining in-service channels) on Low Pzr Pressure?

	<u>Reactor Trip</u>	<u>Safety Injection</u>
A.	1/2	1/2
B.	1/3	1/3
C	1/3	2/3
D.	2/3	2/3

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 011

Which ONE (1) of the following automatic actuations requires an energized bistable and a Containment Pressure Control System signal for it to occur?

- A. Startup of the Containment Spray System.
- B. Startup of the Annulus Ventilation System.
- C. Startup of the Hydrogen Skimmer Fans.
- D. Startup of the Containment Air Return Fans.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 012

With Unit 1 in Mode 1 the following sequence of events occur:

- 0750 200 gpm RV System leak occurs inside Containment.
- 0751 MCB Annunciator 1AD-13/C-5, Containment Floor and Equipment
Sump A High Level, – In Alarm.
MCB Annunciator 1AD-13/E-5, Containment Floor and Equipment
Sump B High Level, – In Alarm.
- 0755 Operators manually close all RV Containment Isolation Valves in order
to stop the leak.
- 0825 Operators have observed 1°F increase in both upper and lower
Containment temperature since the RV System was isolated.

- Upper level of Containment was initially at 88°F.
- Lower level of Containment was initially at 104°F.
- Assume that the RV System remains isolated and Containment heat-up rate remains constant.

Which ONE (1) of the following identifies the approximate time before a Technical Specification Containment Temperature limit will be exceeded, AND the procedure that must be used to restore Containment sump level?

- A. 4 hours;
OP/1/A/6500/001, Liquid Waste System.
- B. 4 hours;
AP/1/A/5500/44, Plant Flooding.
- C. 6 hours;
OP/1/A/6500/001, Liquid Waste System.
- D. 6 hours;
AP/1/A/5500/44, Plant Flooding.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 013

The following conditions exist on Unit 1:

- The plant is starting up following a Refueling Outage.
- An instantaneous double-ended shear of NC Loop C (Large Break LOCA) occurs.
- Several Ice Condenser Upper and Lower doors fail to open.

Which ONE (1) of the following identifies a consequence of the failed doors?

- A. The Hydrogen Skimmer and Containment Air Return (VX) System automatic actuation is delayed.
- B. Water that accumulates in the Containment Sump will have a substantially lower Boron concentration.
- C. Less water will accumulate in the Containment Sump within the first 15 minutes of the event.
- D. FWST inventory will decrease at a faster rate.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 014

With Unit 1 at power the following Ice Condenser equipment status exists:

- All NF Air Handling Units - On
- 1A and 1B NF Glycol Pumps - On
- 1A, 1B, 1C and 1G NF Chillers - On
- Ice Machines/Ice Loading Equipment - Off

Ice Condenser Aggregate Temperature is being maintained at 15°F.

Subsequently, one Chiller and one Glycol Pump are removed from service, and Ice Condenser Aggregate Temperature stabilizes at 25°F.

Which ONE (1) of the following describes a consequence of this event?

- A. Sublimation of the ice will occur at a higher rate.
- B. Containment Temperature will approach a Technical Specification limit.
- C. Aggravation of the NF System Freeze/Thaw Cycle will be minimized.
- D. The Technical Specification limit for Ice bed temperature will be exceeded.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 015

The following conditions exist on Unit 1:

- A plant cooldown and depressurization is in progress.
- NC System Temperature is 320°F.
- NC System Pressure is 325 psig.
- All plant components are aligned normally for the present plant conditions.

Subsequently, a fire in the breaker cubicle for the 1B NS Pump occurs.

Which ONE (1) of the following describes the impact on Technical Specification LCO 3.6.6, Containment Spray System?

- A. LCO 3.6.6 MUST be entered with operability restored within 1 hour.
- B. LCO 3.6.6 MUST be entered with operability restored within 72 hours.
- C. LCO 3.6.6 will NOT be entered because the A Train of NS is operable.
- D. LCO 3.6.6 will NOT be entered because it is NOT applicable in the present plant Mode of Operation.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 016

The following conditions exist on Unit 1:

- Large Break LOCA in progress.
- Train B ND aligned for CLR.
- 1NI-185A (RB Sump to Train A ND and NS) cannot be opened, and 1A ND Pump has been stopped.
- FWST level is 30 inches.
- Both 1A and 1B NS Pumps are stopped.

Which ONE (1) of the following identifies an action that must occur to avoid exceeding peak Containment pressure?

- A. The 1A NS Pump must be restarted taking suction from the FWST until the 1B NS pump can be aligned for recirculation.
- B. The 1A ND Pump must be restarted taking suction from the FWST until the 1B NS pump can be aligned for recirculation.
- C. The 1B NS Pump must be restarted in the recirculation alignment and RN flow established to the 1B NS Heat Exchanger within 3 minutes.
- D. The 1B ND Pump must be manually aligned to provide NS within 30 minutes.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 017

With Unit 2 at 100% power the following occurs:

- B Train equipment is in service.
- The normal supply breaker to 2ETA opens.

Which ONE (1) of the following would be indicative of an expected response of the Unit 2 CA System?

- A. The Unit 2 Turbine Driven CA Pump RPM is at 3600.
- B. The 2SA-48ABC position status light is RED and the 2SA-49AB position status light is GREEN.
- C. No Steam Pressure is indicated on 2SA-PT5000 (Steam to FWPT Pressure).
- D. 2AD-5/F-3, CA Pump Turbine Stop Valve NOT Open, is ILLUMINATED.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 018

Unit 1 is in Mode 3 conducting a plant depressurization and cooldown in accordance with OP/1/A/6100/SD-2, Cooldown to 400°F.

The following conditions exist:

- NC System pressure 1900 psig
- NC System temperature 557°F
- All Steam Generator pressures 1100 psig
- Low Pressure SI and Low Pressure Steamline Isolation have been blocked.
- The operator has just begun an 80°F/hour cooldown.

Which ONE (1) of the following conditions would automatically close all four Main Steam Isolation Valves?

- A. NC Pressure increases to 2000 psig.
- B. Containment Pressure increases to 1 psig.
- C. 1A Steam Generator Pressure drops to 900 psig in 2 seconds.
- D. 1B Steam Generator Pressure drops to 700 psig consistent with NC Cooldown.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 019

The following conditions exist on Unit 1:

- The plant is at 41% power.
- AMSAC UNBLOCK Light – LIT
- Power increase in progress.
- A CF Pump running.
- CF Main Control valves at 24% open.

Which ONE (1) of the following will result in an AMSAC actuation?

- A. The C SG controlling Steam Flow channel fails low.
- B. Power level is raised to 55% prior to starting B CF Pump.
- C. The CF Control Valve bypasses are throttled in the closed direction.
- D. Closure of D SG CF Containment Isolation valve.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 020

Unit 1 is operating at 100% power.

After an automatic start of the 1TD CA Pump, a malfunction has occurred which has limited its flow to 300 gpm.

Which ONE (1) of the following identifies the event in which this malfunction will result in a loss of core cooling?

(Assume No operator action)

- A. Total Loss of All AC Power.
- B. Large Break LOCA.
- C. Both CF Pumps simultaneously trip with a simultaneous ATWS.
- D. Design Basis SGTR.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 021

The B Train of essential equipment is in operation on Unit 1.

While performing OP/1/A/6350/002 (Diesel Generator) with the 1A Diesel running in parallel to the grid, the following sequence of events occurs:

- Load is reduced on the diesel to 200KW in anticipation of opening the Emergency Breaker.
- The RO accidentally OPENS the Normal Feeder Breaker from 1ATC.

Which ONE (1) of the following completes the statement below?

The Blackout Sequencer Actuated Train A status light on SI-14.....

- A. lights and the Emergency Breaker trips open, then re-closes 8.5 seconds later.
- B. remains dark and the Emergency Breaker trips open, then re-closes 8.5 seconds later.
- C. lights and the 1A DG Load increases.
- D. remains dark and the 1A DG Load increases.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 022

McGuire Station has experienced a Loss of Off-site power.

The following timeline shows CXA/CXB voltage over the course of the event:

<u>Time after LOOP</u>	<u>CXA</u>	<u>CXB</u>
1 hour	128v	123v
2 hour	124v	116v
3 hour	118v	114v
4 hour	115v	113v
5 hour	113v	112v
6 hour	111v	111v

Assuming the current trends continue, Battery CXA will be lost in (1) hours.
Battery CXB will be lost in (2) hours.

	(1)	(2)
<hr/>		
A.	2	4
B.	2	6
C.	3	4
D.	3	6

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 023

With Unit 1 at 100% power the following conditions exist:

- The 1A DG is in standby.
- A fuel oil leak in 1A DG Fuel Oil Storage Tank is occurring.
- Fuel Oil Storage Tank volume was 43,600 gallons at the start of the leak.
- When the leak is contained, the Fuel Oil Storage Tank level was stabilized with a volume of 30,000 gallons.
- The trend of the tank volume is as follows:

1030	39,900 gallons
1100	38,600 gallons
1130	31,200 gallons
1200	30,000 gallons

Of the following choices, which ONE (1) of the following is the EARLIEST time that 1A DG parameters require entry into a Technical Specification action statement?

- A. 1030
- B. 1100
- C. 1130
- D. 1200

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 024

With Unit 2 at 100% power, the following conditions exist:

- Train A equipment is in operation.
- The power supply to 2EMF46A, Train A Component Cooling, has failed.

Which ONE (1) of the following describes the impact of this event, AND what procedure will be used to address the situation?

- A. KC-122, Component Cooling Water Surge Tank Vent, will auto close;
Address Annunciator Response for 2RAD-1/A-4 2EMF 46A Train A KC Hi Rad.
- B. KC-122, Component Cooling Water Surge Tank Vent, will auto close; Address
AP/2/A/5500/21, Loss of KC or KC System Leakage.
- C. ONLY a Main Control Board alarm will occur;
Address Annunciator Response for 2RAD-1/A-4 2EMF 46A Train A KC Hi Rad.
- D. ONLY a Main Control Board alarm will occur;
Address OP/2/A/6400/005, Component Cooling Water System, to swap KC
Trains.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 025

Unit 1 is at 100% power with Train B equipment in service when the following occurs:

- The 1B RN pump trips.
- AP-20, Loss of RN, is implemented.

Which ONE (1) of the following describes why the operator places the manual loader for 1RN-89A (RN to KC HX Control) to 10% open prior to starting the 1A RN Pump?

- A. To ensure a minimum flow is maintained from the 1A RN Pump.
- B. To prevent runout of 1A RN Pump.
- C. To prevent high temperatures on the KC System.
- D. To prevent water hammer in the KC Heat Exchanger.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 026

Following a reactor trip from 100% power the following conditions exist on Unit 2:

- NC Pressure is 1400 psig.
- Containment Pressure has risen slowly to 2.4 psig.
- The 2A RN Pump failed to start.

Which ONE (1) of the following describes the impact of the 2A RN Pump failure?

- A. ONLY the 2A NV Pump gear oil will overheat.
- B. The 2A NS Pump Motor AND the 2A NV Pump gear oil will overheat.
- C. The 2A1 and 2A2 DG VG Air Compressors AND the 2A NV Pump gear oil will overheat.
- D. The 2A NS Pump Motor AND the 2A NV Pump gear oil will overheat.
Additionally, all Makeup capability is lost to the 2A DG KD Surge Tank.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 027

Given the following:

- Unit 1 is at 100% power.
- The VI system is in a normal lineup.
- The VS system is in a normal lineup.
- A VI header rupture occurs.
- VI system pressure is 80 psig and lowering.
- The crew is performing actions of AP/22, Loss of VI.
- The CRSRO dispatches an operator to perform Enclosure 2, Startup of D, E and F VI Compressors.

Which ONE (1) of the following identifies the actions required to be performed to prepare D, E, and F VI Compressors for starting?

- A. RL Pumps must be verified running with adequate discharge pressure prior to startup of D, E, and F VI compressors. Performance of Enclosure 6, D, E and F VI Compressor Operation with Low Control Air, is NOT required.
- B. RL Pumps must be verified running with adequate discharge pressure prior to startup of D, E, and F VI compressors. Enclosure 6, D, E and F VI Compressor Operation with Low Control Air, must also be performed to provide VB control air supply to VI compressors.
- C. KR Pumps must be verified running with adequate discharge pressure prior to startup of D, E, and F VI compressors. Performance of Enclosure 6, D, E and F VI Compressor Operation with Low Control Air, is NOT required.
- D. KR Pumps must be verified running with adequate discharge pressure prior to startup of D, E, and F VI compressors. Enclosure 6, D, E and F VI Compressor Operation with Low Control Air, must also be performed to provide VB control air supply to VI compressors.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 028

Which ONE (1) of the following describes how the following valves can be operated from the Control Room?

- 1VQ-3 (Containment Air Addition Inlet from Auxiliary Building Isolation Valve)
- 1VQ-4 (Containment Air Release to Unit Vent)

1VQ-3

1VQ-4

- | | |
|---|--|
| A. Operates automatically when other system valves are opened manually. | Press open/close pushbuttons. |
| B. Press open/close pushbuttons. | Manually adjust the output of a pneumatic controller. |
| C. Press open/close pushbuttons. | Operates automatically when other system valves are opened manually. |
| D. Operates automatically when other system valves are opened manually. | Manually adjust the output of a pneumatic controller. |

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 029

Unit 1 Reactor Startup is in progress:

- Control Bank A is being withdrawn in MANUAL.
- Control Bank A rods are currently at 180 steps.
- Assume proper rod withdrawal sequencing and bank overlap.

Subsequently, Control Bank B, rod F-2 drops fully into the core.

Which ONE (1) of the following completes the statement below?

Rod F-2 is displayed as a.....

- A. Green bar with an Orange background, with a Green DRPI Rod Bottom (RB) light.
- B. Green bar with an Orange background, with a Red DRPI Rod Bottom (RB) light.
- C. Red bar with a Black background, with a Green DRPI Rod Bottom (RB) light.
- D. Red bar with a Black background, with a Red DRPI Rod Bottom (RB) light.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 030

Concerning the Train A ICCM Subcooling Margin Monitor: Which ONE (1) of the following malfunctions will cause indicated subcooling margin to be greater than actual subcooling margin?

- A. 1 of 3 Loop C NR Thot instruments fails low.
- B. Loop D Wide Range Tcold fails low.
- C. Loop D Wide Range Pressure fails high.
- D. The controlling Pzr Pressure instrument fails high.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 031

The following conditions exist on Unit 1:

- A Reactor Startup is in progress.
- Power level is 1×10^{-8} amps.

Subsequently, 120 Vital AC Bus EKVB is lost.

Which ONE (1) of the following identifies the plant response?

A reactor trip will occur due to the loss of ____ (1) _____. And ____ (2) _____.

- A. (1) IR NI-35
(2) SR NI-32 will energize
- B. (1) IR NI-35
(2) SR NI-32 will NOT energize
- C. (1) IR NI-36
(2) SR NI-31 will energize
- D. (1) IR NI-36
(2) SR NI-31 will NOT energize

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 032

A Large Break LOCA has occurred on Unit 2, and the Technical Support Center has recommended the startup of the H₂ Purge System.

The crew places the system in service in accordance with OP/1/A/6450/010, Operation of the Hydrogen Skimmer, Containment Air Return and Hydrogen Purge System.

Based on this action, which ONE (1) of the following describes the **initial effect on** annulus pressure, and the annulus **pressure range** that must be maintained?

- A. Increase;
Maintained at -1.2" to -4.2" H₂O.
- B. Increase;
Maintained at -5.5" to -7.0" H₂O.
- C. Decrease;
Maintained at -1.2" to -4.2" H₂O.
- D. Decrease;
Maintained at -5.5" to -7.0" H₂O.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 033

Unit 1 is in Mode 6 conducting Refueling Operations.

- Communications have been established between the Refueling SRO and the OATC in the Control Room.
- AUTOMATIC actuation of the Containment Evacuation alarm has failed.

Due to the AUTOMATIC actuation failure, which ONE (1) of the following will require manual actuation of the Containment Evacuation Alarm?

- A. Trip 2 on 1EMF-38 (Containment Particulate Monitor)
Trip 2 on 1EMF-16 (Containment Refueling Bridge).
- B. Trip 2 on 1EMF-16 (Containment Refueling Bridge)
Excore SR monitors Hi Flux at Shutdown alarm.
- C. Gammametrics Shutdown Monitor A HI CPS Alarm
Trip 2 on 1EMF-16 (Containment Refueling Bridge).
- D. Containment Fire Zone alarms on EDA Computer
Excore SR monitors Hi Flux at Shutdown alarm.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 034

Unit 1 is in Mode 5 with the following conditions:

- Spent Fuel Pool fuel handling operations was secured 4 hours ago.
- 1ETB and related equipment has been just removed from service.
- VF System is operating normally in accordance with OP/1/A/6450/004, Fuel Pool Ventilation System.

Subsequently:

- The 1A KF Pump trips.
- SPENT FUEL POOL TEMP HI OAC alarm occurs.
- EMF-42, Fuel Building Ventilation Radiation Monitor, is in Trip 2.

Which ONE (1) of the following describes the AUTOMATIC response of the Fuel Handling Building Ventilation System (VF)?

- A. The Outside Air Damper (D-1) will close.
- B. The Exhaust Filter Bypass Damper (D-5) will close.
- C. The Filter Isolation Dampers (D-3 & D-4) will close.
- D. The Supply Fan will stop.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 035

Unit 1 is operating at 100% power and aligned normally when the following event occurs:

- 1SMLP5080 (1A SG Steam Pressure Channel 1) fails high.

Which ONE (1) of the following describes the **actual** impact on the 1A Steam Generator and the procedure that would be used to respond to the event?

- A. Steam flow increases, AP/1/A/5500/001 (Steam Leak)
- B. Steam flow decreases, AP/1/A/5500/001 (Steam Leak)
- C. Feed flow increases, AP/1/A/5500/006 (SG Feedwater Malfunction)
- D. Feed flow decreases, AP/1/A/5500/006 (SG Feedwater Malfunction)

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 036

With Unit 2 at 100% power the following conditions exist:

- A Loss of Off-site Power occurs.
- Tavg is 564°F and decreasing.

Which ONE (1) of the following completes the statement below?

Steam Dump valves will indicate __1__, and __2__.

- A. closed
NO steam flow is indicated on ANY SG
- B. closed
steam flow is indicated on ALL SGs
- C. open
steam flow is indicated on ALL SGs
- D. open and closed
steam flow is indicated on ALL SGs

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 037

Both Units are at 100% power:

- The VA System is operating normally, with the 1A/1B AHU, Filtered Exhaust Fans, and Unfiltered Exhaust fans all running.
- The Filtered Exhaust Filter is bypassed.
- While operating a valve associated with Waste Gas Compressor A, a leak develops and releases approximately 500 ft³ of radioactive gas into the Auxiliary Building over a 2 hour period.

Which ONE (1) of the following could detect this leak AND cause an automatic response by the VA System?

- A. 1EMF-36 (Unit Vent Gas) ONLY
- B. 1EMF-41 (Aux Building Ventilation) ONLY
- C. EITHER 1EMF-36 (Unit Vent Gas) OR 1EMF-37 (Unit Vent Iodine)
- D. EITHER 1EMF-41 (Aux Building Ventilation) OR 1EMF-37 (Unit Vent Iodine)

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 038

Which ONE (1) of the following describes the primary fire suppression system used in the Unit 2 Cable Spreading Room, and the reason for this type of system?

- A. A manually operated Mulsifyre system, because water spray is an effective means for extinguishing deep-seated Class C fires.
- B. An automatically operated Mulsifyre system, because water spray reduces the risk of electrical explosion as opposed to deluge systems.
- C. A manually operated Halon 1301 system, because halon provides effective extinguishing properties for electrical components with minimal spread of hazardous material.
- D. An automatically operated Halon 1301 system, because water spray is NOT an effective means for extinguishing deep-seated Class C fires.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 039

Unit 1 is operating at 100%. The following Main Control Board indications exist:

	Channel 1	Channel 2	Channel 3	Channel 4
NCP Bus Frequency (Hz)	55.0	56.0	57.0	58.0
Power Range (%)	107	108	108	109
S/G B NR Level (%)	18	18	19	16
Pzr Pressure (psig)	2383	2384	2385	2386

Which ONE (1) of the following identifies the Annunciators that WILL be lit on 1FO-1?

- A. F-6, NC Pump Bus Under Freq Rx Trip
B-2, S/G B Lo-Lo Lvl Rx Trip
- B. B-7, P/R Hi Flux Hi Stpt Rx Trip
B-5, Pzr Hi Press Rx Trip
- C. B-2, S/G B Lo-Lo Lvl Rx Trip
B-7, P/R Hi Flux Hi Stpt Rx Trip
- D. B-5, Pzr Hi Press Rx Trip
F-6, NC Pump Bus Under Freq Rx Trip

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 040

The following conditions exist on Unit 2 following a Reactor Trip from high power:

- A break in the Pzr Steam Space has resulted in a Small Break LOCA.
- The operating crew has entered ES-1.2, Post-LOCA Cooldown and Depressurization.
- Steam Dumps have been placed in the Steam Pressure Mode, and the Steam Dump Cooldown valves are presently throttled open.
- The Steam Dump Pressure Controller potentiometer is presently set at 6.9 Turns, and is operating in AUTO.
- The P-12 Interlock has been defeated.
- NC Temperature is stable.

Which ONE (1) of the following describes the action as stated in ES-1.2 that will be taken to initiate and maintain a constant NC System Cooldown rate of less than 100°F/hour?

- A. Lower Steam Dump Pressure Controller potentiometer to 6.5 turns.
- B. Raise Steam Dump Controller potentiometer to 7.4 turns.
- C. Place the Steam Dump Pressure Controller in manual and raise output.
- D. Place the Steam Dump Pressure Controller in manual and lower output.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 041

The following conditions exist on Unit 2 thirty (30) minutes after an automatic Reactor Trip due to a Loss of Offsite Power:

- NC Pressure 1600 psig and going down slowly
- Core Exit Temperature 582°F and stable
- Thot indication 567°F and stable
- Tcold indication 555°F and stable
- Pzr Level 8% and slowly going down
- Containment Pressure 2.5 psig and rising
- Steam Generator Pressures Normal post-trip pressure for plant conditions
- Total CA Flow 270 gpm

Which ONE (1) of the following describes the relationship between the NC System and the Steam Generators, and what procedure would be entered to mitigate the event?

The Steam Generators are a Heat ___(1)___ to the NC System, and ___(2)___ will be implemented.

- A. (1) SINK
(2) ES-0.2, Natural Circulation
- B. (1) SINK
(2) E-1, Loss of Reactor or Secondary Coolant
- C. (1) SOURCE
(2) ES-0.2, Natural Circulation
- D. (1) SOURCE
(2) E-1, Loss of Reactor or Secondary Coolant

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 042

After a transient from 100% power, the following conditions exist on Unit 1:

- NC System pressure = Containment Pressure.
- Containment Radiation Monitors in Alarm.
- All systems operated as designed.

Which ONE (1) of the following is an expected response, AND the basis for the response, of the Containment Isolation System?

- A. ONLY Phase A Containment Isolation has actuated to ensure that the NCPs will be available later to mitigate the consequences of this event.
- B. ONLY Phase A Containment isolation has actuated to ensure that all penetrations that were open directly to the Containment Atmosphere are now isolated.
- C. Both Phase A and Phase B Containment Isolation have actuated to ensure isolation of non-ESF related Containment piping penetrations ONLY.
- D. Both Phase A and Phase B Containment Isolation have actuated to ensure isolation of ALL Containment piping penetrations.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 043

Unit 2 is in Mode 1 when the safety breaker to 2C NCP inadvertently opens.

- The reactor did NOT trip.

The following Permissive Bistable Status light conditions are observed:

- P-7 Lo Power Rx Trips Blocked – DARK
- P-8 Hi Pwr Lo Flo Rx Trip Blocked – LIT
- P-10 Nuclear At Power – LIT
- P-13 Turbine Not At Power – LIT

Which ONE (1) of the following identifies initial plant condition and identifies the expected plant response?

Initial reactor power was _____ and _____.

- A. less than 10%
plant response is correct
- B. greater than 10%
plant response is correct
- C. less than 10%
auto reactor trip has failed
- D. greater than 10%
auto reactor trip has failed

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 044

Unit 2 is at 100% when:

- All charging flow was lost.
- Letdown was isolated.
- The Standby Makeup Pump cannot be started.
- Seal leakoff flow from #1 Seal on each NC Pump is 3 gpm.

Assuming no further operator action is taken, which ONE (1) of the following predicts the approximate time that Annunciator 2AD-6/E-7, Pzr Lo Level Deviation, will alarm?

(Reference Provided)

- A. 1 hour
- B. 2 hours
- C. 4 hours
- D. 8 hours

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 045

Given the following events and conditions:

- Unit 1 is approaching Mode 5.
- NC Cooldown is in progress.
- A Train ND is in the RHR mode.
- A Train KC is in service at maximum design flow.
- A Train RN is in service.
- 1A1 KC Pump breaker trips.

Which ONE (1) of the following describes the effect on the KC and NC System temperatures?

- A. KC is unaffected;
NC heats up.
- B. KC heats up;
NC is unaffected.
- C. KC heats up;
NC cooldown rate decreases.
- D. KC is unaffected;
NC cooldown rate is unaffected.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 046

Unit 1 is operating at 50% power. Given the following conditions:

- Pzr pressure is 2235 psig.
- Pzr Relief Tank (PRT) pressure is 20 psig.
- PRT temperature is 125°F.
- PRT level is 81%.
- The PRT is being cooled by spraying from the RMWST.
- A Pzr code safety valve is leaking by its seat.

Which ONE (1) of the following identifies the temperature that would be indicated on the leaking safety valve discharge RTD?

(Reference Provided)

- A. 258° - 262°F
- B. 227° - 231°F
- C. 161° - 165°F
- D. 123° - 127°F

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 047

With Unit 1 at 90% power the following conditions exist:

- RPS Testing is in progress.
- Reactor Trip Breaker A (RTA) is CLOSED.
- Reactor Trip Breaker B (RTB) is OPEN.
- Reactor Trip Bypass Breaker B (BYB) is Racked In and CLOSED.

During the testing the following occurs:

- The A NC Pump Shaft seizes.
- The Reactor fails to automatically trip.
- Manual attempts to trip the Reactor are SUCCESSFUL.

Which ONE (1) of the following identifies the Reactor Trip/Bypass Breaker trip coil that has operated as designed throughout the event?

- A. RTA Undervoltage Coil.
- B. RTA Shunt Trip Coil.
- C. BYB Undervoltage Coil.
- D. BYB Shunt Trip Coil.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 048

As stated in ECA-0.0, Loss of all AC Power, which ONE (1) of the following is the basis for NOT depressurizing the S/Gs to less than 110 psig?

To avoid _____

- A. voiding in the head.
- B. an inadvertent criticality accident.
- C. nitrogen injection into the NC System.
- D. the loss of S/G narrow range level.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 049

Unit 2 is operating at 100% power when a loss of off-site power (LOOP) occurred.

Which ONE (1) of the following describes the expected operation of Containment Ventilation Systems ONE (1) minute after the event?

	<u>VU Ventilation Units</u>	<u>VL Fans</u>	<u>Pipe Tunnel Booster Fans</u>
A.	Running	Low Speed	Running
B.	Running	Low Speed	Off
C.	Running	High Speed	Off
D.	Off	High Speed	Running

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 050

Unit 1 is at full power with all systems selected to automatic. Given the following event:

- All Channel 1 Status lights are LIT.

Which ONE (1) of the following identifies why the crew would have to place Rod Control in Manual?

Because....

- A. Power Range N41 has failed high.
- B. Loop A Tavg has failed low.
- C. Turbine Impulse Pressure Channel 1 has failed low.
- D. Turbine Impulse Pressure Channel 1 has failed high.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 051

Unit 1 was operating at 100% power when a total loss of onsite and offsite power occurred. Given the following events and conditions:

- 1EVDA is supplying normal full power loads.
- NO battery charger is available.

Which ONE (1) of the following statements describes the MINIMUM length of time that bus 1EVDA is designed to sustain loads AND what action will protect the DC bus loads?

- A. 1 hour;
The vital battery bus breaker will open automatically when bus voltage falls to 105 volts.
- B. 1 hour;
The vital battery breaker must be manually opened when bus voltage falls to 105 volts.
- C. 4 hours;
The vital battery breaker will open automatically when bus voltage falls to 107 volts.
- D. 4 hours;
The vital battery breaker must be manually opened when bus voltage falls to 107 volts.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 052

With Unit 1 at 100% power, a total loss of RN occurs and cannot be restored.

The following pumps were running at the start of the event:

- 1A NV Pump
- 1A1 KC Pump
- 1A2 KC Pump

Which ONE (1) of the following identifies the pump(s) that will reach an operating limit and the MINIMUM time frame within which the limit will be reached?

- A. 1A NV Pump;
15-20 minutes.
- B. 1A1 and 1A2 KC Pumps;
15-20 minutes.
- C. 1A NV Pump;
90-120 minutes.
- D. 1A1 and 1A2 KC Pumps;
90-120 minutes.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 053

Both Units are at 100% power when:

- MNS experiences a loss of VI.
- VI Header pressure on both units is 30 psig and continues to decrease.

Which ONE (1) of the following will be FIRST to trip the reactor and its basis?

- A. OT Delta T trip due to the MSIVs failing closed.
- B. High-High SG level trip because the Feedwater Reg Valves fail open.
- C. Turbine Trip due to Feed Pump Trip because the Feedwater Reg Valves fail closed.
- D. High Pzr Level trip due to the Charging Flow Control Valve failing open with Letdown isolated.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 054

Given the following:

- Unit 1 has tripped.
- A LOCA Inside AND Outside Containment is in progress.
- ND relief valves are lifting and stuck open.
- The PRT has ruptured.
- Containment pressure is rising.
- NS actuation has occurred.
- The crew is performing ECA-1.2, LOCA Outside Containment.

The following conditions exist:

- ND Pumps are secured.
- The leak has NOT been isolated.
- Containment pressure 8.5 psig.
- BOTH trains of NS are operating, aligned to FWST.

Which ONE (1) of the following describes the action required for NS operation in accordance with ECA-1.2?

- A. Both NS Pumps must be stopped to conserve FWST inventory.
- B. ONLY ONE (1) NS pump must be stopped to minimize depletion rate of FWST.
- C. Both NS Pumps must remain running as directed by FR-Z.1, Response to High Containment Pressure.
- D. At least ONE (1) NS pump must remain running until no longer required after transition to E-1, Loss of Reactor or Secondary Coolant.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 055

Unit 1 has experienced a Large Break LOCA inside Containment.

- The 1B NV Pump is NOT available.
- The ND Pumps are NOT available.
- The crew has implemented ECA-1.1, Loss of Emergency Coolant Recirc.
- 1A NV Pump is running at 400 gpm.
- 1A NI Pump is running at 400 gpm.
- 1B NI Pump is running at 400 gpm.
- The Standby Makeup Pump is NOT available.
- The Reactor Trip occurred 31 minutes ago.

You have been directed to determine minimum required SI flow per Enclosure 9, Flow Required to Match Decay Heat, of ECA-1.1 to minimize SI flow while maintaining greater than or equal to the required flow.

Which ONE (1) of the following will result in the LEAST number of running pumps which will satisfy the MINIMUM SI flow requirement?

(Reference Provided)

- A. Stop both NI pumps.
- B. Stop one NI pump ONLY.
- C. Stop the NV pump AND one NI pump.
- D. All available pumps must remain running.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 056

With Unit 2 at 100% power the following events occur:

- A steam line rupture has occurred on the common header downstream of the MSIVs.
- All four MSIVs have failed to automatically or manually close from the Main Control Board.
- The crew has entered ECA-2.1, Uncontrolled Depressurization of All Steam Generators.

Which ONE (1) of the following describes the NEXT action taken to attempt closure of the MSIVs?

Dispatch an operator to the.....

- A. Battery Room to open the EVDA and EVDD breakers powering the MSIV control circuits.
- B. Doghouse to isolate and bleed VI via the manual loader to the MSIVs.
- C. Doghouse to RAISE VI pressure in the MSIV Air Assist Accumulator.
- D. Doghouse to LOWER VI pressure in the MSIV Air Assist Accumulator.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 057

Unit 2 is operating at 100% power when a runback occurs.

- The Rod Control System responds as designed.
- Rod M-12 in C/B D has stopped moving.
- The OATC leaves rods in AUTO and allows the rest of the C/B D rods to respond.
- A Rod Control Urgent Failure alarm is received due to a Regulation Failure on Rod M-12 in Power Cabinet 1BD.
- The OATC places the C/R Bank Select Switch in MANUAL and attempts to insert Control Rods.

Which ONE (1) of the following describes the response of the Rod Control System and the effect of the Power Cabinet 1BD Rod Control Urgent Failure on the Rod Control System?

Rod motion _____ occur and _____

- A. will;
Bank D, Group 2 rods ONLY will insert. Group 1 rods in C/B Bank D will not move.
- B. will;
rod motion for the affected Banks and Groups is ONLY affected in Auto.
- C. will NOT;
both Auto and Manual rod demand signals are blocked. Rods may ONLY be moved with the selector switch in the C/B D position.
- D. will NOT;
both Auto and Manual rod demand signals are blocked. Rod motion is ONLY possible if the alarm is manually reset.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 058

The following conditions exist on Unit 2:

- Power is reduced to 30% using AP/2/A/5500/04, Rapid Downpower.
- 2AD-2/B-9, Rod Control Bank Lo-Lo Limit, is LIT.
- A boration of 18 gpm is required to restore rods above RIL.

Which ONE (1) of the following identifies the number of turns from zero that the potentiometer setting on NVSS5450, Boric Acid Flow Controller, must be set to establish this boration rate AND what the Total Blender Flowrate would indicate?

- A. 4.5 Turns;
90 gpm.
- B. 4.5 Turns;
18 gpm.
- C. 1.8 Turns;
90 gpm.
- D. 1.8 Turns;
18 gpm.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 059

Given the following:

- A reactor startup is in progress.
- Intermediate Range indication is coming on scale.
- Proper NI detector overlap is observed.

With no rod motion in progress, Count Rate on N-31 is 10^3 CPS and lowering. All other NI indications remain normal.

Which ONE (1) of the following describes the possible reason(s) for the Source Range N-31 indication?

- A. Pulse Height Discriminator fails low ONLY.
- B. Pulse Height Discriminator fails high ONLY.
- C. Either the Pulse Height Discriminator fails low OR the Source Range High Voltage power supply fails.
- D. Either the Pulse Height Discriminator fails high OR the Source Range High Voltage power supply fails.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 060

Given the following:

- A reactor startup is in progress.
- IR power indicates 8×10^{-11} amps on both channels and stable.
- SR High Flux Trip has NOT been blocked.
- IR N-35 starts behaving erratically.
- All other NI indications are normal.
- The crew enters the appropriate AP and places N-35 Level Trip Bypass Switch in BYPASS.

Which ONE (1) of the following describes the effect of placing the N-35 Level Trip Bypass Switch in the BYPASS position? In addition, if the ____ (1) ____ power fuse fails, the reactor ____ (2) ____ trip.

- A. ONLY the Intermediate Range High Flux Trip is bypassed.
(1) Instrument
(2) will
- B. The Intermediate Range High Flux Trip AND the Intermediate Range High Flux Rod Stop are bypassed.
(1) Instrument
(2) will NOT
- C. ONLY the Intermediate Range High Flux Trip is bypassed.
(1) Control
(2) will
- D. The Intermediate Range High Flux Trip AND the Intermediate Range High Flux Rod Stop are bypassed.
(1) Control
(2) will NOT

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 061

Unit 1 is refueling, with Fuel Handling operations in progress in the Spent Fuel Pool, when the following occurs:

- 1KF-122 is OPEN.
- 1EMF-17, Spent Fuel Bldg Refuel Bridge, is in trip 2.
- Spent Fuel Pool Level is (+) 0.4 feet and stable.
- Spent Fuel Pool Temperature is 90°F and stable.
- The 1A KF Pump is operating.

Which ONE (1) of the following is the most likely cause of these conditions?

- A. Complete stoppage of air flow through a NAC-UMS dry storage cask within the last 30 minutes.
- B. Damage to a Fuel Assembly while being lifted or lowered.
- C. Failure of the KF System.
- D. A Cavity Seal Failure.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 062

With Unit 1 at 100% power the following occurs:

- Zone 148 Alarm on EFA Computer, RCP 1B Motor.

After acknowledging this alarm, the operator notes the following:

- Lower Containment Weighted Average Hourly is 100°F and slowly increasing.
- Containment pressure is 0.11 psig and slowly increasing.
- 1B NC Pump Motor Stator Winding Temperature is 265°F.
- 1B NC Pump Motor Bearing Temperature is 140°F.

Which ONE (1) of the following identifies the REQUIRED plant procedure(s) that must be implemented to identify vital equipment that may be affected, and actions taken to protect this equipment?

- A. AP/1/A/5500/08, NC Pump Malfunction AND AP/1/A/5500/45, Plant Fire.
- B. AP/1/A/5500/24, Loss of Plant Control Due to Fire or Sabotage ONLY.
- C. AP/1/A/5500/45, Plant Fire ONLY.
- D. AP/1/A/5500/08, NC Pump Malfunction AND AP/1/A/5500/24, Loss of Plant Control Due to Fire or Sabotage.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 063

Which ONE (1) of the following Emergency Procedure actions is taken to MINIMIZE radiological releases?

- A. Feeding a Ruptured Steam Generator until level is above the tubes and then stopping feedflow.
- B. Stopping and isolating the ND pumps from the FWST during a LOCA outside containment.
- C. Isolating steam flow from and feed into a Faulted Steam Generator.
- D. Maintaining a minimum CA flow to a hot dry Steam Generator.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 064

Unit 2 was operating at 100% power when a loss of power to 2B NCP occurred and was compounded by an ATWS event.

Given the following events and conditions:

- The Control rods were locally tripped two minutes after the NCP lost power.
- Emergency boration has increased NC boron concentration by 15 ppm.
- Pzr pressure has stabilized at 1780 psig.
- The 2B NCP has been restarted.
- Containment radiation levels have doubled as indicated by:
 - 2EMF-2, Rx Bldg Incore Inst Rm
 - 2EMF-3, Rx Bldg Refuel Bridge
 - 2EMF-5, NC Flt.2A

Which ONE (1) of the following describes the most probable cause of the increase in containment radiation levels following the event?

NCS activity has increased due to...

- A. NCP cycling OR mechanical shock of ECCS actuation.
- B. the boron concentration change OR NCP cycling.
- C. the boron concentration change OR mechanical shock of ECCS actuation.
- D. a loss of letdown flow through the NV Demineralizers OR reactor trip.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 065

Unit 1 is at 100% power when an inadvertent SI actuation occurred.

The crew is performing ES-1.1, SI Termination.

- Normal Charging is aligned.
- NI Pumps are stopped.
- ND Pumps are stopped.
- Pzr level is rising.
- Normal Letdown is established.

Subsequently, during verification of NC Pump cooling in ES-1.1, the following occurs:

- Seal Injection flow is lost to all NC Pumps.
- Charging flow indicates 0 GPM.
- Pzr level is going down and results in letdown isolation.
- Pzr level stabilizes prior to reaching SI reinitiation criteria.

Which ONE (1) of the following describes the procedure usage required for these conditions?

- A. Return to step 1 of ES-1.1 and reestablish Charging and Letdown.
- B. Continue in ES-1.1 until completed, and then proceed to OP/1/A/6100/002, Controlling Procedure for Unit Shutdown.
- C. Continue in ES-1.1 and concurrently attempt to restore Charging and Seal Injection in accordance with AP-12, Loss of Letdown, Charging, or Seal Injection.
- D. Immediately suspend ES-1.1; GO TO AP-12 to restore Charging and Seal Injection. When Seal Injection is restored, return to ES-1.1, step in effect.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 066

After two hours into a shift on Unit 1, the OATC reviews the Control Room Unit Log and identifies the following:

- A plant transient occurred on the previous shift.
- A momentary entry into a Technical Specification Action Statement occurred.
- The event was NOT logged.
- No TSAIL entry was made.

Which ONE (1) of the following describes the MINIMUM required course of action?

- A. The CRSRO makes a TSAIL entry, and then clears the entry because the condition no longer exists. The CRSRO makes the correction to the previous shift's log.
- B. The OATC makes a follow-up entry in the current shift's log explaining the situation. A TSAIL entry is NOT required.
- C. The CRSRO makes the correction to the previous shift's log. A TSAIL entry is NOT required.
- D. The OATC makes the TSAIL entry, and then clears the entry because the condition no longer exists. The CRSRO follows up with an entry in the current log.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 067

A maintenance worker must enter a Vital Area to complete a task that will only take 5 minutes. He has unescorted access but his security badge is not coded to allow access to this area.

An operator is making rounds in the area. The maintenance worker asks the operator to open the CAD door and allow him access.

Which ONE (1) of the following identifies the correct response from the operator?

- A. The worker may NOT enter the Vital Area. He must first go to the Security Badging Office and obtain approval for permanent change to include the Vital Area.
- B. The operator can escort the worker provided he first calls Security Badging Office to obtain permission to assume visitor escort duties for the worker.
- C. The operator is allowed to escort the worker into the area provided that he maintains the worker under his control at all times.
- D. The operator can escort the worker provided they first go to the Security Badging Office and obtain an escorted visitor's badge.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 068

Unit 1 is in Mode 6:

- Fuel movement is in progress.
- A leak has developed which has caused Spent Fuel Pool level to drop.
- The Spent Fuel Pool Level Low computer alarm is activated.
- The SFP was initially at normal level and radiation level was 7 mr/hr.
- After 20 minutes, Pool level has decreased by more than 12 inches and radiation level is now 18 mr/hr.

Which ONE (1) of the following will be the MINIMUM required action(s) to terminate the loss of level in the Spent Fuel Pool per AP- 41, Case 2, Loss of Spent Fuel Pool Level AND AP- 40, Loss of Refueling Cavity Level?

- A. Direct the Fuel Handling Crew to move the fuel transfer cart to the reactor side and dispatch operators to close 1KF-122, Fuel Transfer Tube block valve ONLY.
- B. Direct the Fuel Handling Crew to move the fuel transfer cart to the reactor side and dispatch operators to close 1KF-122, Fuel Transfer Tube block valve AND place the Weir Gate in position and inflate the seals.
- C. Direct the Fuel Handling Crew to move the fuel transfer cart to the spent fuel pool side and dispatch operators to close 1KF-122, Fuel Transfer Tube block valve ONLY.
- D. Direct the Fuel Handling Crew to move the fuel transfer cart to the spent fuel pool side and dispatch operators to close 1KF-122, Fuel Transfer Tube block valve AND place the Weir Gate in position and inflate the seals.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 069

While performing a cooldown on Unit 1 from Mode 3 to Mode 5 the following parameters were logged.

<u>Time</u>	<u>NC Press</u>	<u>NC Temp</u>	<u>Pzr Liq Space Temp</u>
0200	2200 psig	553°F	650°F
0230	1550 psig	527°F	606°F
0300	1135 psig	505°F	560°F
0330	765 psig	447°F	494°F
0400	400 psig	402°F	440°F

Which ONE (1) of the following describes the Technical Specification/Selected License Commitment (TS/SLC) implications of these conditions?

- A. NCS AND Pzr cooldown rate limits were exceeded;
TS/SLC action is required within a maximum of 30 minutes.
- B. NCS AND Pzr cooldown rate limits were exceeded;
TS/SLC action is required within a maximum of 60 minutes.
- C. ONLY NCS cooldown rate limits were exceeded;
TS/SLC action is required within a maximum of 30 minutes.
- D. ONLY NCS cooldown rate limits were exceeded;
TS/SLC action is required within a maximum of 60 minutes.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 070

At the end of a shift, there is an outstanding Configuration Control Card (CCC), because a component could not be returned to its AS FOUND position.

Which ONE (1) of the following describes the correct disposition of the CCC?

- A. Document the CCC as part of your turnover at shift relief.
- B. Return the CCC to the CRSRO to determine whether it should be turned over, or if a procedure change will be required.
- C. Return the CCC to the OSM. An R&R will be issued prior to shift turnover.
- D. Return the CCC to the WCC SRO. The CCC will be tracked as open until the component can be repositioned to its AS FOUND position.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 071

An NLO is performing a PT and he identifies that two steps need to be performed "out of sequence" in order to complete the PT.

After deliberation with the supervisor, it is determined that this deviation is necessary. This change will NOT alter the intent of the procedure.

Which ONE (1) of the following statements describes the action(s) required for performing these procedural steps out of sequence?

An explanation of the sequence deviation is documented within the....

- A. Remarks Section of the procedure cover sheet ONLY;
and initialed by the NLO and supervisor ONLY, approving the change.
- B. Remarks Section of the procedure cover sheet ONLY;
and initialed by the NLO, the supervisor, and the OSM approving the change.
- C. Procedure body OR the Remarks Section of the procedure cover sheet; and
initialed by the NLO and supervisor ONLY, approving the change.
- D. Procedure body OR the Remarks Section of the procedure cover sheet;
and initialed by the NLO, the supervisor, and the OSM approving the change.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 072

Units 1 and 2 are at 100% power. Given the following events and conditions:

- Unit 2 has experienced several fuel pin failures.
- The mechanical seal has failed on the 2B NI pump.
- The 2B NI pump room general area is 400 mrem/hr.
- In order to reach the 2B NI pump room the worker must transit through a 6 Rem/hr high radiation area for 2 minutes.
- The worker has an accumulated annual dose of 400 mrem.

Which ONE (1) of the following identifies the MAXIMUM allowable time that the worker can participate in the seal repair on the 2B NI pump and not exceed the EXCLUDE EXPOSURE LIMIT for external exposure?

- A. 2 hours.
- B. 2.5 hours.
- C. 3 hours.
- D. 3.5 hours.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 073

Unit 1 has tripped from 100% power and the following conditions exist:

Each of the following EMF instruments are in trip 2:

- 1EMF 71, S/G A Leakage Hi Rad.
- 1EMF 72, S/G B Leakage Hi Rad.
- 1EMF 73, S/G C Leakage Hi Rad.
- 1EMF 74, S/G D Leakage Hi Rad.
- 1EMF 33, Cond Air Eject Exh Hi Rad.
- 1EMF 24, 25, 26, 27; S/G A, B, C, D Steamline Hi Rad.

Both MD CA Pumps are running.

Steam Generator parameters are as follows:

	<u>SG A</u>	<u>SG B</u>	<u>SG C</u>	<u>SG D</u>
NR Level	10% (increasing)	20% (decreasing)	15% (increasing)	15% (stable)
CA Flow	200 gpm	0 gpm	0 gpm	50 gpm

Which ONE (1) of the following actions must be taken to minimize the radiation release?

- A. Isolate the Steam Supply from the B SG to the TD CA Pump
- B. Isolate the Steam Supply from the C SG to the TD CA Pump.
- C. Increase CA flow to the B SG.
- D. Increase CA flow to the C SG.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 074

Which ONE (1) of the following events, followed by a failure of the Reactor Trip Breakers to open, would NOT be considered an Anticipated Transient Without Scram (ATWS)?

- A. Trip of 1D NC Pump from 50% power; OR
With Channel I Pzr Pressure instrument out of service for maintenance, the Channel II Pzr Pressure instrument fails LOW.
- B. Trip of 1D NC Pump from 40% power; OR
During a Reactor Startup with Intermediate Range Channels at 10^{-8} amps, Intermediate Range Channel N36 fails HIGH.
- C. Trip of 1D NC Pump from 50% power; OR
During a Reactor Startup with Intermediate Range Channels at 10^{-8} amps, Intermediate Range Channel N36 fails HIGH.
- D. Trip of 1D NC Pump from 40% power; OR
With Channel I Pzr Pressure instrument out of service for maintenance, the Channel II Pzr Pressure instrument fails LOW.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 075

Reactor trip and safety injection have occurred on Unit 2.

- Off-Site power is lost subsequent to a safety injection actuation.
- Equipment failures during performance of E-1, Loss of Reactor or Secondary Coolant, resulted in the following conditions:
- CSF Status Trees indicate as follows:
 - Subcriticality GREEN
 - Core Cooling ORANGE
 - Heat Sink YELLOW
 - Integrity YELLOW
 - Containment ORANGE
 - Inventory YELLOW

Which ONE (1) of the following describes the requirement for Critical Safety Function Status Tree Monitoring in accordance with OMP-4.3, Use of Abnormal and Emergency Procedures?

- A. Monitor for Information ONLY.
- B. Continuous Monitoring Required.
- C. Monitor every 10 – 20 minutes using Control Board indications OR OAC SPDS unless a change in plant status occurs.
- D. Monitor every 10 – 20 minutes using Control Board indications ONLY unless a change in plant status occurs.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 076

Given the following conditions:

- A reactor trip has occurred.
- Safety Injection is actuated. All equipment has actuated as designed.
- The crew is performing EP/1/A/5000/E-0, Reactor Trip or Safety Injection.
- NC System pressure is 1700 psig and lowering slowly.
- Pzr level is off-scale low.
- Containment pressure is 1.7 psig and rising slowly.
- FWST level is 300 inches and dropping at 2 inches per minute.
- SG pressures are 1050 psig and stable.
- CA flow is 600 gpm.
- The operators have just transitioned to E-1, Loss of Reactor or Secondary Coolant.

Which ONE (1) of the following describes (1) the NEXT procedure that will be used to mitigate the event in progress, and (2) the Technical Specification basis for FWST minimum volume for this event?

- A. (1) ES-1.2, Post LOCA Cooldown and depressurization
(2) Ensures a sufficient volume of water in the containment sump after ECCS injection to initiate Cold Leg Recirculation.
- B. (1) ES-1.3, Transfer to Cold Leg Recirculation
(2) Ensures a sufficient volume of water in the containment sump after ECCS injection to initiate Cold Leg Recirculation.
- C. (1) ES-1.2, Post LOCA Cooldown and depressurization
(2) Ensures that post LOCA core cooling requirements are met for the ECCS injection phase even with an anticipated loss of Cold Leg Recirculation.
- D. (1) ES-1.3, Transfer to Cold Leg Recirculation
(2) Ensures that post LOCA core cooling requirements are met for the ECCS injection phase even with an anticipated loss of Cold Leg Recirculation.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 077

Initial conditions:

Time = 0 minutes

- Unit 1 is at 100% power.
- "A" Train KC pumps are running.
- Operators have been dispatched to initiate YM makeup to the KC Surge Tank.
- "A" KC Surge Tank level is 6.5 ft.
- "B" KC Surge Tank level is 6.5 ft.

Current conditions:

Time = 5 minutes

- "A" KC Surge Tank level is 5.6 feet
- "B" KC Surge Tank level is 6.4 feet.

Which ONE (1) of the following describes (1) the approximate KC system net leak rate, and (2) the required action and procedure use required in AP/21, Loss of KC or KC System Leakage?

(Reference Provided)

- A. (1) 50 GPM
(2) Isolate KC Non-Essential Headers in accordance with Enclosure 2.
- B. (1) 50 GPM
(2) Isolate "A" KC train from "B" KC train.
- C. (1) 100 GPM
(2) Isolate KC Non-Essential Headers in accordance with Enclosure 2.
- D. (1) 100 GPM
(2) Isolate "A" KC train from "B" KC train.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 078

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°F and trending down.
- Enclosure 2 (Faulted SG Isolation) has been handed off to the RO, and is in progress.
- Enclosure 3 (Subsequent S/I Actions) has been completed by the BOP.
- Reactor Power indicates approximately 4% 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 until Enclosure 2 is completed.
- B. Exit FR-S.1 while continuing performance of Enclosure 2. Transition to E-0, Reactor Trip or Safety Injection, prior to transition to ES-1.1, SI Termination.
- C. Exit FR-S.1 while continuing performance of Enclosure 2. DIRECTLY transition to ES-1.1, SI Termination.
- D. Exit FR-S.1 and terminate performance of Enclosure 2. Transition to E-2, Faulted Steam Generator Isolation, prior to transition to ES-1.1, SI Termination.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 079

Given the following:

- A LOOP has occurred on Unit 1.
- Unit 2 is unaffected.
- The Unit 1 crew is performing ECA-0.0, Loss of All AC Power.
- The Standby Makeup Pump is ON.
- NCS subcooling is 8°F.
- Pzr level is 4% and lowering slowly.
- The crew was NOT able to start EITHER Diesel Generator.

Which ONE of the following describes the procedure that will be required for restoring power to Bus ETA, and the subsequent recovery procedure that will be performed upon transition from ECA-0.0?

- A. AP/7, Loss of Electrical Power;
ECA-0.1, Loss of All AC Power Recovery Without SI Required
- B. Enclosure 9, Energizing Unit 1 4160 V Bus from Unit 2 – SATA or SATB; ECA-0.1, Loss of All AC Power Recovery Without SI Required
- C. AP/7, Loss of Electrical Power;
ECA-0.2, Loss of All AC Power Recovery With SI Required
- D. Enclosure 9, Energizing Unit 1 4160 V Bus from Unit 2 – SATA or SATB; ECA-0.2, Loss of All AC Power Recovery With SI Required

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 080

Given the following:

- A loss of off-site power has occurred.
- Both Units have tripped.
- Unit 1 SRO has been directed to initiate cooldown to Mode 5.
- The following conditions exist on Unit 1 upon transition to ES-0.1, Reactor Trip Response.
 - All control rods are inserted.
 - NC SYSTEM Tcold temperature.
 - Loop 1A 535°F
 - Loop 1B 532°F
 - Loop 1C 533°F
 - Loop 1D 533°F

Which ONE of the following choices describes (1) actions that will be required for the above conditions, and (2) the procedure required for NC System Cooldown?

- A. (1) Close MSIVs ONLY
(2) OP/1/A/6100/002, Controlling Procedure for Unit Shutdown.
- B. (1) Close MSIVs ONLY
(2) ES-0.2, Natural Circulation Cooldown.
- C. (1) Close MSIVs AND Initiate Emergency Boration in accordance with AP/38, Emergency Boration
(2) OP/1/A/6100/002, Controlling Procedure for Unit Shutdown.
- D. (1) Close MSIVs AND Initiate Emergency Boration in accordance with AP/38, Emergency Boration
(2) ES-0.2, Natural Circulation Cooldown.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 081

Given the following:

- Unit 1 is at 100% power.
- A loss of Battery Charger EVCA occurred.
- Battery EVCA voltage lowered to 109 VDC.

Following restoration, conditions are:

- Battery EVCA voltage is currently 129 VDC.
- For two connected cells, the Specific Gravity is 1.180.
- For all connected cells, the average Specific Gravity is 1.202.
- Electrolyte temperature is 76°F.

Which ONE (1) of the following completes the statements below?

Battery EVCA is considered ____1____. The operability of the DC Distribution System ensures that as a MINIMUM, at least ONE DC ____2____ is available assuming a loss of off-site OR on-site power coincident with a worst case single failure.

REFERENCE PROVIDED

- A. (1) Operable but Degraded
(2) Train
- B. (1) Inoperable
(2) Train
- C. (1) Operable but Degraded
(2) Channel
- D. (1) Inoperable
(2) Channel

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 082

An event has occurred on Unit 1 with the following indications:

	<u>Prior to event</u>	<u>After event</u>
• P/R N-41	40%	40%
• P/R N-42	41%	40%
• P/R N-43	41%	42%
• P/R N-44	42%	37%
• Loop 1A Tave	567°F	564°F
• Loop 1B Tave	567°F	564°F
• Loop 1C Tave	568°F	563°F
• Loop 1D Tave	568°F	563°F
• Turbine power	481 MWe	478 MWe

The event caused the following additional indications:

- Automatic Rod motion demand
- "P/R CHANNEL DEVIATION" alarm.

Which ONE (1) of the following (1) describes the rod motion demand, and (2) which procedure will be addressed?

- A. (1) INWARD
(2) AP14, Rod Control Malfunction
- B. (1) OUTWARD
(2) AP14, Rod Control Malfunction
- C. (1) INWARD
(2) AP16, Malfunction of Nuclear Instrumentation
- D. (1) OUTWARD
(2) AP16, Malfunction of Nuclear Instrumentation

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 083

Given the following:

- A reactor startup is in progress.
- SR Channel N-31 indicates 2×10^3 CPS.
- SR Channel N-32 indicates 2×10^3 CPS.
- IR Channel N-35 indicates 3.0×10^{-11} amps.
- IR Channel N-36 indicates 9.0×10^{-11} amps.

Which ONE (1) of the following describes: (1) the existing plant condition, and (2) the action required in accordance with AP/16, Malfunction of Nuclear Instrumentation, and Technical Specifications?

- A. (1) N-36 is **under**-compensated;
(2) Maintain power stable until N-36 is repaired.
- B. (1) N-35 is **over**-compensated;
(2) Maintain power stable until N-35 is repaired.
- C. (1) N-36 is **under**-compensated;
(2) Raise power to greater than P-10 or place the unit in Mode 3 until N-36 is repaired.
- D. (1) N-35 is **over**-compensated;
(2) Raise power to greater than P-10 or place the unit in Mode 3 until N-35 is repaired.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 084

Given the following:

Turbine Building Sump to RC Radiation Monitor, EMF-31, is discovered to have an alarm setpoint that is set ONE decade higher than required.

Which ONE (1) of the following describes the impact of this condition?

The dose or dose commitment to members of the public may exceed the requirements of 10CFR50 of....

- A. 1.5 mrem whole body dose in a calendar quarter, AND 3 mrem whole body dose in a calendar year.
- B. 3 mrem whole body dose in a calendar quarter, AND 5 mrem whole body dose in a calendar year.
- C. 1.5 mrem whole body dose in a calendar year, AND 5 mrem organ dose in a calendar year.
- D. 3 mrem whole body dose in a calendar year, AND 10 mrem organ dose in a calendar year.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 085

Given the following:

- A LOCA has occurred on "1B" Cold Leg.
- ECCS has NOT functioned as required.
- All NC Pumps are TRIPPED.
- PZR PORVs are CLOSED and in AUTO.
- CET's indicate 692°F and rising.
- Reactor Vessel LR Level is 35% and lowering.
- Containment pressure is 3 psig and rising slowly.

Which ONE (1) of the following procedures will the SRO implement for these conditions, and the action taken, and the reason for this action, if ECCS components can NOT be restored?

- A. Enter FR-C.1, Response To Inadequate Core Cooling;
NC pumps are started prior to secondary depressurization to provide forced cooling of the NCS.
- B. Enter FR-C.2, Response To Degraded Core Cooling;
NC pumps are started prior to secondary depressurization to provide forced cooling of the NCS.
- C. Enter FR-C.1, Response To Inadequate Core Cooling;
Secondary depressurization is initiated prior to attempting NC pump operation to depressurize the NCS and facilitate SI Accumulator injection.
- D. Enter FR-C.2, Response To Degraded Core Cooling;
Secondary depressurization is initiated prior to attempting NC pump operation to depressurize the NCS and facilitate SI Accumulator injection.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 086

Given the following:

- Unit 1 is at 100% power.
- A PZR pressure transient resulted in a momentary cycling of a PZR PORV.
- The crew has stabilized the unit.
- Actions of AP/11, Pressurizer Pressure Anomalies, are being performed.
- NC pressure is 2120 psig and stable.
- PZR heater groups 1A, 1B, 1C are energized.
- PZR heater group 1D is de-energized.
- PZR Spray Valves and PORVs indicate closed.

Which ONE (1) of the following describes the actions that are required in accordance with AP/11 AND Technical Specifications?

- A. Place group 1D PZR heater mode select switch in MANUAL and energize to raise pressure;
NC System DNB limits are exceeding TS 3.4.1 COLR limits and restore NC pressure to within limits within 2 hours.
- B. Place PZR PRESS MASTER in MANUAL to control pressure manually;
Pressurizer TS 3.4.9 is applicable due to de-energized backup heaters; verify capacity of remaining Backup Heaters or initiate a plant shutdown to Mode 3 within the required action time.
- C. Place group 1D PZR heater mode select switch in MANUAL and energize to raise pressure;
Pressurizer TS 3.4.9 is applicable due to de-energized backup heaters; TS 3.4.9 no longer applies when 1D Backup Heaters are operating in MANUAL.
- D. Place PZR PRESS MASTER in MANUAL to control pressure manually;
NC System DNB limits are exceeding TS 3.4.1 COLR limits;
Restore NC pressure to within limits within 2 hours.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 087

Given the following:

- A Main Steam Break has occurred on Unit 1.
- The Train "A" Load Sequencer is de-energized.
- "B" NS Pump did NOT automatically start.
- The crew has transitioned to E-2, Faulted Steam Generator Isolation, when the following conditions are observed:
 - NC SYSTEM pressure 1400 psig and lowering.
 - Containment Pressure 13 psig and rising.

Which ONE (1) of the following describes (1) the proper Status Tree entry and (2) the criteria for exiting FR-Z.1?

- A. (1) ORANGE CSF Status Tree
(2) Early transition out of FR-Z.1 is allowed after the NC Pumps and RV pumps are off and at least ONE NS Pump is running.
- B. (1) ORANGE CSF Status Tree
(2) Early transition out of FR-Z.1 is allowed ONLY if a higher priority ORANGE or RED condition occurs.
- C. (1) RED CSF Status Tree
(2) Early transition out of FR-Z.1 is allowed after the NC Pumps and RV pumps are off and at least ONE NS Pump is running.
- D. (1) RED CSF Status Tree
(2) Early transition out of FR-Z.1 is allowed ONLY if a higher priority RED condition occurs.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 088

Given the following conditions:

- A Reactor Trip with SI occurs.
- The operators perform the immediate action steps, verify SI flow, and check CA flow in accordance with EP/1/A/5000/E-0, Reactor Trip or Safety Injection.
- The RO reports that CA flow is 425 gpm.
- NCS pressure is 900 psig.
- Containment Pressure peaked at 2.8 psig.
- All SG pressures are between 825 psig and 850 psig.
- All SG NR levels are off scale low.
- All SG WR levels are approximately 30%.
- E-0 directs the crew to implement EP/1/A/5000/F-0, Critical Safety Function Status Trees.

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

- A. Transition to FR-H.1, Response to Loss of Secondary Heat Sink, and attempt to establish additional CA or Feedwater flow, since secondary heat sink requirements are NOT met.
- B. Transition to FR-H.1, Response to Loss of Secondary Heat Sink, and initiate NCS feed and bleed, since NCS feed and bleed initiation criteria are met.
- C. Transition to FR-H.1, Response to Loss of Secondary Heat Sink, and then return to "procedure and step in effect" since a secondary heat sink is NOT required.
- D. Remain in EP-E.0, Reactor Trip or Safety Injection, until directed to transition to EP-E.1, Loss of Reactor or Secondary Coolant, since secondary heat sink requirements are met.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 089

Which ONE (1) of the following completes the statement below:

The MINIMUM radiation monitor requirement that provides the preferred means of NCS primary to secondary leak rate monitoring in accordance with SLC surveillance requirements is EMF-33, Condenser Evacuation Monitor ____1____ N-16 Monitors, EMF-71 – EMF-74,

AND

the MINIMUM sensitivity required to ensure the monitor remains OPERABLE, in accordance with the SLC and bases is ____2____ GPD?

- A. (1) OR
(2) 135
- B. (1) OR
(2) 30
- C. (1) AND
(2) 135
- D. (1) AND
(2) 30

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
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°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.
- Only Train “B” Safety Injection has actuated.

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) The running DG 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.
- 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) The running DG 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.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 091

Given the following plant conditions:

- A reactor startup is in progress.
- Control Bank "C" rods are at 130 steps.
- Both Intermediate Range channels indicate approximately 5×10^{-11} amps.
- Source Range Channel N-31 drifts DOWNSCALE and now indicates 5×10^0 CPS.

Which ONE (1) of the following describes the correct action for the plant conditions and the Technical Specification basis for the action?

- A. Continue the reactor startup; with only one Source Range channel operable; 48 hours is allowed to restore the inoperable channel to service.
- B. Suspend the reactor startup; Source Range channels are NOT currently required to trip the reactor; however, the Source Range monitoring functions must be available.
- C. Continue the reactor startup; only one Source Range channel is required for trip protection.
- D. Suspend the reactor startup; with only one Source Range channel operable, the minimum required trip protection is NOT met.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 092

Given the following:

- A LOCA has occurred on Unit 2.
- Due to subsequent failures, the crew is performing actions contained in FR-C.1, Response to Inadequate Core Cooling.
- Hydrogen Igniters and Recombiners are OFF.
- NF AHUs are OFF.
- Containment Hydrogen Concentration is currently 3% and rising slowly.

Which ONE (1) of the following describes the action required, and the reason for the action, in accordance with FR-C.1?

- A. Place Hydrogen Igniters in service ONLY, because Hydrogen Recombiner operating temperatures may cause a challenge to containment integrity due to hydrogen ignition.
- B. Place Hydrogen Igniters and Hydrogen Recombiners in service because containment hydrogen concentration is below the limit which could cause a concern for containment integrity violations due to hydrogen ignition.
- C. Do NOT place either Hydrogen Igniters or Hydrogen Recombiners in service because containment hydrogen concentration is above the limit which could cause a concern for containment integrity violations due to hydrogen ignition.
- D. Place Hydrogen Recombiners in service ONLY, because placing Hydrogen Igniters in service when containment hydrogen is above 0.5% may cause a challenge to containment integrity due to hydrogen ignition.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 093

Given the following conditions:

- Unit 1 is at 100% power.
- The following alarm is received:
 - VI/VS LO PRESS.
- VI pressure is 80 psig and lowering slowly.
- The crew is performing actions of AP/1/A/5500/022, Loss of VI.

Which ONE (1) of the following describes the action required for current plant conditions in accordance with AP-22, and the position of 1VI-820, VI Supply to VS Control valve?

- A. Perform Enclosure 4, Diesel VI Operation ONLY; 1VI-820 is currently closed.
- B. Perform Enclosure 4, Diesel VI Operation ONLY; 1VI-820 remains open.
- C. Perform Enclosure 4, Diesel VI Operation AND Enclosure 5, VI Dryer and VI to VS System Isolation; 1VI-820 is currently closed.
- D. Perform Enclosure 4, Diesel VI Operation AND Enclosure 5, VI Dryer and VI to VS System Isolation; 1VI-820 remains open.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 094

Unit 1 is in Mode 6, core alterations are in progress.

In accordance with NSD-414, Fuel Handling, which ONE (1) of the following identifies who is allowed to approve the bypassing of a Fuel Handling interlock that is NOT specified in a procedure?

- A. Operations Shift Manager OR Fuel Handling SRO
- B. Fuel Handling SRO ONLY
- C. Refueling Supervisor OR Fuel Handling SRO
- D. Refueling Supervisor ONLY

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 095

Given the following:

- Unit 1 is in Mode 1 on night shift.
- The Work Window Manager and Site Risk Expert are NOT available.
- A Temporary Test (TT) procedure is being performed on RN.
- During performance of the TT, an equipment failure occurred.

In accordance with SOMP 02-02, Operations Roles in the Risk Management Process, which ONE (1) of the following identifies the individual RESPONSIBLE for determining the risk level, and identifies the required action if the risk level becomes ORANGE?

- A. WCC SRO;
OSM must evaluate the restoration plan and provide final authority regarding plan implementation.
- B. WCC SRO;
On-Shift CRS must evaluate the restoration plan and provide final authority regarding plan implementation.
- C. On-Shift CRS;
OSM must evaluate the restoration plan and provide final authority regarding plan implementation.
- D. On-Shift CRS;
On-Shift CRS must evaluate the restoration plan and provide final authority regarding plan implementation.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 096

Given the following:

- Unit 1 is in Mode 3.
- NC system pressure has increased to above the NCS Pressure Safety Limit.

Which ONE (1) of the following describes the MAXIMUM TIME allowed to reduce NC pressure to below the Safety Limit and the safety valves that are credited to open in the Accident Analysis?

- A. 1 hour;
Pzr Code Safeties ONLY.
- B. 5 minutes;
Pzr Code Safeties ONLY.
- C. 1 hour;
Pzr Code Safeties and the Main Steam Code Safeties.
- D. 5 minutes;
Pzr Code Safeties and the Main Steam Code Safeties.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 097

Given the following:

- A load reduction from 100% to 60% was performed on Unit 1 in the last 30 minutes due to a Feedwater Control problem.
- The following alarms are received:
 - 1EMF-48, REACTOR COOLANT HIGH RAD
 - 1EMF-18, REACTOR COOLANT FILTER 1A
- Chemistry sample indicates that the high activity is due to failed fuel.
- Dose-Equivalent Iodine-131 is approximately 5 microcuries per gram.
- The crew enters AP/18, High Activity in Reactor Coolant.

Which ONE (1) of the following describes the action(s) that will be performed in accordance with AP/18, and identifies the required Technical Specification actions?

REFERENCE PROVIDED

- A. Raise Letdown flow to 120 GPM;
Plant shutdown and cooldown to less than 500°F must be performed.
- B. Raise Letdown flow to 120 GPM;
Plant operation may continue with increased NC SYSTEM sampling frequency.
- C. Ensure Mixed Bed Demin is in service and evaluate use of Cation Bed Demin;
Plant shutdown and cooldown to less than 500°F must be performed.
- D. Ensure Mixed Bed Demin is in service and evaluate use of Cation Bed Demin;
Plant operation may continue with increased NC SYSTEM sampling frequency.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 098

Unit 1 is at 100% power.

A Radwaste Operator brings a gaseous radiological release permit to the SRO for approval.

Given the following information on the permit:

- Release ID = WGD T B
- Most restrictive release rate = $3.24\text{E}+02$ cfm
- Recommended release rate = $4.00\text{E}+01$ cfm
- EMF-50(L) (WASTE GAS) in service = yes
- EMF background = $1.58\text{ E}+01$
- Trip 1 setpoint = $5.34\text{E}+02$
- Trip 2 setpoint = $4.99\text{E}+03$

Which ONE (1) of the following actions is correct for approval of this release permit?

- A. The release may be approved as presented ONLY if 1EMF-36(L) Unit Vent Gas is also operable.
- B. The release may NOT be approved because the EMF-50(L) trip setpoints are not correct.
- C. The release may NOT be approved because the release rate is not correct.
- D. The release may be approved as presented if a source check of EMF-50(L) is performed successfully.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 099

A transient has occurred on Unit 2 resulting in the following alarms:

- OTDT RUNBACK/ROD STOP ALERT
- TREF/T-AUCT ABNORMAL

Reactor power indicates the following:

- N41 – 104.1%
- N42 – 103.2%
- N43 – 104.3%
- N44 – 102.9%

Tave indicates 589 degrees F.

Which ONE (1) of the following has occurred, and what is the Technical Specification implication of the event?

- A. Uncontrolled Rod Withdrawal;
Linear Heat Rate and Hot Channel Factors may be challenged.
- B. Uncontrolled Rod Withdrawal;
Shutdown Margin assumptions for anticipated operational transients may be invalid.
- C. Turbine Impulse Channel Failure;
Linear Heat Rate and Hot Channel Factors may be challenged.
- D. Turbine Impulse Channel Failure;
Shutdown Margin assumptions for anticipated operational transients may be invalid.

U.S.N.R.C. Site-Specific Written Examination
McGuire 1/2
Senior Reactor Operator

Question 100

Unit 1 was at 100% power.

- A complete loss of RN occurred.
- The crew entered AP/20, Loss of RN.
- The operators attempted to manually trip the reactor but the trip breakers failed to open.

Which ONE (1) of the following statements correctly describes the proper procedural flow path/actions for these conditions?

Enter E-0 and....

- A. Continue in AP/20 and attempt to restore at least one RN Train; enter FR-S.1, establish emergency boration; both AP/20 and FR-S.1 must be performed to completion prior to returning to E-0.
- B. Immediately transition to FR-S.1 and initiate emergency boration; continuing in AP/20 only after exit from the EOP network.
- C. Continue in AP/20 and attempt to restore at least one RN Train until transition to FR-S.1. AP/20 may only be performed when FR-S.1 is not in progress.
- D. Immediately transition to FR-S.1 and attempt to shut down the reactor while continuing on in AP/20 to restore RN as time and conditions permit.

2008 SRO License Exam

References

Table of Contents

The following references are provided:

- MNS U-1 Data Book Enc 4.3 Curve 7.38
- Copy of the Steam Tables
- EP/1/A/5000/ECA-1.1 Enc. 9
- MNS U-1 Data Book Enc 4.3 Curve 7.31
- Copy of Tech Spec 3.8.6
- Tech Spec Figure 3.4.16-1

UNIT 1

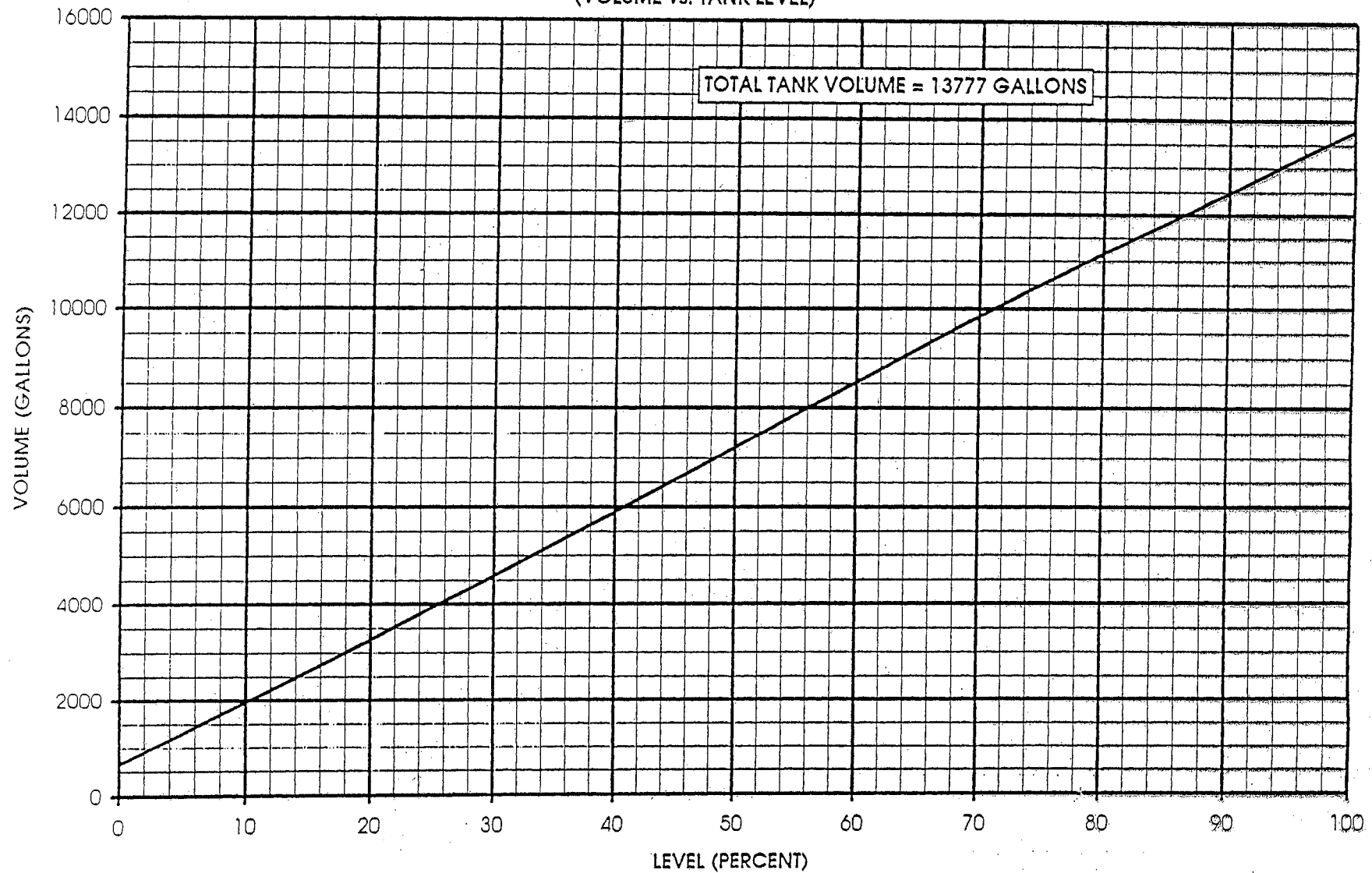
OP/1/A/6100/22

ENCLOSURE 4.3

CURVE 7.38

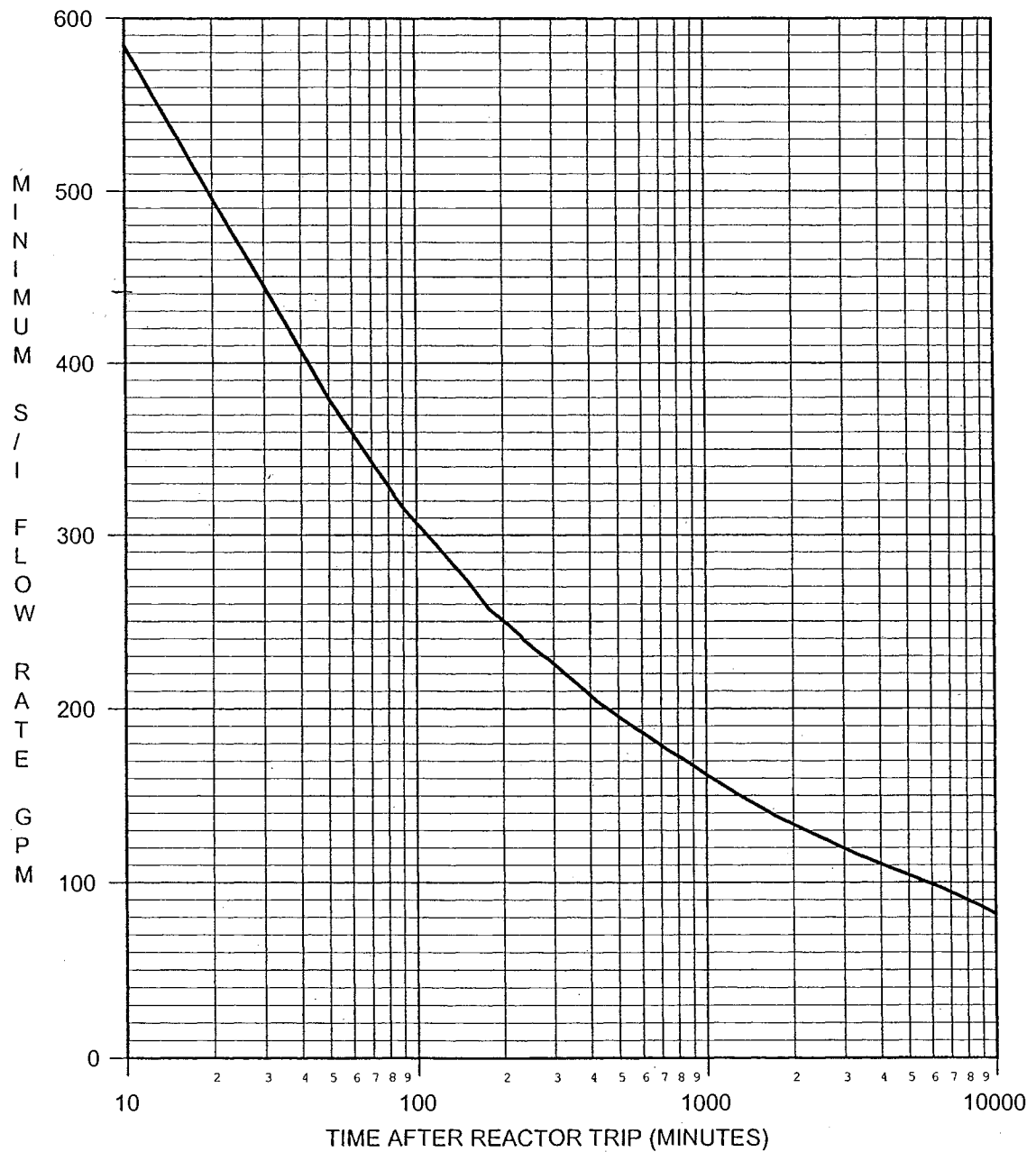
PRESSURIZER

(VOLUME vs. TANK LEVEL)



is data is also available on the OAC.

UNIT 1



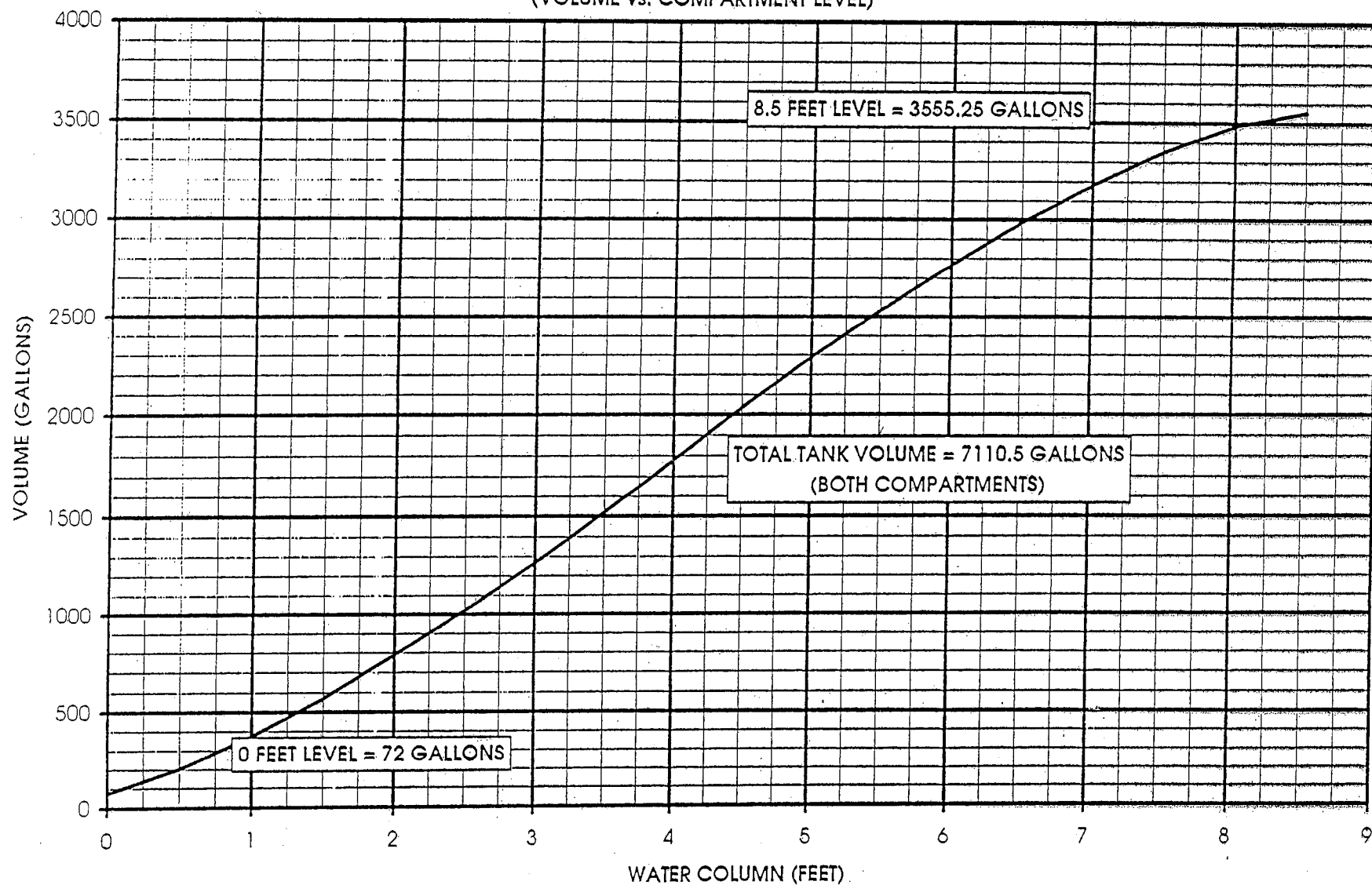
UNIT 1

OP/1/A/6100/22

ENCLOSURE 4.3

CURVE 7.31

COMPONENT COOLING SURGE TANK
(VOLUME vs. COMPARTMENT LEVEL)



data is also available on the OAC.

UNIT 1

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the channels of DC batteries shall be within the limits of Table 3.8.6-1.

APPLICABILITY: When associated channels of DC sources are required to be OPERABLE.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Category A or B limits.	A.1 Verify pilot cells electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	<u>AND</u>	
	A.2 Verify battery cell parameters meet Table 3.8.6-1 Category C limits.	24 hours
	<u>AND</u>	<u>AND</u>
	A.3 Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	Once per 7 days thereafter
		31 days

(continued)

Battery Cell Parameters
3.8.6

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>One or more batteries with average electrolyte temperature of the representative cells < 60°F.</p> <p><u>OR</u></p> <p>One or more batteries with one or more battery cell parameters not within Category C values.</p>	<p>B.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 Verify battery cell parameters meet Table 3.8.6-1 Category A limits.</p>	<p>7 days</p>

(continued)

Battery Cell Parameters
3.8.6

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.6.2 Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	92 days <u>AND</u> Once within 7 days after a battery discharge < 110 V <u>AND</u> Once within 7 days after a battery overcharge > 150 V
SR 3.8.6.3 Verify average electrolyte temperature of representative cells is $\geq 60^{\circ}\text{F}$.	92 days

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameters Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark ^(a)	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark ^(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity ^{(b)(c)}	≥ 1.200	≥ 1.195 <u>AND</u> Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells or ≥ 1.195 <u>AND</u> Average of all connected cells ≥ 1.195

- (a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.
- (b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 2 amps when on float charge.
- (c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

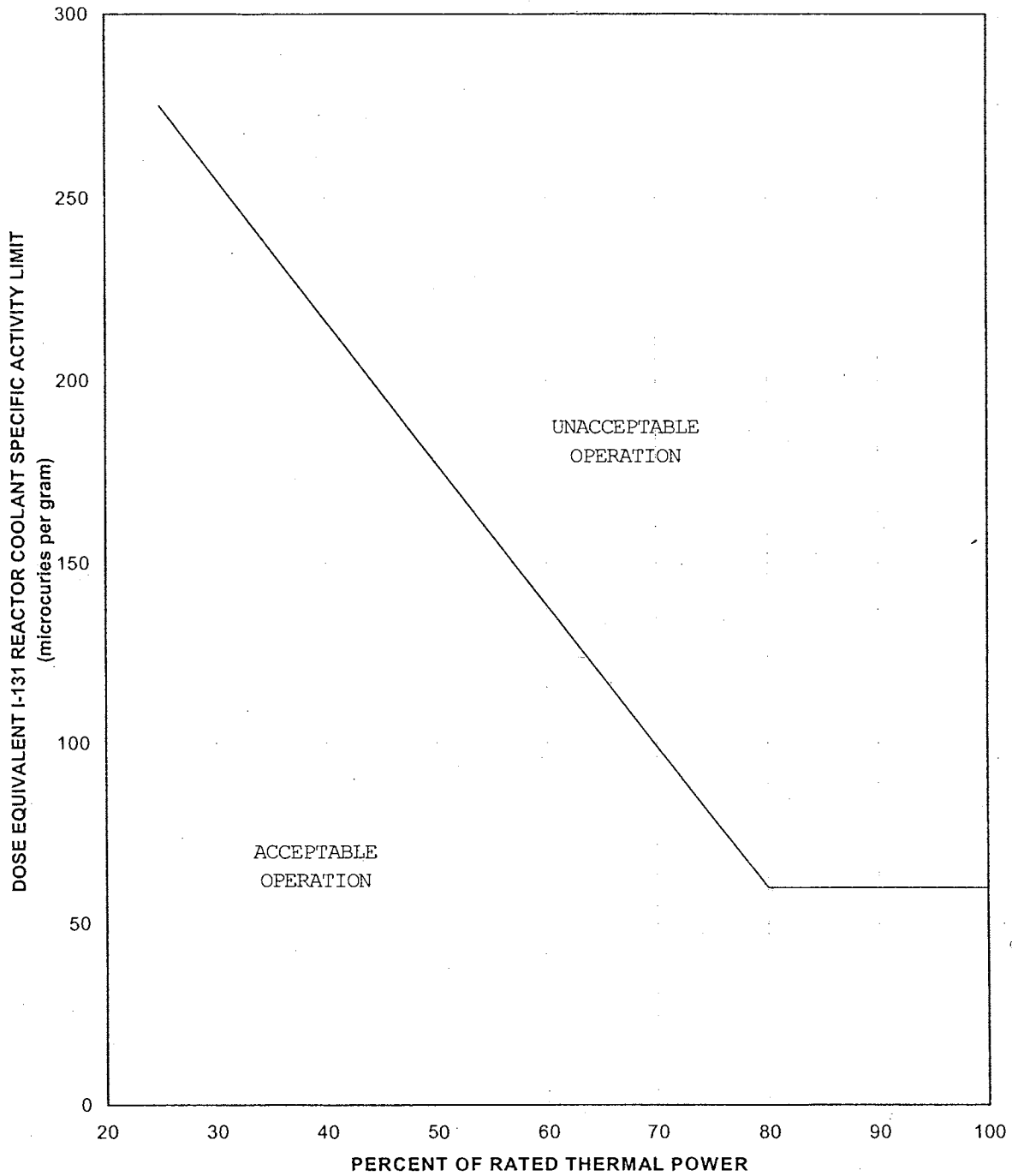


Figure 3.4.16-1 (page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity
Limit Versus Percent of RATED THERMAL POWER