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1CAN091102

September 1, 2011

Mr. Sean Hedger
Chief Examiner
U. S. Nuclear Regulatory Commission
612 E. Lamar Blvd., Suite 400
Arlington, TX 76011-4125

Subject: Initial Examination – Completion of Post-Examination Analysis and Transmittal of Final Examination Materials
Arkansas Nuclear One – Unit 1 (B&W)
Docket No. 50-313
License No. DPR-51

Dear Mr. Hedger,

Included in this package are the examination analysis and final written examination materials for ANO, Unit One for the written examination given on August 26, 2011. The materials include the final written examination analysis and the examination security agreement. The remaining materials were delivered to you previously following the post-exam exit meeting at the site, which included the completed Form ES-403-1, "Written Examination Grading Quality Checklist", the graded written examinations with each applicant's answer sheet, the questions asked by the candidates and answers given by the proctors during the examination, the master examinations and answer keys, and the written examination seating chart. The applicants did not pose any additional comments on the written examination questions following their post-examination debrief.

We also request that all examination materials related to the ANO Unit One August 2011 NRC Operator License Examinations be withheld from public disclosure for a period of two years from this date.

If you have any questions regarding this submittal, please contact Randal Martin at (479) 858-6844.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert O. Byford".

Robert O. Byford
Manager, Training
Arkansas Nuclear One

Attachments

cc w/o attachments: Karl Jones
Bob Byford
Andrew Clinkingbeard
Randal Martin
Licensing
ANO-DCC

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

Applicant Information

Name:

Date: 08/26/11

Facility/Unit: ANO Unit One

Region: I II III IV

Reactor Type: W CE BW GE

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. Examination papers will be collected 6 hours after the examination begins.

Applicant Certification

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

Applicant's Signature

Results

Examination Value _____ 75 _____ Points

Applicant's Score _____ Points

Applicant's Grade _____ Percent

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 1

QID: 0023

The following conditions exist immediately after a reactor trip:

- Group 2, Rod 4 failed to fully insert into the core
- RCS pressure is at 1750 psig and trending down
- Pressurizer level is at 50 inches and trending down
- A OTSG pressure is at 880 psig and trending down
- B OTSG pressure is at 885 psig and trending down
- CETs are 560°F and stable
- Turbine Trip Solenoid Power Available light is OFF

Which of the following contains the required operator response as well as the reason for the response?

- A. Manually actuate MSLI for affected SG(s) and EFW due to overcooling.
 - B. Commence emergency boration per RT-12 for the stuck rod.
 - C. Trip all Reactor Coolant Pumps due to loss of subcooling margin.
 - D. Initiate High Pressure Injection per RT-2 due to low pressurizer level and low RCS pressure.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 2

QID: 0506

Given:

- A Small Break LOCA has occurred.
- ATC has tripped the reactor.
- CBOT has tripped the turbine.
- Both OTSG Pressures are at 895 psig and stable
- SCM is 25°F.
- All RCPs are OFF.

The desired final OTSG levels will be maintained with EFW using ____?____ Level instrument(s) and obtained with a fill rate of ____?____.

- A. EFIC Low Range,
2" to 8"/min in Manual or 340gpm/SG in Auto
 - B. EFIC High Range
2" to 8"/min in Auto or 340gpm/SG in Manual
 - C. EFIC Low Range
2" to 8"/min in Auto or 340gpm/SG in Manual
 - D. EFIC High Range
2" to 8"/min in Manual or 340gpm/SG in Auto
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 3

QID: 0029

Given the following plant conditions:

- Reactor trip from full power
- Full ES actuation
- ICCMDS Display Subcooling Margin indicates 0 °F
- ICCMDS CET temperatures are alternating between superheated and saturated conditions.

All EOP actions have been performed for these conditions.

Which of the following describes the primary mode of RCS cooling for these conditions?

- A. Reflux Boiling
 - B. Forced Convection
 - C. Natural Circulation
 - D. Natural Conduction
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 4

QID: 0825

Given:

- Plant is at 65% power
- P-32A, P-32C, and P-32D RCPs are running
- K08-C7 "RCP BLEEDOFF TEMP HIGH" alarms
- P-32A Seal Bleedoff temperature is 210°F

Which of the following operator actions are required?

- A. Reduce Reactor power to 50% and secure RCP P-32A.
 - B. Trip RCP P-32A and verify proper ICS response.
 - C. Close P-32A Seal Bleedoff Isolation CV-1273 and Seal Bleedoff Isolation to Quench Tank SV-1273.
 - D. Trip the Reactor and then trip RCP P-32A.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 5

QID: 0549

Given the following:

- Plant is at 100% power.
- HPI pump discharge pressure is oscillating from 1500 to 2500 psig.
- Makeup flow rate is oscillating from 0 to 70 gpm.
- Seal Injection total flow is oscillating from 30 to 60 gpm.
- Pressurizer level is 215 inches and dropping.
- Letdown flow is 80 gpm and stable.
- Makeup tank level 50 inches and dropping.

Which of the following actions, and reasons for the actions, are procedurally required to be performed in response to these indications?

- A. Trip HPI pump and isolate Letdown by closing Letdown Isolation, CV-1221, due to indications of degraded suction.
 - B. Take manual control of RC Pumps Total Injection Flow, CV-1207, and maintain 30-40 gpm to prevent RCP seal damage.
 - C. Take manual control of Pressurizer Level Control, CV-1235, and stabilize Pressurizer level due to automatic valve control malfunction.
 - D. Trip HPI pump, trip reactor, and go to EOP 1202.001, Reactor Trip, due to loss of seal injection at power.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 6

QID: 0164

An outage is in progress with the following conditions:

- The RCS is drained to 371.5 feet as indicated by RCS hot leg level.
- Decay heat removal flow becomes erratic.
- Indicated decay heat removal flow is ~2500 gpm.

Which procedural action should be taken first to prevent a Loss of Decay Heat?

- A. Reduce decay heat removal flow until flow stabilizes.
 - B. Start the Standby Decay Heat pump.
 - C. Raise RCS level until flow stabilizes.
 - D. Raise decay heat removal flow by opening block valve.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 7

QID: 0095

Given:

- RCS pressure has dropped to approximately 1500 psig.
- RB pressure has risen to 5 psig.
- CETs are approximately 500 degrees F.

Which of the following best describes the effects, and the reasoning behind the effects, on the ICW system or the components it cools?

- a. All RCPs must be secured due to loss of motor cooling.
 - b. All RCPs must be secured due to loss of subcooling margin.
 - c. ICW Booster pumps are protected by opening of bypass valve.
 - d. ICW pumps must be secured due to isolation of SW to ICW coolers.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 8

QID: 0824

Given:

-Plant at 100% power.

-PZR Spray valve, CV-1008, fails to 30% open.

-RCS pressure 2120 psig and slowly dropping.

What pressure condition would cause the Technical Specification for RCS Pressure, Temperature, and Flow DNB Surveillance limits required to be entered?

A. 2135 psig

B. 2120 psig

C. 2105 psig

D. 2080 psig

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 9

QID: 0856

Given:

- "A OTSG N-16 Trouble" is in alarm.
- Letdown flow is 70 gpm.
- Makeup flow is 96 gpm.
- Seal injection flow is 32 gpm.
- Seal Bleedoff Flow is 1.5 gpm per RCP
- Pressurizer level is constant.

What is the approximate primary to secondary leak rate?

- a. ~26 gpm
 - b. ~32 gpm
 - c. ~52 gpm
 - d. ~58 gpm
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 10

QID: 0826

Given:

-Reactor is tripped due to a steam line rupture.

-"A" SG pressure 430 psig

-"B" SG pressure 590 psig

Which valves are positioned correctly per RT-6?

- A. "B" MSIV CV-2692 closed and "B" EFW Isolation valve CV-2620 closed
 - B. "A" MSIV CV-2691 closed and "A" EFW Isolation valve CV-2627 closed
 - C. "A" MFW Isolation valve CV-2680 closed and "A" EFW Control valve CV-2645 open
 - D. "B" MFW Isolation valve CV-2692 closed and "B" EFW Control valve CV-2647 closed
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 11

QID: 0662

Given:

Recovery from an Overheating condition is in progress.

Auxiliary Feedwater Pump, P-75 is the only available source of water.

"A" S/G level is 18 inches and stable.

"B" S/G level is 21 inches and lowering.

Subcooling Margin is adequate.

Which of the following indicate the proper action to take and why?

- A. Neither S/G can be fed due to unanalyzed stresses of feeding a dry S/G with Aux Feedwater.
 - B. "A" S/G can not be fed until primary to secondary heat transfer is established.
"B" S/G can be fed while monitoring tube to shell delta T due to unanalyzed stresses of feeding a dry S/G with Aux Feedwater.
 - C. Both S/G can be fed while monitoring tube to shell delta T until primary to secondary heat transfer is established.
 - D. Both S/G can be fed, tube to shell delta T is not a concern until primary to secondary heat transfer is established, then maintain tube to shell delta T within limits.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 12

QID: 0552

Which of the following would cause entry into 1202.008, Blackout?

- A. All 6900V busses de-energized, 4160V busses A1 and A2 de-energized
 - B. All 4160V busses de-energized
 - C. All 6900V busses de-energized, all 4160V busses de-energized except A4 bus
 - D. All 6900V busses de-energized
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 13

QID: 0553

A Degraded Power event occurred.

Both EDG's are supplying associated ES buses.

You are directed to actuate MSLI for both SGs and verify proper EFW actuation and control per RT-6.

Which of the following would be a verification of primary to secondary heat transfer per RT-6?

- A. Core exit temperature 600 °F and rising slowly.
 - B. T-hot/T-cold delta T 55°F and rising slowly.
 - C. T-cold 545°F dropping slowly and SG pressures 990 psig dropping slowly.
 - D. Core exit temperature 595 °F rising slowly with T-hot 580°F dropping slowly.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 14

QID: 0850

Inverters are aligned with Inverter Y-25 supplying 120 Volt Vital AC Panel RS-4 and Inverter Y-22 supplying 120 Volt Vital AC Panel RS-2.

What would shifting the manual output transfer switch (S-2) on the Y-25 Inverter to the "System Output To Y-22" position do?

- A. Power RS-2 from Y-25
 - B. De-energize RS-4
 - C. Parallel RS-2 and RS-4
 - D. Cause Y-25 to shift to alternate source
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 15

QID: 0625

Given:

- ESAS actuation has occurred on channels 1 through 6
- SW Pump P-4A does not start, P-4B is aligned to the other SW loop
- HPI Pump P-36B is aligned to the A4 bus

Which components' temperatures should be closely monitored until P-4B can be re-aligned?

- A. Circ Water Pumps P-3A & P-3B, HPI pump P-36B, Nuclear ICW components
 - B. Condensate Pumps, Circ Water Pumps P-3C & P-3D, HPI pump P-36A, Nuclear ICW components
 - C. Circ Water Pumps P-3A & P-3B, HPI pump P-36A, Nuclear ICW components
 - D. Circ Water Pumps P-3C & P-3D, HPI pump P-36C, Non-Nuclear ICW components
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 16

QID: 0103

Given:

- Unit One Instrument Air pressure has been degrading for approximately 30 minutes.
- Unit Two Instrument Air pressure is steady.
- Inst. Air is being used to supply contractors using air line hoods.

Suddenly, Unit One Inst. Air pressure drops to 70 psig.

Which of the following actions are required at this pressure?

- A. Inform RP and isolate Inst. Air from respirable air.
 - B. Isolate Unit 2 Inst. Air from Unit 1.
 - C. Place VSF-9 Outside Air damper in RESERVE position.
 - D. Place RCP Seal Injection Block, CV-1206, in OVERRIDE.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 17 QID: 0614

An Overheating event is in progress.
Subcooling margin remains adequate.

The running RCP should be tripped when tube to shell delta T reaches:

- A. 30°F (tubes hotter)
 - B. 60°F (tubes hotter)
 - C. 30°F (tubes colder)
 - D. 60°F (tubes colder)
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 18

QID: 0827

OPEN REFERENCE

Due to a grid disturbance an over-excitation condition exists on the Main Generator.

Main Generator load is 800 Mwe

Main Generator hydrogen pressure is 75 psig

What is the main operational concern with continued operation in this condition?

- A. Excessive field heating
 - B. Excessive armature heating
 - C. Excessive core end heating
 - D. Slipping generator poles
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 19

QID: 0494

Unit 1 is at 25% power and power escalation is in progress.

An asymmetric rod alarm comes in and control rod 7-3 API indicates 9% lower than the group average.

You are the CBOR and are required to monitor Quadrant Power Tilt (QPT) which has exceeded the allowed value by Technical Specifications and 1015.003A "Unit 1 Operations Logs".

Select the equipment listed in the order from MOST accurate to LEAST accurate to obtain QPT.

- A. Excore NI, Full Incore System (PMS), Minimum/Backup Incore Recorders
 - B. Full Incore System (PMS), Excore NI, Minimum/Backup Incore Recorders
 - C. Full Incore System (PMS), Minimum/Backup Incore Recorders, Excore NI
 - D. Minimum/Backup Incore Recorders, Full Incore System (PMS), Excore NI
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 20

QID: 0665

Given:

Plant operating at 100% power.

The following annunciators come into alarm simultaneously.

PZR LEVEL LO LO (K09-A3)

PZR LEVEL LO (K09-D3)

LRS-1001 on C04 indicates 0 inches.

LIS-1002 on C04 indicates 0 inches.

Pressurizer levels on SPDS also indicates 0 inches (L1001 and L1002).

Which action should be taken for the given condition?

- A. Isolate letdown by closing CV-1221, Letdown Coolers Inlet Isolation valve.
 - B. Adjust CV-1235, Pzr Level Control Valve, in hand to maintain previous slope of MUT level recorder.
 - C. Verify proportional Pressurizer Heater Controls hand/auto station in hand and full on to maintain RCS pressure.
 - D. Verify at least one Makeup Pump recirc valve CV-1300 or CV-1301 is open to ensure minimum recirc flow for the M/U Pump.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 21

QID: 0819

OPEN REFERENCE

Given:

- A OTSG has a 20 gpm tube leak
- Reactor was tripped in accordance with 1203.023, Small Steam Generator Tube Leak
- Per 1202.001, CRS has transitioned to 1202.006, Tube Rupture
- RCS pressure 1700 psig
- RCS Tavg 540°F
- PZR level 65"

RCS cooldown is in progress and the CRS has directed you to control RCS pressure in accordance with 1202.006.

Which of the following actions should you take?

- A. Turn on PZR heaters to raise Subcooling Margin.
 - B. Open PZR Spray to lower RCS pressure.
 - C. Open Turbine Bypass Valves to raise cooldown rate.
 - D. Initiate HPI to raise PZR level.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 22

QID: 0162

Reactor power is 90% and generated megawatts is 800.

After a runback for loss of one main feedwater pump, the ICS should stabilize the plant at

_____.

- A. 360 Mwe
 - B. 340 Mwe
 - C. 45% Reactor Power
 - D. 50% Reactor Power
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 23

QID: 0828

Plant is at 100% power and the ATC notices a loss of NNI indication on C13.

Which of the following NNI power losses ALONE requires a manual reactor trip?

- A. NNI-X AC
 - B. NNI-X DC
 - C. NNI-Y AC
 - D. NNI-Y DC
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 24

QID: 0829

Diesel Generator #2 is running to supply A4 for maintenance on breaker A409, A2-A4 Feeder Breaker.

Low reactor coolant system pressure causes a reactor trip and ESAS actuation.

What will the ES Electrical response be?

- A. A-3 and A-4 powered from SU #1, both diesel generators running unloaded.
 - B. A-3 and A-4 powered from SU #1, Diesel Generator # 2 tripped, Diesel Generator # 1 running unloaded.
 - C. A-4 powered from Diesel Generator #2, A-3 powered from SU #1, Diesel Generator # 1 running unloaded.
 - D. A-3 powered from Diesel Generator #1, and A-4 powered from Diesel Generator #2.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 25

QID: 0290

During a large break LOCA, RCP's have been secured due to loss of Subcooling Margin.

Which one of the following indicates that the reactor core is covered?

- A. SPDS automatically switches from the ATOG display to the ICC display.
 - B. The A Hot Leg temperature indicator indicates superheated conditions.
 - C. The RCS is saturated as indicated by Core Exit Thermocouples.
 - D. ICCMDS display indicates voids in the Reactor Vessel head and hot legs.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 26

QID: 0172

Which of the following conditions would procedurally require that a Natural Circulation Cooldown be performed?

- A. A plant cooldown is required and normal offsite power is NOT available.
 - B. A steam generator steam leak exists following a reactor trip and P-7B EFW pump is NOT available.
 - C. EFW CST (T-41B) level has dropped to less than 3' during a Blackout condition.
 - D. A loss of offsite power has occurred and both DGs are tied to their respective busses with an adequate SCM and SU Xfmr #1 becomes available.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 27

QID: 0237

It is known that elevated containment temperatures and radiation levels can affect instrument readings.

How are allowances for these effects made when parameter values are required in EOP steps?

- a. Transmitters inside containment are environmentally qualified for these effects.
 - b. The SE uses a set of instrument tables during accident conditions.
 - c. SPDS displays alternate values when these conditions are reached.
 - d. EOP parameter values for these conditions are inside brackets.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 28

QID: 0053

Without operator action, which of the following incidents would have the most detrimental effect on RCP operation?

- A. Loss of nuclear ICW to RCP
 - B. Main steam line rupture inside RB
 - C. Loss of RCP seal injection
 - D. RCP Bleedoff Normal Return, CV-1274, fails closed
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 29

QID: 0834

The ATC notices that the pushbutton green light above HS-1206 on C-04 for Seal Injection Flow Block valve is no longer illuminated.

What be the expected response of Seal Injection flow?

- A. Seal injection flow will control at setpoint.
 - B. Seal injection flow will drop to zero.
 - C. Seal injection flow will rise due to flow lower than setpoint.
 - D. Seal injection flow will lower due to flow higher than setpoint.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 30

QID: 0657

"A" HPI pump is operating.

"C" HPI pump is in ES Standby.

"B" HPI pump MOD is closed on A-4.

Which of the following best describes "B" HPI pump following ES actuation?

- A. "B" HPI pump will start on A-3 if "A" HPI pump fails.
 - B. "B" HPI pump will start on A-4 if "A" HPI pump fails.
 - C. "B" HPI pump will start on A-4 if "C" HPI pump fails.
 - D. "B" HPI pump will not auto start on either "A" or "C" HPI pump failure.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 31

QID: 0820

The plant is in Mode 5, Cold Shutdown.

Both DH loops are operable.

No RCPs are running.

Makeup Pump is running supplying seal injection.

The running DH pump is stopped in preparation for swapping to the other loop.

In accordance with Technical Specifications for the Reactor Coolant System, which of the following are NOT allowed at this time?

- A. Allowing RCS temperature to drift up to 190°F.
 - B. Starting a Reactor Coolant Pump.
 - C. Raising MUT level using DI water.
 - D. Raising OTSG levels using EFW.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 32

QID: 0266

Given:

- All controls are in automatic
- RCS pressure 135 psig, slowly dropping
- Reactor Building pressure is 28 psia
- "A" and "B" OTSG levels at 415 inches

Which pair of pumps should be pumping fluid as designed (not recirculating)?

- A. HPI pumps and LPI pumps
 - B. RB spray pumps and LPI pumps
 - C. RB spray pumps and EFW pumps
 - D. HPI pumps and EFW pumps
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 33

QID: 0303

Which of the following occurs when HPI is automatically actuated on low RCS pressure?

- a. RCP Seal INJ Block Valve CV-1206 receives an open signal.
 - b. Makeup Tank Outlet Valve CV-1275 automatically closes.
 - c. Decay Heat Cooler Outlet to HPI pump suction CV-1276 automatically opens.
 - d. RCS Makeup Block Valve CV-1234 receives a close signal.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 34

QID: 0821

What would be the PRIMARY concern if the Quench Tank level was NOT maintained >4000 gallons but <8300 gallons per 1103.005, Pressurizer Operations?

- A. Inadequate NPSH for the Quench Tank Transfer Pump, P-44, causing damage to pump from cavitation.
 - B. Too much gas space in the Quench Tank would increase the potential for buildup of explosive hydrogen.
 - C. If the ERV opened during a transient, the rupture disk could rupture prematurely releasing steam to the Rx Bldg.
 - D. There would be an inadequate water trap for the Rx Bldg vent header during cold shutdown.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 35

QID: 0562

Which of the following identifies the correct power supplies to the Intermediate Cooling Water Pumps (P-33A, P-33B, P-33C)?

- A. P33A and P33B are powered from B-12 while P33C is powered from B-22.
 - B. P33A is powered from B-12 while P33B and P33C are powered from B-22.
 - C. P33A, P33B and P33C are powered from B-12, B-22 and B32 respectively.
 - D. P33A, P33B and P33C are powered from B-11, B-12 and B-13 respectively.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 36

QID: 0822

Given:

- 100% power
- P33B and P33C ICW pumps in service
- P33A (ICW Pump) out of service

- P33B (ICW Pump) trips

What impact would this have on plant operations, and what actions are required per 1104.028, ICW System Operating Procedure?

- A. Loss of Non-Nuc ICW, open ICW cross connect valves CV-2238, CV-2239, CV-2240 and CV-2241
 - B. Loss of Non-Nuc ICW, close "A" to "B" cross connect valves CV-2238 and CV-2240
 - C. Loss of Nuc ICW, open ICW cross connect valves CV-2238, CV-2239, CV-2240 and CV-2241
 - D. Loss of Nuc ICW, close "A" to "B" cross connect valves CV-2238 and CV-2240
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 37

QID: 0628

Given:

- Plant is shutdown and cooldown is in progress.
- RCS pressure 215 psig.
- RCS temperature 200 °F.
- DH is in service.

Which of the following would result if the "A" RPS narrow range pressure transmitter (PT-1021) slowly failed high?

- A. DH suction valve CV-1050 would close.
 - B. SASS would select "C" RPS (PT-1038).
 - C. ERV (PSV-1000) would open.
 - D. DH suction valve CV-1410 would close.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 38

QID: 0629

I&C is performing a surveillance on the "A" RPS channel.
NI input to ICS is selected to "C" RPS channel.

During this surveillance Power Range channel NI-7 fails high.

Which of the following will occur?

- A. Plant is stable since SASS will transfer to NNI-Y.
 - B. Control rods will start to insert.
 - C. Control rods will start to withdraw.
 - D. Feedwater flows will go down.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 39

QID: 0265

Given:

- Reactor tripped due to low RCS pressure.
- ESAS has actuated due to high Reactor Building pressure.
- RCS pressure is 1600 psig.
- Core Exit Thermocouple temperature is 475 °F.

Which of the following actions should be taken for these conditions?

- a. Restore RCP services.
 - b. Leave one RCP running in each loop.
 - c. Isolate RCP seal bleedoff.
 - d. Trip all running RCPs.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 40

QID: 0256

Why are Decay Heat Cooler Outlet Valves SW-22A and SW-22B throttled during normal operation?

- A. To raise Service water flow to the Auxiliary Cooling Water System during normal operation.
 - B. To maintain adequate service water flow to the Reactor Building Coolers when ES actuates.
 - C. To reduce reactor coolant to service water differential temperature when ES actuates.
 - D. To maintain the Decay heat coolers full and reduce the chance of water hammer.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 41

QID: 0830

What are the power supplies for the Reactor Building Spray Pumps?

- A. A3 and A4
 - B. A1 and A2
 - C. B5 and B6
 - D. B52 and B62
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 42

QID: 0831

What is the initial speed (in RPM) of the steam driven EFW pump after auto start and PRIOR to ramp to operating speed?

A. 825

B. 875

C. 910

D. 960

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 43

QID: 0063

Given:

- 100% power
- ICS in full automatic

The CBOR places the ICS Delta T-Cold Hand Auto Station meter selection switch in "POS" (position). The meter reads 54%.

What does this mean in terms of ICS control of main feed water?

- A. The average of feedwater loop A and feedwater loop B demand is 54%.
 - B. Feedwater loop B demand is greater than feedwater loop A demand.
 - C. The feedwater loop B demand is being boosted by a 4 °F Delta T-Cold error.
 - D. Feedwater loop A demand is greater than feedwater loop B demand.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 44

QID: 0435

Given:

- Reactor tripped due to loss of all offsite power.
- RCS T cold is 535°F and dropping.
- RCS pressure 1800 psig and dropping.
- OTSG pressures are ~910 psig and dropping.
- "A" OTSG level is 210" and rising.
- "B" OTSG level is 195" and rising.
- "A" EFW flow is 370 gpm.
- "B" EFW flow is 350 gpm.

Which of the following is an appropriate response to the above conditions in accordance with RT-5, Verify Proper EFW Actuation and Control?

- A. Maintain >570 gpm to each SG in HAND.
 - B. Throttle EFW to prevent overcooling.
 - C. Select Reflux Boiling setpoint.
 - D. Actuate MSLI on both OTSGs.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 45

QID: 0538

Plant conditions are:

- SCM is less than adequate.
- The RCS is in natural circulation mode.
- EFW pump P-7B failed to start.
- Both OTSG pressures are 900 psig.

The fill rate for the current condition is _____, and the OTSG level set point of 378" is selected by _____.

- A. 4.4 inch/min
depressing the Train A and Train B REFLUX BOILING pushbuttons on C09
 - B. 4.4 inch/min
EFIC automatically when RCP's are tripped
 - C. 4.0 inch/min
depressing the Train A and Train B REFLUX BOILING pushbuttons on C09
 - D. 4.0 inch/min
EFIC automatically when RCP's are tripped
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 46

QID: 0413

The plant is in Hot Shutdown with a normal electrical alignment.
Due to an electrical fault, K02-A6 "A1 L.O. RELAY TRIP" comes into alarm.

How will the electrical system respond?

- a. #1 EDG will auto-start and will supply bus A3.
 - b. Bus A1 will auto-transfer to transformer SU#1.
 - c. Bus A1 will auto-transfer to transformer SU#2.
 - d. #1 EDG will auto-start, but will not supply bus A3.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 47

QID: 0616

The CBOT notices on C10 that all of the 161 KV ring bus breakers have opened.

Which of the following will be de-energized as a result of the above indications?

- A. Startup #1 Transformer
 - B. Startup #2 Transformer
 - C. Auto transformer
 - D. Startup #3 Transformer
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 48

QID: 0087

During a Blackout condition, it may become necessary to perform an EDG start without DC control power.

In this condition, how is the generator output voltage adjusted (battery chargers are not loaded)?

- a. Adjusting engine speed via speed setting knob on governor.
 - b. By adjusting the setpoint for the automatic voltage adjuster.
 - c. Using the manual voltage adjuster on Exciter Control Panel.
 - d. Using voltage adjuster handswitch on C10.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 49

QID: 0088

The CRS directs you to perform Supplement 1 of 1104.036, #1 EDG Monthly Test. You depress the start pushbutton on C10, nothing happens, then the "EDG 1 OVERCRANK" annunciator K01-B2 alarms.

The CRS directs the inside AO to check the EDG out and then depress the local RESET pushbutton.

Which of the following would occur after the AO depresses the RESET pushbutton?

- a. EDG would be ready for another manual start.
 - b. EDG will not manually or automatically start.
 - c. EDG output breaker will be locked out.
 - d. EDG will immediately start cranking.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 50

QID: 0849

Given:

- #1 EDG is in the 8th hour of a 24 hour full load run after maintenance
- #2 EDG is in standby
- An AO has just completed a fuel oil tanker truck off-load
- Sediment from the tanker entered the Fuel Oil Bulk tank T-25 and caused the outlet filter F-27 to clog

What would be the result of this condition on the Unit 1 EDG Fuel Oil system?

- A. Fuel Oil Day Tank T-30A level low alarm.
 - B. Fuel Oil Storage Tank T-57A implosion.
 - C. Fuel Oil Storage Tank T-57A level low alarm.
 - D. Fuel Transfer Pump P-16A D/P Hi alarm.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 51

QID: 0271

Which of the following must be performed to release TWMT T-16A contents with the Liquid Radwaste Process Monitor (RI-4642) inoperable?

- A. Chemistry personnel must have independent sample and analysis results as well as independently verified computer input data.
 - B. Chemistry must obtain grab samples every hour during a release via this pathway.
 - C. The release flow rate must be estimated at least once every four hours during the release.
 - D. Discharge Flume process monitor RI-3618 must be checked for operability.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 52

QID: 0832

Given:

- Plant is at 100% power.
- Ambient outside temperature is 85°F and is the high for the day .
- SW bay level is 332 ft.
- ECP level is 5.8 ft.
- All 3 SW pumps are running.

Preparations are being made to swap SW suction from the Lake to the ECP.

Which of the following must be brought up during the pre-evolution brief for the suction swap?

- A. Sluice Gates should not be operated for more than 10 minutes in an hour to prevent motor damage.
 - B. Check that individual SW pump flow is less than 8000 gpm to ensure adequate NPSH during the swap.
 - C. ECP level is already at the Tech Spec limit and this evolution will immediately cause entry into a TS LCO.
 - D. Continued operation with SW aligned to the ECP at this temperature could challenge ECP operability.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 53

QID: 0046

Given:

- Degraded Power
- Both EDGs operating
- ESAS has NOT actuated
- P4C failed to start
- P4B out of service

Which of the following actions should be accomplished?

- A. Close SW Loop II Isolation Valve (SW-10C).
 - B. Open SW Loop I & II Crossconnects (SW-5 and SW-6).
 - C. Close ACW Loop Isolation (CV-3643).
 - D. Cross-tie SW Loops at Makeup Pump (SW-14 thru SW-17).
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 54

QID: 0227

Given:

Instrument Air pressure has dropped to 68 psig.

Field operators can not find an Inst. Air leak on Unit One.

Instrument Air pressure is now at 58 psig.

Which of the following is the appropriate procedural response for the given plant conditions to restore or conserve Instrument Air pressure?

- A. Verify Service Air to Instrument Air cross-connect automatically opens.
 - B. Close Unit 1 to Unit 2 Instrument Air cross-connect.
 - C. Trip Reactor, actuate EFW and MSLI on both SGs.
 - D. If ICW available, isolate Seal Injection by closing CV-1206.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 55

QID: 0716

Given:

Plant power 100%

Rising Reactor Building temperature

Slowly rising Reactor Building pressure

Rising Reactor Building Dew Point

Reactor Building Leak Detector rising activity

Per 1203.039, "Excess RCS Leakage", what action addresses these conditions?

- A. Initiate Reactor Building Purge.
 - B. Start the Hydrogen Recombiners.
 - C. Maximize Reactor Building Cooling.
 - D. Place a second Main Chiller in service.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 56

QID: 0220

Given:

- Reactor power steady at 80%.
- PZR Level Control selected to LT-1001 on C04
- A break in LT-1001's reference leg causes indicated level to rise.

How will Makeup Tank (T-4) level be affected by this failure?

- A. Makeup flow drops, Makeup Tank level will rise.
 - B. No effect, SASS will auto select LT-1002.
 - C. Makeup flow rises, Makeup Tank level will drop.
 - D. Letdown flow drops, Makeup Tank level also drops.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 57

QID: 0833

As indicated in the CRD system logic cabinets, each CRDM has _____ absolute zone reference switches, NOT counting the "out limit" and an "in limit" switches.

- A. 5
 - B. 7
 - C. 9
 - D. 11
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 58

QID: 0464

Given:

- Reactor startup is in progress.
- Count rate on NI-1 & NI-2 is 1E3 CPS.

During the next rod pull, the HI SUR rod hold alarms.

The most likely cause is due to SUR exceeding:

- a. 1 DPM on the source range monitors.
 - b. 2 DPM on the source range monitors.
 - c. 2 DPM on the intermediate range monitors.
 - d. 1 DPM on the intermediate range monitors.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 59

QID: 0403

Initial Conditions:

- SASS Mismatch Annunciator
- Rx is Feedwater Limited Annunciator
- Feedwater is Rx Limited Annunciator
- Unit Tave TI-1032 is 583 degrees F
- Loop A Tave TI-1020 is 588 degrees F
- Loop B Tave TI-1043 is 578 degrees F

Which of the following procedurally required actions would clear the cross limits and return temperature indications to normal?

- A. Select the NNI-Y signal for RCS loop A hot leg temperature.
 - B. Place the Controlling Tave Selector Switch in the Loop B position.
 - C. Place Loop A Feedwater Demand in hand and raise Loop A feedwater flow.
 - D. Select the NNI-Y signal for RCS loop B cold leg temperature.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 60

QID: 0723

What are the power supplies to the Hydrogen Recombiners, M-55A and M-55B?

A. M-55A B-53;
M-55B B-61.

B. M-55A B-6;
M-55B B-5.

C. M-55A B-61;
M-55B B-53.

D. M-55A B-5;
M-55B B-6.

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 61

QID: 0200

A break has occurred on the discharge line downstream of the discharge valve of the in service Spent Fuel Cooling Pump (P-40A).
The pump is stopped and the discharge valve is closed.

What would you expect to happen with Spent Fuel Pool level?

- A. The SFP will drain to ~ 2 feet above the spent fuel assemblies.
 - B. Emergency makeup from service water will be needed to prevent the SFP level from exposing the spent fuel assemblies.
 - C. The SFP level will stay relatively constant due to siphon holes in the discharge piping.
 - D. The SFP level will drop ~3 feet to the bottom of the suction pipe.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 62

QID: 0434

The plant is operating steady state at 100% power when Bus A1 is deenergized.

Due to the above condition, which of the following will cause one of the main feedwater pumps to trip?

- A. Low bearing oil pressure
 - B. High discharge pressure
 - C. Low suction pressure
 - D. High vibrations
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 63

QID: 0205

During 3 circulating water pump operation, the 'A' circ water pump trips. The standby circ pump was started and plant conditions have stabilized. It is noticed that the condenser waterbox discharge temperature is 10 degrees higher and condenser vacuum has dropped.

Which of the following is the cause of this condition?

- a. The stopping and starting of a circ pump caused fouling to be removed from the tube sheet promoting better heat transfer capabilities.
 - b. The discharge valve on the tripped pump did not go completely closed and circulating water is short cycling.
 - c. The debris on the bar grates of the circulating water bays was stirred up during the circ pump swap causing reduced flow.
 - d. These are normal conditions following rotation of circulating pumps and temperatures will return to normal within 30 minutes.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 64

QID: 0273

The in-service Unit 1 Control Room Supply Vent Radiation Detector, 2RITS-8001A, detects a high radiation condition.

Which of the following will occur?

- A. Control Room Air Supply Fan (VSF-8A or 8B) starts.
 - B. Control Room Chiller Unit (VCH-2A or 2B) trips.
 - C. Normal ventilation isolation dampers (CV-7905 & CV-7907) close.
 - D. CR Emerg. A/C Fan (2VSF-9) starts.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 65

QID: 0151

ONLY Fire Zones with "cross-zoned" detection have INHIBIT switches on their C463 modules.

When is the INHIBIT switch used?

- A. To prevent automatic actuation if one of the detector strings has a fault.
 - B. To manually actuate the system from C463 vs. locally.
 - C. To prevent nuisance alarms from one of the detector strings due to a fault.
 - D. To prevent manual actuation of the system on C463 from a faulty solenoid.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 66

QID: 0851

When communicating verbally to other personnel, which of the following should be a vital component of that face-to-face communication?

- A. Including multiple instructions to prevent multiple communications.
 - B. Making a verbatim repeat back for precise communications.
 - C. Use standard terminology with a minimal use of acronyms for clarity.
 - D. Minimize repeat backs to clear the airways of unnecessary noise.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 67

QID: 0837

Which of the following IS a valid reason to override any automatically actuated safety system per EN-OP-115?

- A. Required by procedures.
 - B. Subcooling margin is adequate.
 - C. Adequate core cooling is assured by a single indication.
 - D. Mis-operation in automatic mode is confirmed by a single indication.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 68

QID: 0838

For the purpose of maintaining an NRC operator's license, which of the following should be reported to the NRC?

- A. A change in marital status.
 - B. A traffic citation for speeding.
 - C. A new diagnosis for high blood pressure.
 - D. An audit by the IRS of previous year's tax return.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 69

QID: 0458

Which one of the following conditions is required by Unit 1 Technical Specifications in order to consider the reactor in Mode 4?

- A. The reactor must be subcritical by at least 1.5% Delta k/k.
 - B. RCS T average must be between 200 °F and 280 °F.
 - C. The neutron chain reaction is self sustaining and $K_{eff} = 1.0$.
 - D. RCS temperature is no more than 200 °F.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 70

QID: 0233

An NI calibration was performed yesterday.

Today due to a problem with a Condenser Vacuum pump, reactor power had to be lowered to 89% and has subsequently been returned to 100%.

When is the next NI calibration required to be performed?

- A. Within the next 7 days.
 - B. Within the next 4 days.
 - C. Within the next 36 hours.
 - D. Within the next 24 hours.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 71

QID: 0231

Which of the following conditions is correct with regard to preparation and installation authorization of a common unit tagout?

- A. Installation may be authorized by either the Unit 1 or the Unit 2 Operations Supervisor.
 - B. Preparers and reviewers from both units must be licensed operators.
 - C. Preparer and reviewer may be non-licensed if authorized by both Unit Operations Supervisors.
 - D. Preparer may be non-licensed as long as the opposite unit reviewer is licensed.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 72

QID: 0043

A radioactive gas release of WGDT T-18B has been terminated by Gaseous Radwaste Monitor, RE-4830, in high alarm.

Examination of the recorder paper shows RE-4830 had been trending steadily at ~2000 cpm when it jumped to 30,000 cpm and then dropped back to ~2000 cpm.

What action should be taken?

- A. Initiate a Work Request and check system alignment.
 - B. Reset RE-4830 and notify Nuclear Chemistry to perform offsite dose projections via RDACS.
 - C. Leave T-18B alignment as-is and re-submit sampling and release permit.
 - D. Reset RE-4830 and re-establish T-18B gaseous release.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 73

QID: 0853

What is the federal occupational exposure limit to the lens of the eye LDE (Lens Dose Equivalent) in accordance with 10CFR20?

- A. 0.1 rems/calendar year
 - B. 5.0 rems/calendar year
 - C. 15.0 rems/calendar year
 - D. 50.0 rems/calendar year
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 74

QID: 0848

You are standing watch and it is now 1500 on 08/26/2011.

Which of the following would be considered a fire system impairment in accordance with 1003.002, Insurance Impairment Reporting?

- A. P-6A Electric Fire Pump inoperable due to corrective maintenance at 0800.
 - B. A smoke detector string in Corridor 98 defeated for PMs at 0900.
 - C. Leaking fire hose station in Aux Bldg 335 elevation isolated at 1030.
 - D. Control Room Halon System #3 failed surveillance at 0530.
-

ANO Unit 1 - 2011 RO NRC Written Examination

Question No. 75

QID: 0835

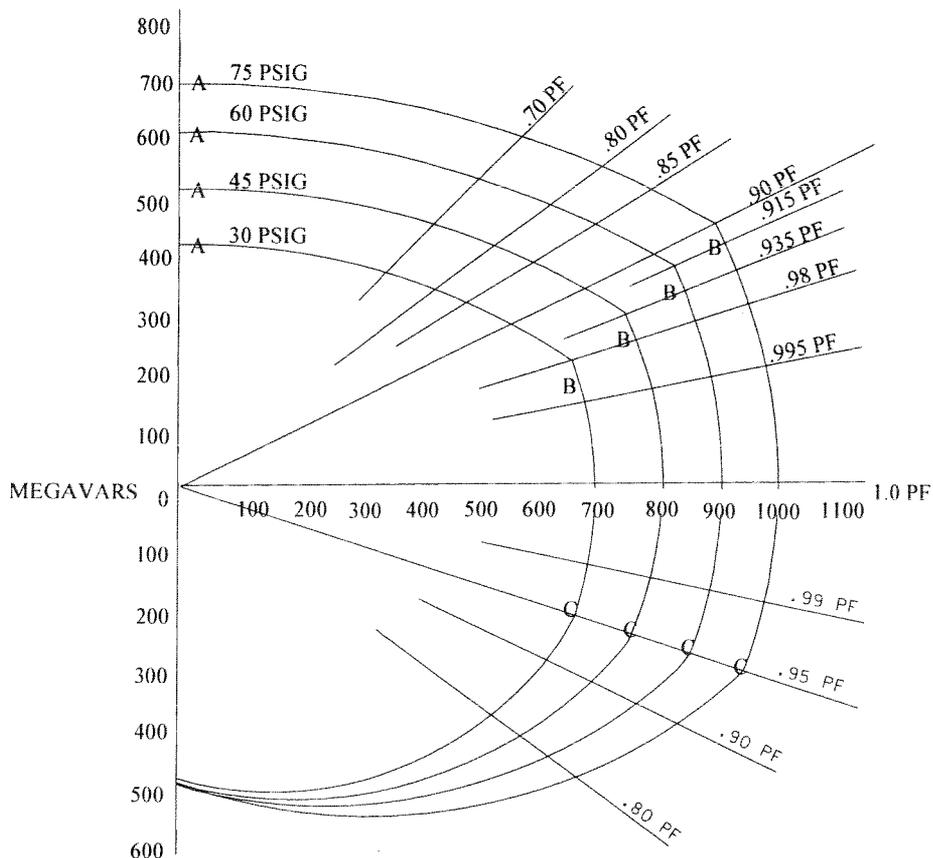
Who performs the Transient Checklist during a transient per 1015.037, Post Transient Review?

- A. Shift Manager
 - B. Control Room Supervisor
 - C. Shift Technical Advisor
 - D. Control Board Operator Turbine
-

ANO Unit 1

2011 Initial License Exam RO Reference Handout

FIGURE 30.14: MAIN GENERATOR CAPABILITY CURVE



HYDROGEN INNER-COOLED TURBINE GENERATOR

1002.6 MVA, 0.90 PF, 22 KV, 3 PHASE, 60 HZ

1800 RPM, 0.58 SCR, 75 PSIG

CALCULATED CAPABILITY CURVE

(AT RATED VOLTAGE)

CURVE AB LIMITED BY FIELD HEATING

CURVE BC LIMITED BY ARMATURE HEATING

CURVE CD LIMITED BY ARMATURE CORE END HEATING

**ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE**

TITLE: EOP FIGURES

DOCUMENT NO.
1202.013

CHANGE NO.
004-00-0

WORK PLAN EXP. DATE
N/A

TC EXP. DATE
N/A

SET #

SAFETY-RELATED
 YES NO

IPTE
 YES NO

TEMP ALT
 YES NO

When you see these TRAPS

- Time Pressure
- Distraction/Interruption
- Multiple Tasks
- Over Confidence
- Vague or Interpretive Guidance
- First Shift/Last Shift
- Peer Pressure
- Change/Off Normal
- Physical Environment
- Mental Stress (Home or Work)

Get these TOOLS

- Effective Communication
- Questioning Attitude
- Placekeeping
- Self Check
- Peer Check
- Knowledge
- Procedures
- Job Briefing
- Coaching
- Turnover

VERIFIED BY

DATE

TIME

[Handwritten Signature]

6-24-11

1430

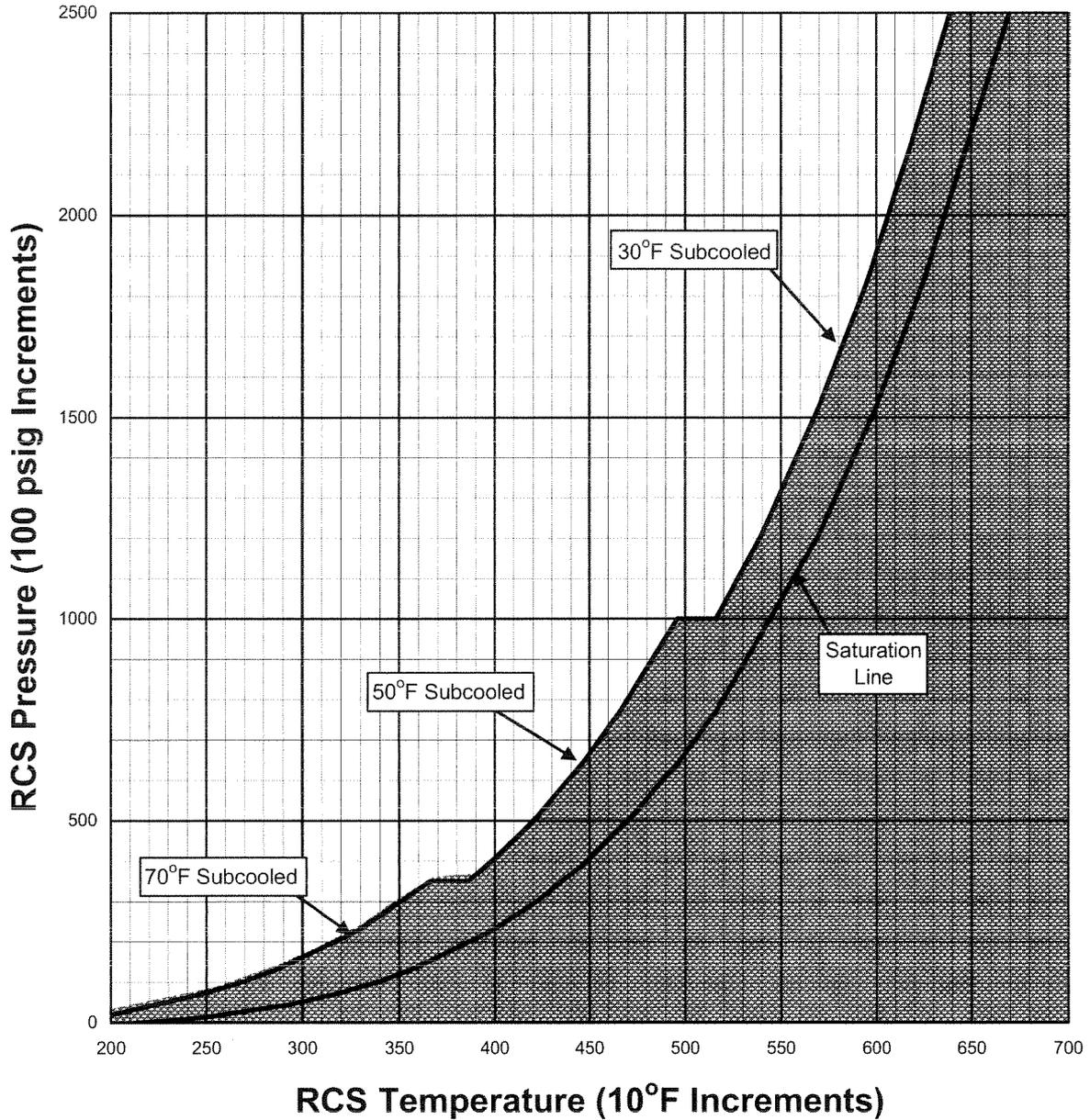
FORM TITLE:

VERIFICATION COVER SHEET

FORM NO.
1000.006A

CHANGE NO.
050-00-0

FIGURE 1 Saturation and Adequate SCM



RCS Pressure	Adequate SCM
>1000 psig	≥30°F
350 to 1000 psig	≥50°F
<350 psig	≥70°F

FIGURE 2
SG Pressure vs T-sat

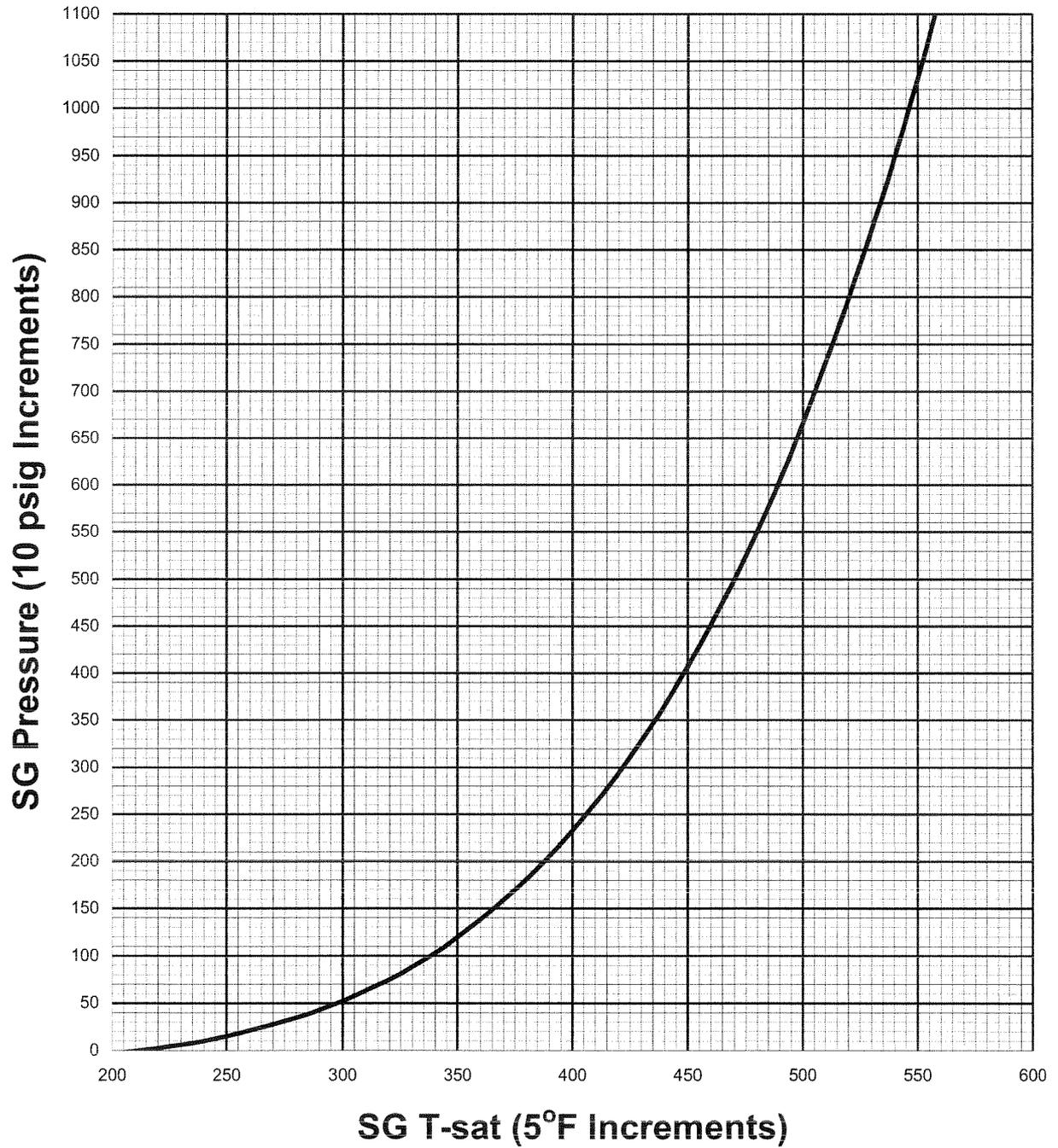


FIGURE 3 RCS Pressure vs Temperature Limits

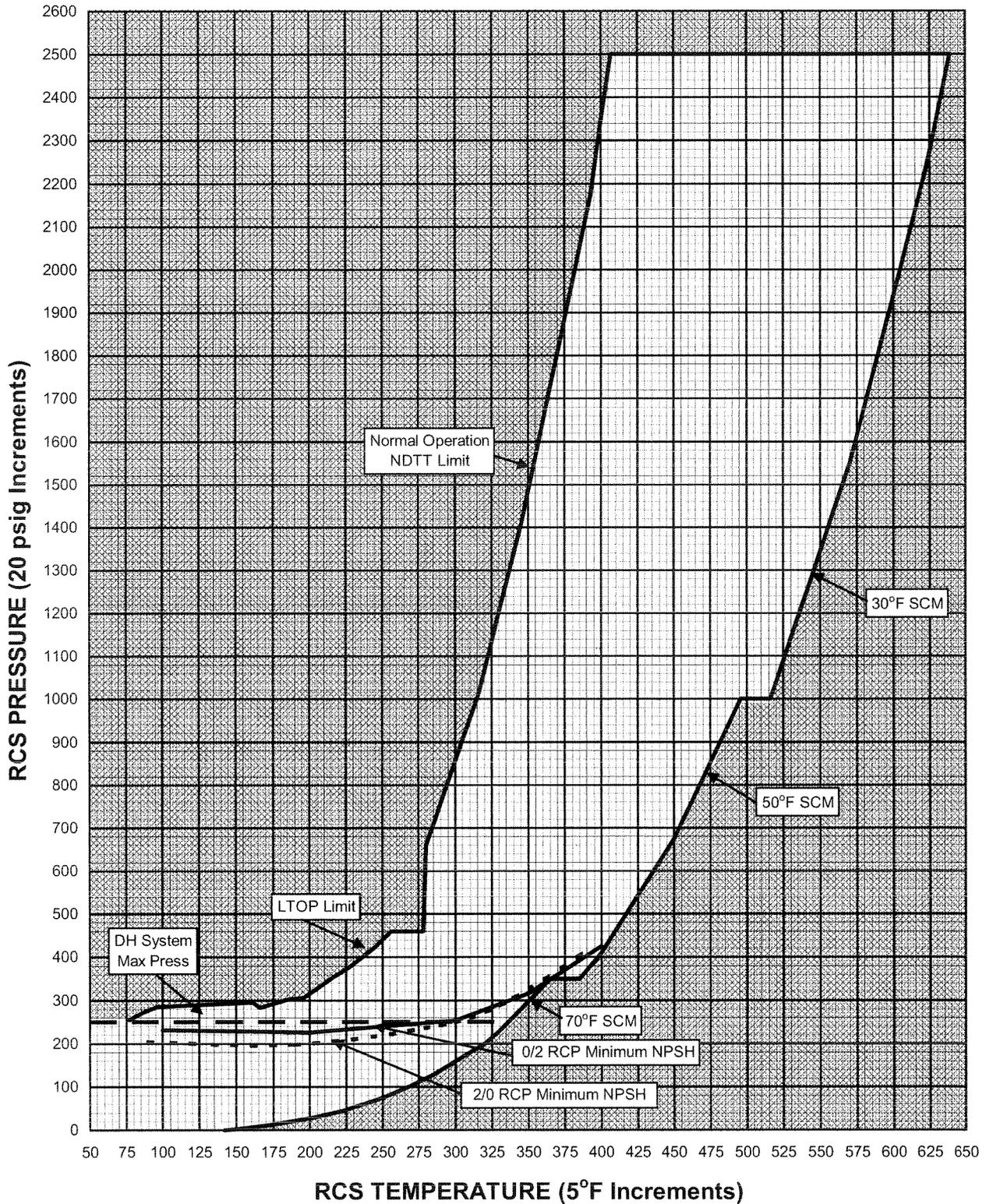


FIGURE 4
Core Exit Thermocouple for
Inadequate Core Cooling

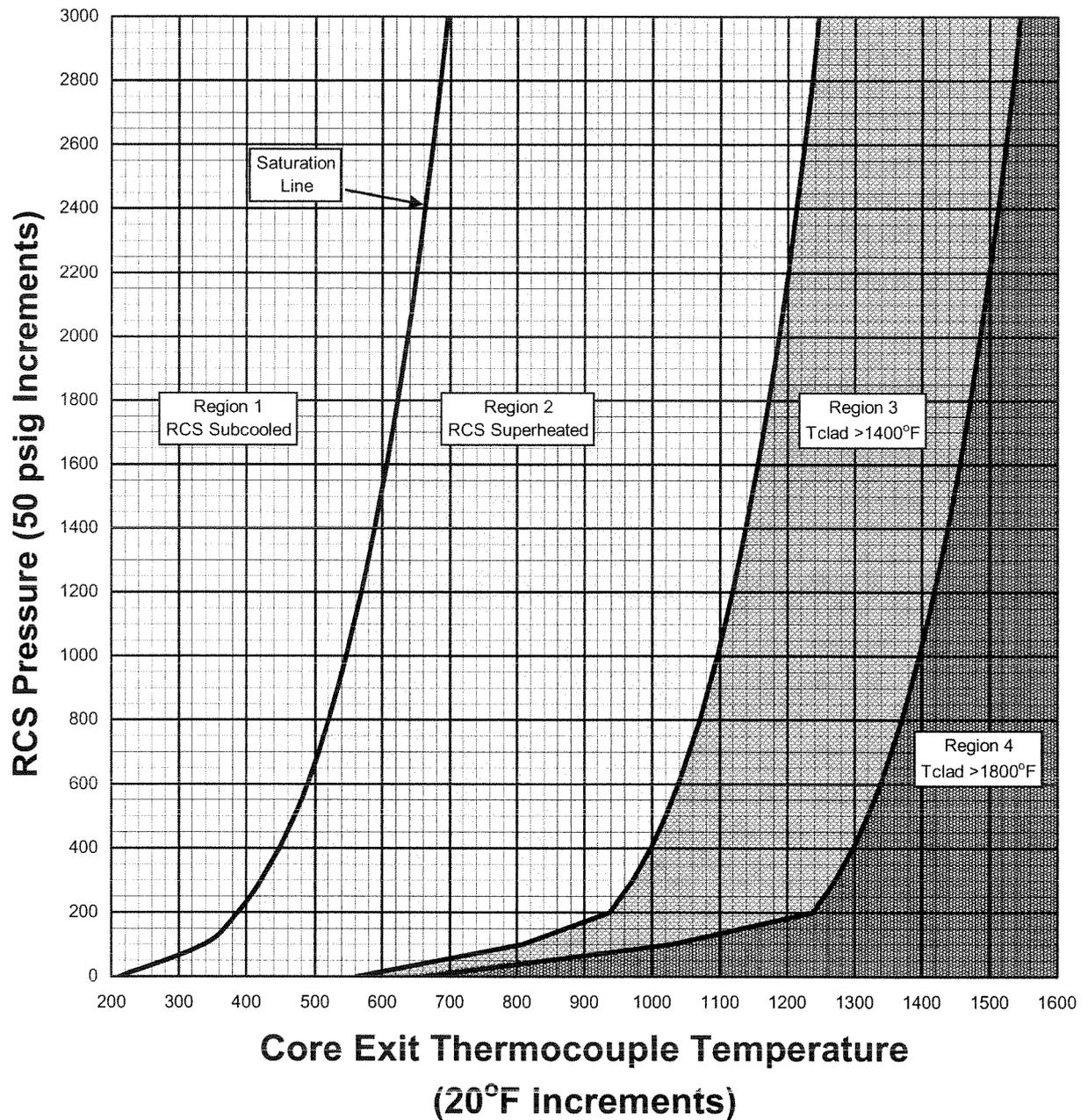


FIGURE 5

SG Pressure to Establish 40° to 60°F Primary to Secondary ΔT

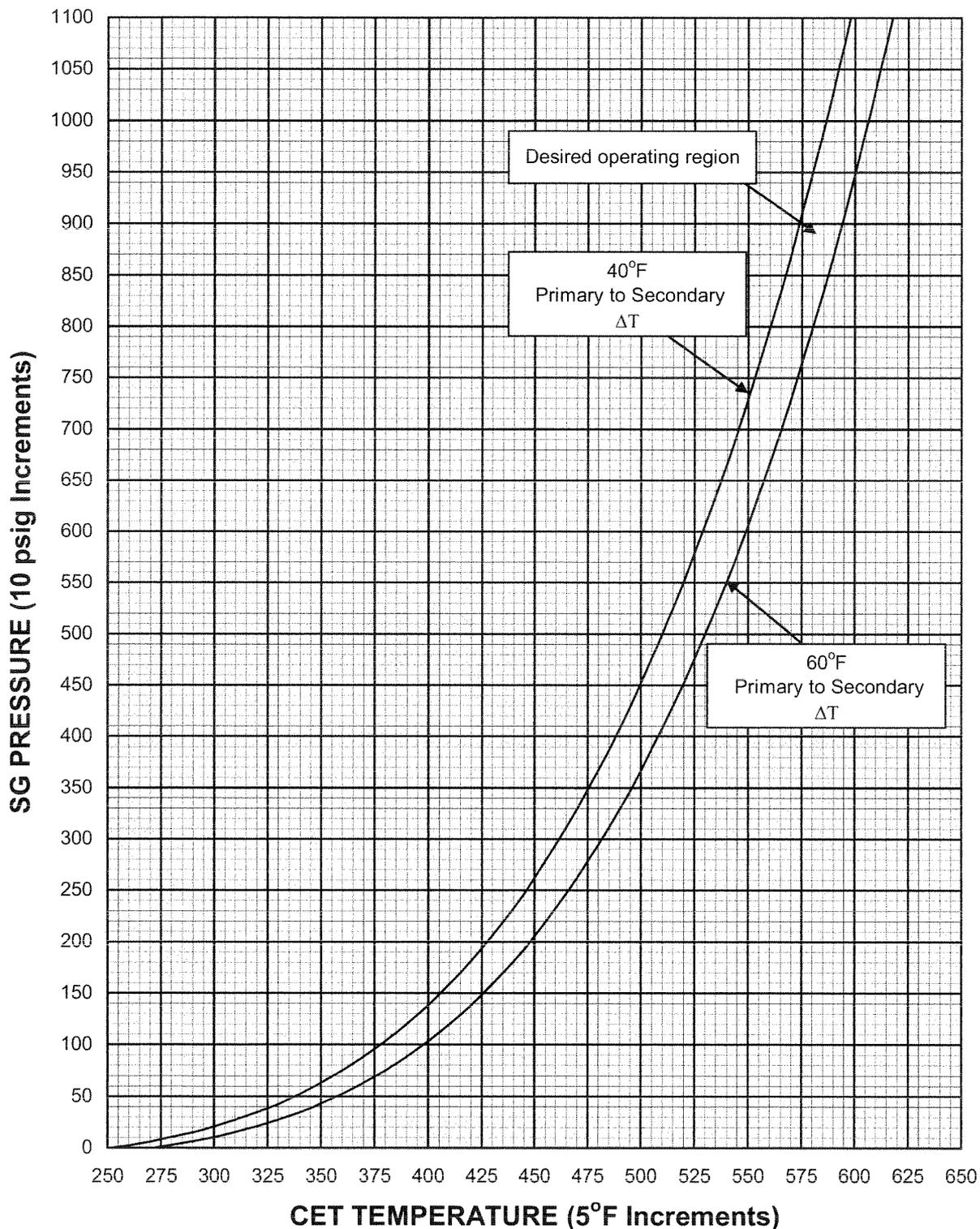
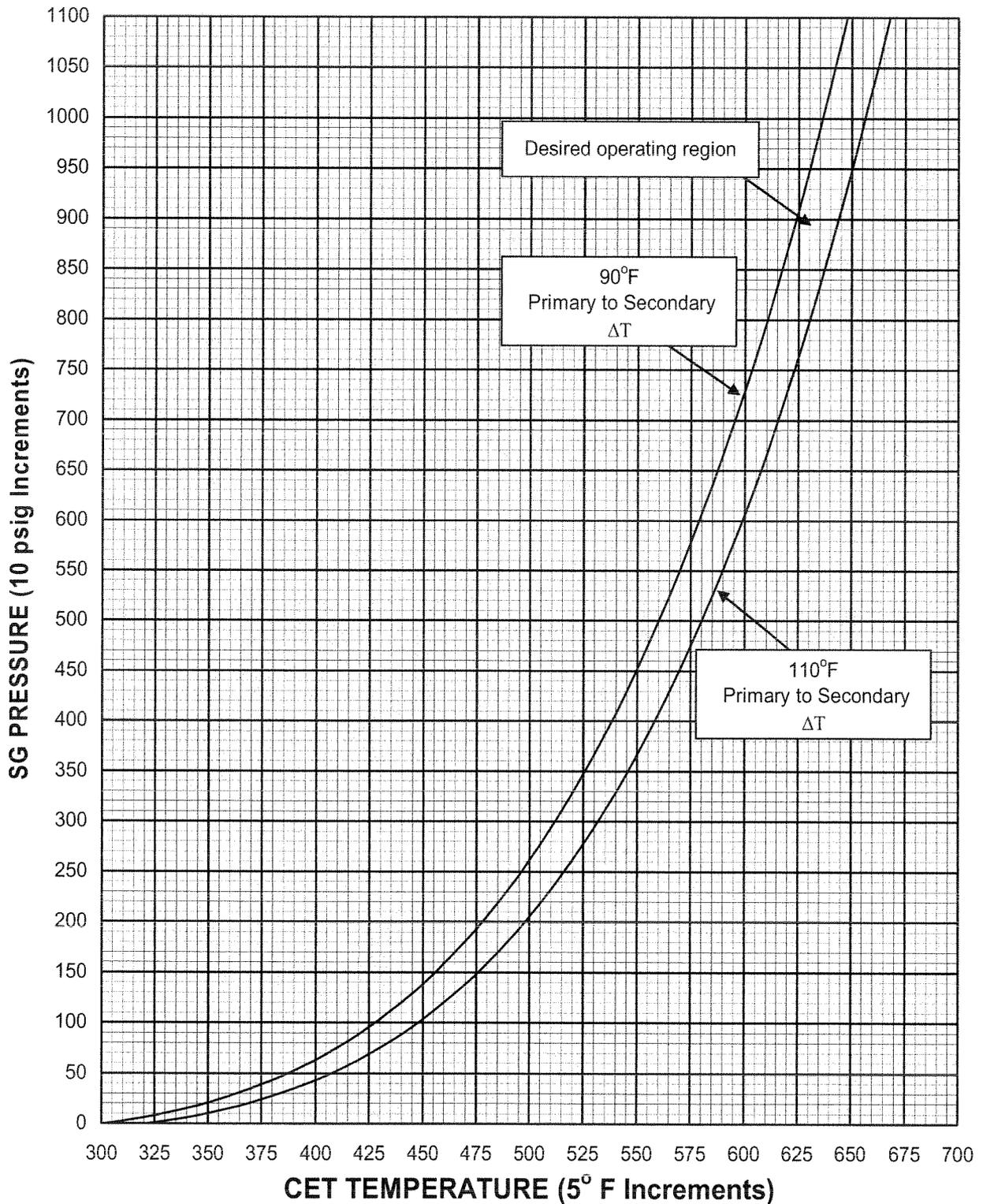


FIGURE 6

SG Pressure to Establish 90° to 110°F Primary to Secondary ΔT



ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 1 QID: 0023 Point Value: 1

Answer:

A. Manually actuate MSLI for affected SG(s) and EFW due to overcooling.

Question No. 2 QID: 0506 Point Value: 1

Answer:

B. EFIC High Range
2" to 8"/min in Auto or 340gpm/SG in Manual

Question No. 3 QID: 0029 Point Value: 1

Answer:

A. Reflux Boiling

Question No. 4 QID: 0825 Point Value: 1

Answer:

D. Trip the Reactor and then trip RCP P-32A.

Question No. 5 QID: 0549 Point Value: 1

Answer:

A. Trip HPI pump and isolate Letdown by closing Letdown Isolation, CV-1221, due to indications of loss of suction.

Question No. 6 QID: 0164 Point Value: 1

Answer:

A. Reduce decay heat removal flow until flow has stabilized.

Question No. 7 QID: 0095 Point Value: 1

Answer:

a. All RCPs must be secured due to loss of motor cooling.

Question No. 8 QID: 0824 Point Value: 1

Answer:

D. 2080 psig

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 9 QID: 0856 Point Value: 1

Answer:

c. ~52 gpm

Question No. 10 QID: 0826 Point Value: 1

Answer:

B. "A" MSIV CV-2691 closed and "A" EFW Isolation valve CV-2627 closed

Question No. 11 QID: 0662 Point Value: 1

Answer:

C. Both S/G can be fed while monitoring tube to shell delta T until primary to secondary heat transfer is established.

Question No. 12 QID: 0552 Point Value: 1

Answer:

B. All 4160V busses de-energized

Question No. 13 QID: 0553 Point Value: 1

Answer:

C. T-cold 545°F dropping slowly and SG pressures 990 psig dropping slowly.

Question No. 14 QID: 0850 Point Value: 1

Answer:

B. De-energize RS-4

Question No. 15 QID: 0625 Point Value: 1

Answer:

C. Circ Water Pumps P-3A & P-3B, HPI pump P-36A, Nuclear ICW components

Question No. 16 QID: 0103 Point Value: 1

Answer:

A. Inform RP and isolate Inst. Air from respirable air.

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 17 QID: 0614 Point Value: 1

Answer:

B. 60°F (tubes hotter)

Question No. 18 QID: 0827 Point Value: 1

Answer:

A. Excessive field heating

Question No. 19 QID: 0494 Point Value: 1

Answer:

B. Full Incore System (PMS), Excore NI, Minimum/Backup Incore Recorders

Question No. 20 QID: 0665 Point Value: 1

Answer:

B. Adjust CV-1235, PZR Level Control Valve, in hand to maintain previous slope of MUT level recorder.

Question No. 21 QID: 0819 Point Value: 1

Answer:

B. Open PZR Spray to lower RCS pressure.

Question No. 22 QID: 0162 Point Value: 1

Answer:

A. 360 Mwe

Question No. 23 QID: 0828 Point Value: 1

Answer:

A. NNI-X AC

Question No. 24 QID: 0829 Point Value: 1

Answer:

C. A-4 powered from Diesel Generator #2, A-3 powered from SU #1, Diesel Generator # 1 running unloaded.

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 25 QID: 0290 Point Value: 1

Answer:

C. The RCS is saturated as indicated by Core Exit Thermocouples.

Question No. 26 QID: 0172 Point Value: 1

Answer:

A. A plant cooldown is required and normal offsite power is NOT available.

Question No. 27 QID: 0237 Point Value: 1

Answer:

d. EOP parameter values for these conditions are inside brackets.

Question No. 28 QID: 0053 Point Value: 1

Answer:

B. Main steam line rupture inside RB

Question No. 29 QID: 0834 Point Value: 1

Answer:

B. Seal injection flow will drop to zero.

Question No. 30 QID: 0657 Point Value: 1

Answer:

C. "B" HPI pump will start on A-4 if "C" HPI pump fails.

Question No. 31 QID: 0820 Point Value: 1

Answer:

C. Raising MUT level using DI water.

Question No. 32 QID: 0266 Point Value: 1

Answer:

A. HPI pumps and LPI pumps

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 33 **QID: 0303** **Point Value: 1**

Answer:

d. RCS Makeup Block Valve CV-1234 receives a close signal.

Question No. 34 **QID: 0821** **Point Value: 1**

Answer:

C. If the ERV opened during a transient, the rupture disk could rupture prematurely releasing steam to the Rx Bldg.

Question No. 35 **QID: 0562** **Point Value: 1**

Answer:

B. P33A is powered from B-12 while P33B and P33C are powered from B-22.

Question No. 36 **QID: 0822** **Point Value: 1**

Answer:

A. Loss of Non-Nuc ICW, open ICW cross connect valves CV-2238, CV-2239, CV-2240 and CV-2241

Question No. 37 **QID: 0628** **Point Value: 1**

Answer:

C. ERV (PSV-1000) would open.

Question No. 38 **QID: 0629** **Point Value: 1**

Answer:

B. Control rods will start to insert.

Question No. 39 **QID: 0265** **Point Value: 1**

Answer:

d. Trip all running RCPs.

Question No. 40 **QID: 0256** **Point Value: 1**

Answer:

B. To maintain adequate service water flow to the Reactor Building Coolers when ES actuates.

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 41 QID: 0830 Point Value: 1

Answer:

A. A3 and A4

Question No. 42 QID: 0831 Point Value: 1

Answer:

C. 910

Question No. 43 QID: 0063 Point Value: 1

Answer:

D. Feedwater loop A demand is greater than feedwater loop B demand.

Question No. 44 QID: 0435 Point Value: 1

Answer:

B. Throttle EFW to prevent overcooling.

Question No. 45 QID: 0538 Point Value: 1

Answer:

A. 4.4 inch/min
depressing the Train A and Train B REFLUX BOILING pushbuttons on C09

Question No. 46 QID: 0413 Point Value: 1

Answer:

a. #1 EDG will auto-start and will supply bus A3.

Question No. 47 QID: 0616 Point Value: 1

Answer:

B. Startup #2 Transformer

Question No. 48 QID: 0087 Point Value: 1

Answer:

c. Using the manual voltage adjuster on Exciter Control Panel.

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 49 QID: 0088 Point Value: 1

Answer:

d. EDG will immediately start cranking.

Question No. 50 QID: 0849 Point Value: 1

Answer:

C. Fuel Oil Storage Tank T-57A level low alarm.

Question No. 51 QID: 0271 Point Value: 1

Answer:

A. Chemistry personnel must have independent sample and analysis results as well as independently verified computer input data.

Question No. 52 QID: 0832 Point Value: 1

Answer:

B. Check that individual SW pump flow is less than 8000 gpm to ensure adequate NPSH during the swap.

Question No. 53 QID: 0046 Point Value: 1

Answer:

C. Close ACW Loop isolation (CV-3643).

Question No. 54 QID: 0227 Point Value: 1

Answer:

B. Close Unit 1 to Unit 2 Instrument Air cross-connect.

Question No. 55 QID: 0716 Point Value: 1

Answer:

C. Maximize Reactor Building Cooling.

Question No. 56 QID: 0220 Point Value: 1

Answer:

A. Makeup flow drops, Makeup Tank level will rise.

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 57 QID: 0833 Point Value: 1

Answer:

A. 5

Question No. 58 QID: 0464 Point Value: 1

Answer:

b. 2 DPM on the source range monitors.

Question No. 59 QID: 0403 Point Value: 1

Answer:

A. Select the NNI-Y signal for RCS loop A hot leg temperature.

Question No. 60 QID: 0723 Point Value: 1

Answer:

A. M-55A B-53; M-55B B-61

Question No. 61 QID: 0200 Point Value: 1

Answer:

C. The SFP level will stay relatively constant due to siphon holes in the discharge piping.

Question No. 62 QID: 0434 Point Value: 1

Answer:

C. Low suction pressure

Question No. 63 QID: 0205 Point Value: 1

Answer:

b. The discharge valve on the tripped pump did not go completely closed and circulating water is short cycling.

Question No. 64 QID: 0273 Point Value: 1

Answer:

C. Normal ventilation isolation dampers (CV-7905 & CV-7907) close.

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 65 **QID: 0151** **Point Value: 1**

Answer:

A. To prevent automatic actuation if one of the detector strings has a fault.

Question No. 66 **QID: 0851** **Point Value: 1**

Answer:

C. Use standard terminology with a minimal use of acronyms for clarity.

Question No. 67 **QID: 0837** **Point Value: 1**

Answer:

A. Required by procedures.

Question No. 68 **QID: 0838** **Point Value: 1**

Answer:

C. A new diagnosis for high blood pressure.

Question No. 69 **QID: 0458** **Point Value: 1**

Answer:

B. RCS T average must be between 200 °F and 280 °F.

Question No. 70 **QID: 0233** **Point Value: 1**

Answer:

D. Within the next 24 hours.

Question No. 71 **QID: 0231** **Point Value: 1**

Answer:

B. Preparers and reviewers from both units must be licensed operators.

Question No. 72 **QID: 0043** **Point Value: 1**

Answer:

D. Reset RE-4830 and re-establish T-18B gaseous release.

ANO Unit 1 - 2011 RO NRC Written Exam KEY

Question No. 73 **QID: 0853** **Point Value: 1**

Answer:

C. 15.0 rems/calendar year

Question No. 74 **QID: 0848** **Point Value: 1**

Answer:

D. Control Room Halon System #3 failed surveillance at 0530.

Question No. 75 **QID: 0835** **Point Value: 1**

Answer:

C. Shift Technical Advisor

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 76

QID: 0855

Following a reactor trip, the following conditions exist:

- Both SG pressures are LOWERING
- A SG pressure 971 psig
- B SG pressure 940 psig
- K07-C5 "MSSV OPEN" is in alarm
- SPDS indicates that the open MSSV is on the "B" SG.

Which of the following procedural actions would be used in response to the above conditions?

- A. Actuate EFW and MSLI for "B" SG, verify proper actuation and control using RT-6, per 1202.001, Reactor Trip.
 - B. Control Turbine Bypass valves (TBVs) to quickly reduce SG pressures to reseal the MSSV per 1202.003, Overcooling.
 - C. Actuate EFW and MSLI for "B" SG, verify proper actuation and control using RT-6, per 1202.003, Overcooling.
 - D. Control Turbine Bypass valves (TBVs) to quickly reduce SG pressures to reseal the MSSV per 1202.001, Reactor Trip.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 77

QID: 0839

Given:

- Reactor tripped due to a Pressurizer Vapor Space leak.
- K09-B1 "RCS PRESSURE LO-LO" alarm is in.
- CET temperatures 560°F and rising.
- 'A' & 'B' OTSG levels 13" and rising slowly.
- RCS pressure 1200 psig and stable.
- Both EDGs are in emergency standby.

For these conditions, which operating procedure should be used?

- A. 1202.002, "Loss of Subcooling Margin"
 - B. 1202.004, "Overheating"
 - C. 1202.005, "Inadequate Core Cooling"
 - D. 1203.015, "Pressurizer Systems Failure"
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 78

QID: 0639

Given:

- Plant is in Mode 5
- "A" Decay Heat Removal is in service
- P-34A Decay Heat Removal flow is steady at 1900 gpm.
- K10-B2 "PROCESS MONITOR RADIATION HIGH" in alarm
- RI-3809, Loop A DH Process Rad Monitor in alarm

What procedure should be used to address the above conditions?

- A. 1203.014, Control of Secondary System Contamination
 - B. 1203.028, Loss of Decay Heat Removal
 - C. 1203.030, Loss of Service Water
 - D. 1203.039, Excess RCS Leakage
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 79

QID: 0731

Given:

A steam line rupture has caused excessive overcooling.

Which of the conditions below would have invoked PTS limits AND violate Technical Specification limits?

- A. A cooldown resulting in a step change of 51 °F in 10 minutes with Tcold at 360 °F.
 - B. A cooldown rate of 90°F/hr with Tcold at 295 °F.
 - C. A cooldown resulting in a step change of 26°F in 10 minutes with Tcold at 279°F.
 - D. A cooldown rate of 110°F/hr with Tcold at 330°F.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 80

QID: 0586

OPEN REFERENCE

Given:

- Plant is at 100% power with no failed equipment.
- A loss of the 161 KV ring bus occurs (de-energized).
- Autotransformer is energized from the 500 KV ring bus.

Providing the 161 KV ring bus remains de-energized, when is the plant required to be in Mode 3?

- A. Within 24 hours
 - B. Within 36 hours
 - C. Within 72 hours
 - D. Within 84 hours
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 81

QID: 0840

Unit One has entered Technical Specifications 3.8.4 due to a loss of one of the required DC electrical power subsystems.

Which of the following components comprise a DC subsystem in according with the Tech Spec bases?

1. 125V DC panel
2. Battery
3. Inverter
4. Cables
5. 120v Vital AC panel
6. Static Switch
7. Battery Charger

A. 1, 2, 4, 7

B. 1, 2, 3, 7

C. 2, 4, 6, 7

D. 2, 3, 5, 7

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 82

QID: 0841

OPEN REFERENCE

Given:

- Plant is at 40% power.
- A control rod (Grp 5 Rod 5) dropped at 1430.
- The control rod was declared inoperable.
- SDM was evaluated at 1500 and is NOT within limits of COLR.

Per Technical Specifications, which of the following actions are required?

- A. Perform a SDM calculation by 0300.
 - B. Initiate shutdown to Mode 3 by 2300.
 - C. Initiate boration to restore SDM by 1530.
 - D. Restore control rod alignment by 1800.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 83

QID: 0590

Given:

- Plant startup in progress.
- Channel 1 Source Range, NI-501 at $9 \text{ E}4$ cps
- Channel 2 Source Range, NI-502 at $1 \text{ E}5$ cps
- Reactor power Wide Range recorder, NR-502, is operable and at $5 \text{ E} -2\%$ power
- Intermediate Range Channel NI-3 at $2 \text{ E} -11$ amps
- Intermediate Range Channel NI-4 at $5 \text{ E} -11$ amps
- Power Range Channels NI-5 thru 8 at 0%

Which of the following actions are procedurally required and ensure compliance with Technical Specification 3.3.10, Intermediate Range Neutron Flux?

- A. Trip the reactor immediately and refer to 1202.001, Reactor Trip.
 - B. Immediately suspend positive reactivity additions and initiate a shutdown so that all CRD breakers are open within one hour.
 - C. Lower power until Source Range is on scale and corrective maintenance is performed on appropriate IR channel(s).
 - D. Since NR-502 is operable, continue with plant operations until Power Range channels come on-scale.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 84

QID: 0347

The main fuel bridge has a spent fuel assembly and is indexed over the core when an NI seal plate cover failure occurs.

Water level in the canal is falling at two inches per minute.

The main fuel bridge operator should:

- A. Continue to the upender and place the assembly in the upender.
 - B. Leave the fuel assembly in the mast and evacuate the area.
 - C. Place the assembly in the fuel rack in the deep end of the canal.
 - D. Return the assembly to an available location in the reactor vessel.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 85

QID: 0342

Given:

- Reactor at 80% power.
- Failed fuel ratio, as indicated by the WCO logs, has dropped by 45%.

According to _____, Reactor power must be reduced to _____ power.

- A. 1203.045 Rapid Plant Shutdown 55%
 - B. 1203.019 High Activity In Reactor Coolant 55%
 - C. 1203.045 Rapid Plant Shutdown 40%
 - D. 1203.019 High Activity In Reactor Coolant 40%
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 86

QID: 0607

Given:

- P-36A is the in-service Makeup Pump.
- Pressurizer level has dropped from 220" to 218" in 10 minutes.

- P-36A suction pressure is 40 psig and going down slowly.
- Makeup Tank level is 78" and trending down slowly.

- Seal Injection flow is oscillating from 38 to 43 gpm.
- MU-34D HPI temperature TE-1069A is reading 255°F.
- Aux. Building sump level is going up.

Considering the above conditions, which procedure will direct the Makeup Pump to be secured?

- A. 1203.039, Excess RCS Leakage

 - B. 1203.026, Loss of Reactor Coolant Makeup,
Section 1 - Loss of HPI Pump

 - C. 1203.026, Loss of Reactor Coolant Makeup,
Section 2 - Large Makeup and Purification System Leak

 - D. 1203.032, HPI Line Temperature High
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 87

QID: 0842

Given:

- All Pressurizer heaters ON.
- RCS pressure is 2050 psig and going down.
- Quench Tank (T-42) level is rising.
- Pressurizer Level Control Valve, CV-1235, full closed.

For the above conditions, which of the following actions is procedurally required to be performed?

- A. Take manual control of Pressurizer Level Control Valve (CV-1235) and open per OP-1203.015, Pressurizer Systems Failure.
 - B. Close the ERV Isolation Valve (CV-1000) per OP-1203.015, Pressurizer Systems Failure.
 - C. Take manual control of Pressurizer Level Control Valve (CV-1235) and open per OP-1203.026, Loss of Reactor Coolant Makeup.
 - D. Close the ERV Isolation Valve (CV-1000) per OP-1203.026, Loss of Reactor Coolant Makeup.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 88

QID: 0843

Given:

-

- Plant is at 100% power and stable.
- "A" RPS is inoperable due to RCS pressure transmitter failure.
- I&C has finished performing a surveillance on "C" RPS and the SM declares the channel inoperable.

Which of the following actions are required to be performed FIRST per Technical Specification 3.3.1?

- A. Place both "A" and "C" RPS channels in bypass.
 - B. Place "A" RPS channel in trip, remove "C" channel from bypass, and prevent bypass of "B", "C", and "D" channels.
 - C. Reduce thermal power to <10% of Rated Thermal Power.
 - D. Place "A" in channel bypass and trip "C" RPS channel.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 89

QID: 0844

Given

A LOCA has caused ES actuation

Transfer to RB sump recirculation has been completed.

The following indications are observed:

- RB Sump level dropped
- RB Flood level is steady
- Both LPI Pump Discharge pressures dropping to 100 psig and rising up to 160 psig
- Both RB Spray P-35A/B ES Failure annunciators are coming in and subsequently clearing
- HPI Flow Indications are erratic
- Dose assessment reports there is no offsite release in progress.

Which of the following actions should be taken for these conditions?

- A. Verify BWST Outlet Valves CV-1407 and CV-1408 open per RT-10, Verify Proper ESAS Actuation.
 - B. Override and throttle both LPI Pumps close to but not below 2800 gpm per pump per 1202.010 Att. 1, Shift to RB Sump Suction.
 - C. Override and stop one RB Spray Pump per 1202.010 Att. 1, Shift to RB Sump Suction.
 - D. Override and throttle both RB Spray Pumps to 1050 - 1200 gpm each per RT-10, Verify Proper ESAS Actuation
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 90

QID: 0740

Given:

- Unit Tripped on loss of D01
- EFW has actuated

What is the status of EFW control valve CV-2646, "P7B to A OTSG" and EFW control valve CV-2648, "P7A to B OTSG"; and which procedure should FIRST be used to address the EFW system?

- A. Valves closed; 1202.003, "Overcooling"
 - B. Valves closed; 1203.036, "Loss of 125 V DC"
 - C. Valves open; 1202.003, "Overcooling"
 - D. Valves open; 1203.036, "Loss of 125 V DC"
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 91

QID: 0570

The plant was at 80% power when ONLY one failure caused the following:

- Plant running back
- Tavg Control swaps to Loop "A"
- "A" Main Feedwater flow rapidly rising
- "B" Main Feedwater flow rapidly dropping
- Feedwater pumps' discharge crosstie valve shut

Which one of the following procedural actions would be used in response to the above conditions?

- A. Place affected MFW pump in hand per 1203.022, Reactor Coolant Pump Trip
 - B. Verify ICS in track and runback in progress per 1203.022, Reactor Coolant Pump Trip
 - C. Place affected MFW pump in hand per 1203.001, ICS Abnormal Operation
 - D. Verify ICS in track and runback in progress per 1203.001, ICS Abnormal Operation
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 92

QID: 0450

Given:

- Refueling is in progress.
- A fuel assembly is being moved toward the upender in the Fuel Transfer Canal.
- Source Range channel NI-502 power supply fails.

Which of the following actions is appropriate for these conditions?

- A. All refueling operations may continue as long as one Source Range channel is operable.
 - B. The fuel assembly may be placed in any alternate core location during repairs.
 - C. The fuel assembly may be moved to the Spent Fuel Pool but core alterations are not allowed.
 - D. The fuel assembly must be placed back in its original position in the core.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 93

QID: 0845

Given:

-Plant 100% power

-Dispatcher calls and requests Unit 1 to reduce power to 500 MWe in 10 minutes

During power reduction the following alarms come in:

-MAIN STEAM PRESSURE HI/LO (K07 C6)

-UNIT MASTER IN TRACK (K07 A1)

Which of the following procedures would be in use to mitigate this event?

- A. ICS Abnormal Operation 1203.001 and Rapid Plant Shutdown 1203.045
 - B. ICS Abnormal Operation 1203.001 and Power Reduction and Plant Shutdown 1102.016
 - C. Load Rejection 1203.020 and Rapid Plant Shutdown 1203.045
 - D. Load Rejection 1203.020 and Power Reduction and Plant Shutdown 1102.016
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 94

QID: 0846

Given:

- Unit 1 refueling is in progress.
- Due to difficulties inserting a fuel assembly into the core, the Bridge Operator requests an alteration in the fuel load sequence.

Who must approve a change to fuel shuffle sequence?

- A. SRO in Charge of Fuel Handling and Refueling Project Manager
 - B. Operations Manager and Refueling Project Manager
 - C. SRO in Charge of Fuel Handling and Reactor Engineer
 - D. Operations Manager and Reactor Engineer
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 95

QID: 0407

The plant is at 100% power on New Year's Eve night shift.

The on-duty CRS has a heart attack and must be transported to St. Mary's at 0210.

What is the latest time at which a replacement CRS must be in the Control Room BEFORE Technical Specifications are violated?

A. 0400

B. 0500

C. 0600

D. 0700

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 96

QID: 0119

Given the following "A" Core Flood Tank (CFT) parameters with the plant is at 100% power.

- Level transmitter out of service
- CFT level is 12.5 feet
- Boric acid concentration is 2280 ppm
- CFT pressure is 580 psig

Which of the above parameters makes the "A" CFT inoperable per Tech Specs?

- A. Level transmitter
 - B. CFT level
 - C. Boric acid concentration
 - D. CFT pressure
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 97

QID: 0852

OPEN REFERENCE

Unit One is at 100% power.

The following items are on the schedule to be worked this shift:

1. 1305.001, Supplement 6, Area Radiation Monitor Monthly Alarm Check
2. 1305.036, Unit 1 Power Linear Amp Calibration At Power
3. WO#0175862, Corrective Maintenance on TR-9001,
Gen & Coolers Gas Outlet Temperature Recorder
4. Swapping SW Pumps P4C to P4B for strainer cleaning
5. 1304.021, Unit 1 N-16 Monitor Calibration

In accordance with COPD013, Operations Maintenance Interface Standards and Expectations, which of the above items are allowed to be worked this shift? (Shift Manager approval has NOT been given to exceed normal limits.)

A. 1, 3, 4

B. 2, 3, 4

C. 3, 4, 5

D. 1, 4, 5

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 98

QID: 0391

A worker arrives on site with 2.8 Rem accumulative dose for the calendar year.
The worker's NRC form 4 is on file.
The worker's expected exposure will be 1.6 Rem for his assigned job.

Whose authorization is required to extend the worker's TEDE exposure limit?

- a. The worker's Supervisor, Radiation Protection Manager, and Plant General Manager.
 - b. The worker's Supervisor and Radiation Protection Manager.
 - c. Radiation Protection Manager, Plant General Manager and Site Vice President.
 - d. This exposure limit can not be authorized per Entergy Admin Exposure Limits.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 99

QID: 0411

A fire was reported at 0844 in the vicinity of the Old Radwaste Building. It is now 0920 and the fire is still burning.

Based on the above conditions what is the time requirement for notification to the NRC?

- A. Notification to the NRC is required within 15 minutes of the declaration of an emergency class.
 - B. Notification to the NRC is required immediately following notification of the ADH and within 1 hour of the declaration of an emergency class.
 - C. Notification to the NRC is required immediately following declaration of an emergency class and notify the ADH within 1 hour.
 - D. Notification to the NRC is required within 4 hours of the declaration of an emergency class.
-

ANO Unit 1 - 2011 SRO NRC Written Examination

Question No. 100

QID: 0357

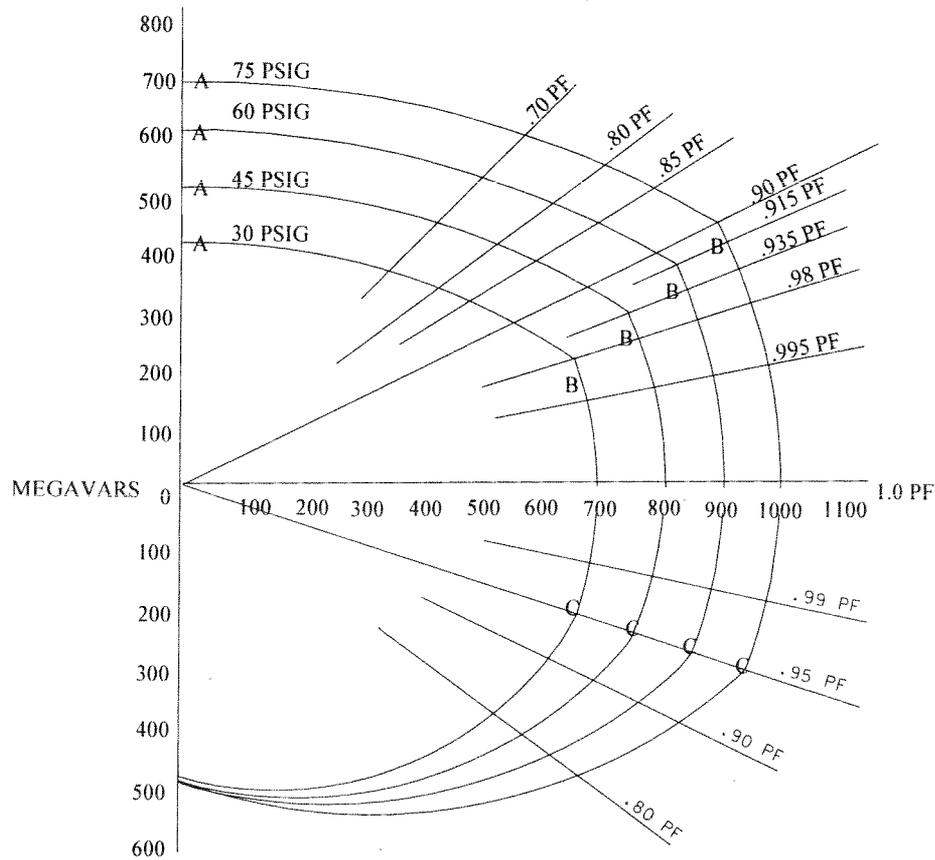
During a declared Alert emergency, the TSC Director may NOT assume responsibility for Emergency Direction and Control until:

- A. The next shift's Shift Manager arrives for shift relief and receives a turnover.
 - B. The Operations Manager arrives in the Control Room and passes on responsibility for EDC.
 - C. The TSC Director receives a turnover from the SM and assumes responsibility for EDC.
 - D. The emergency is downgraded to an NUE.
-

ANO Unit 1

2011 Initial License Exam
SRO
Reference Handout

FIGURE 30.14: MAIN GENERATOR CAPABILITY CURVE



HYDROGEN INNER-COOLED TURBINE GENERATOR

1002.6 MVA, 0.90 PF, 22 KV, 3 PHASE, 60 HZ

1800 RPM, 0.58 SCR, 75 PSIG

CALCULATED CAPABILITY CURVE

(AT RATED VOLTAGE)

CURVE AB LIMITED BY FIELD HEATING

CURVE BC LIMITED BY ARMATURE HEATING

CURVE CD LIMITED BY ARMATURE CORE END HEATING

ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE

TITLE: EOP FIGURES

DOCUMENT NO.
1202.013

CHANGE NO.
004-00-0

WORK PLAN EXP. DATE
N/A

TC EXP. DATE
N/A

SET #

SAFETY-RELATED
 YES NO

IPTE
 YES NO

TEMP ALT
 YES NO

When you see these TRAPS

- Time Pressure
- Distraction/Interruption
- Multiple Tasks
- Over Confidence
- Vague or Interpretive Guidance
- First Shift/Last Shift
- Peer Pressure
- Change/Off Normal
- Physical Environment
- Mental Stress (Home or Work)

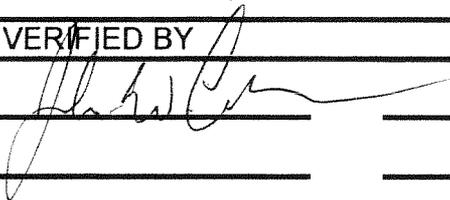
Get these TOOLS

- Effective Communication
- Questioning Attitude
- Placekeeping
- Self Check
- Peer Check
- Knowledge
- Procedures
- Job Briefing
- Coaching
- Turnover

VERIFIED BY

DATE

TIME



6-24-11

1430

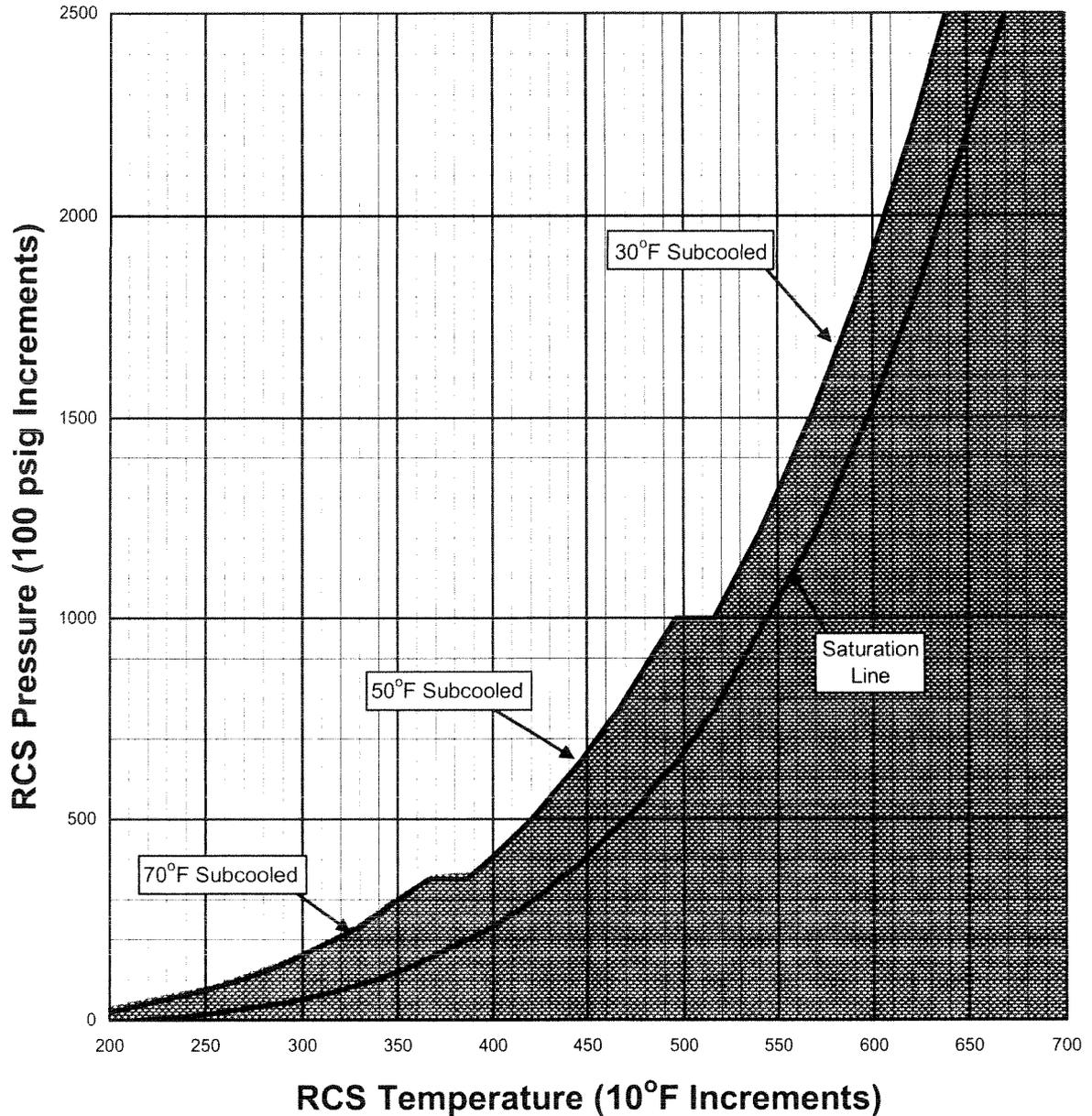
FORM TITLE:

VERIFICATION COVER SHEET

FORM NO.
1000.006A

CHANGE NO.
050-00-0

FIGURE 1 Saturation and Adequate SCM



RCS Pressure	Adequate SCM
>1000 psig	≥30°F
350 to 1000 psig	≥50°F
<350 psig	≥70°F

FIGURE 2

SG Pressure vs T-sat

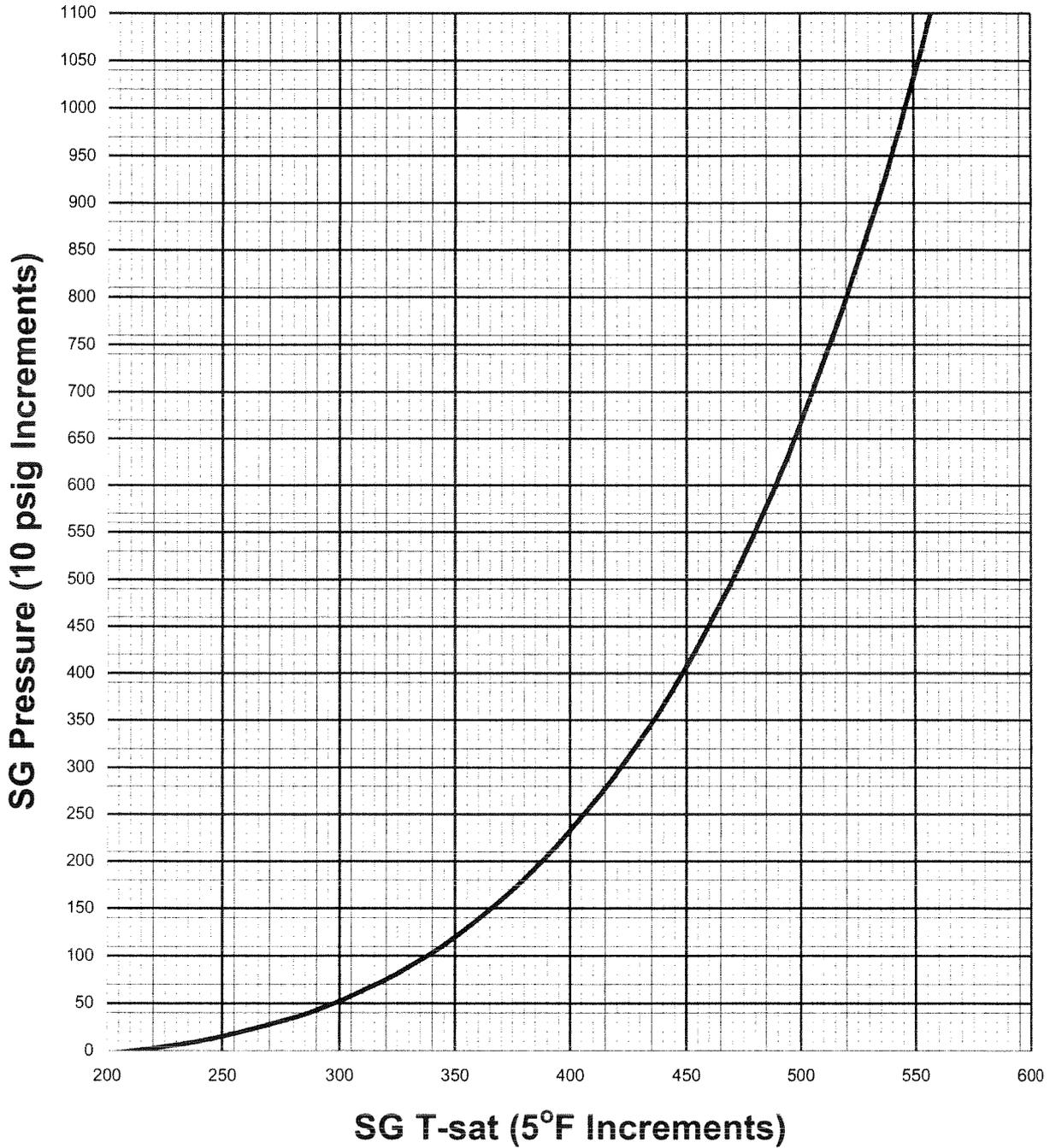


FIGURE 3
RCS Pressure vs Temperature Limits

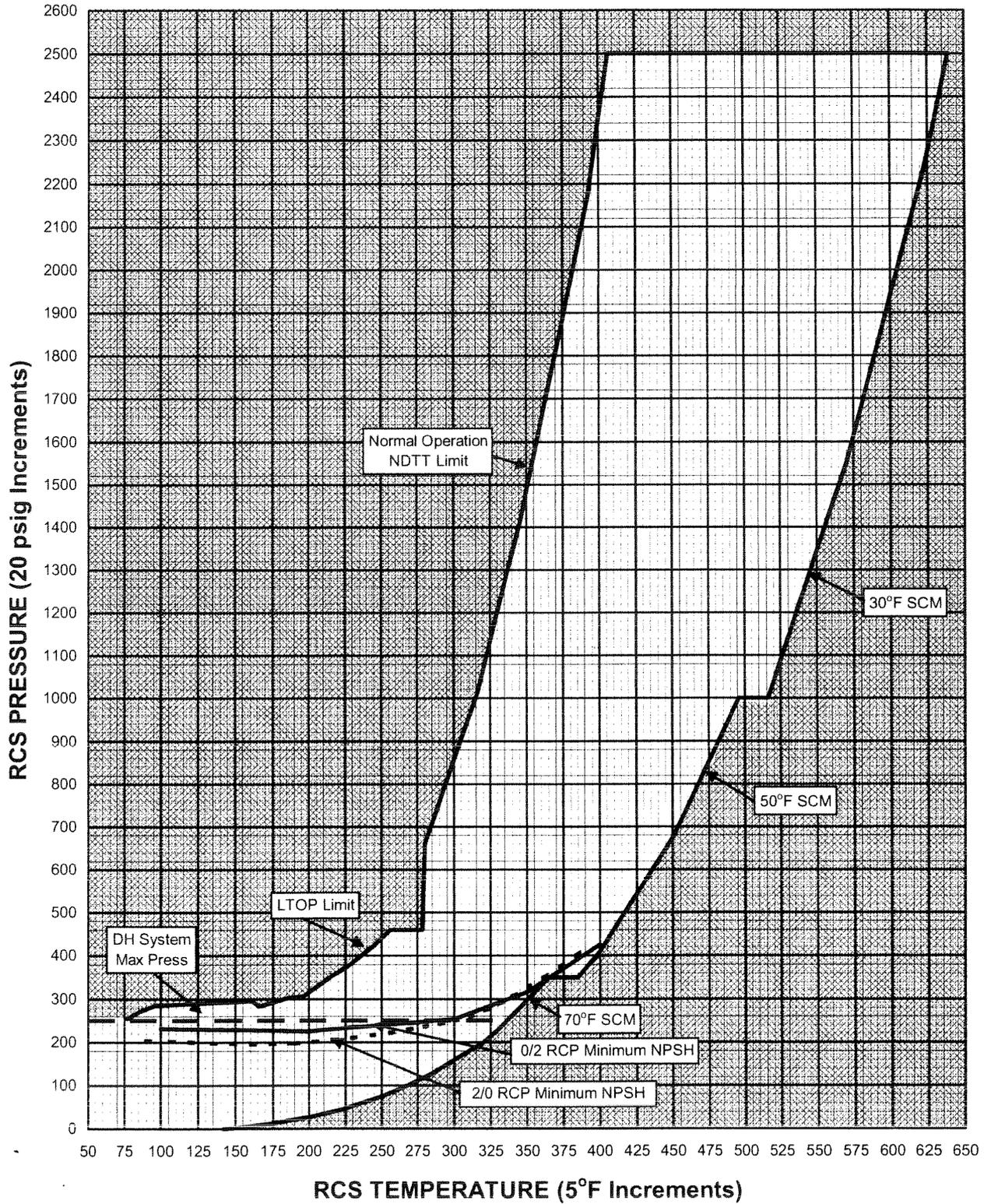


FIGURE 4
Core Exit Thermocouple for
Inadequate Core Cooling

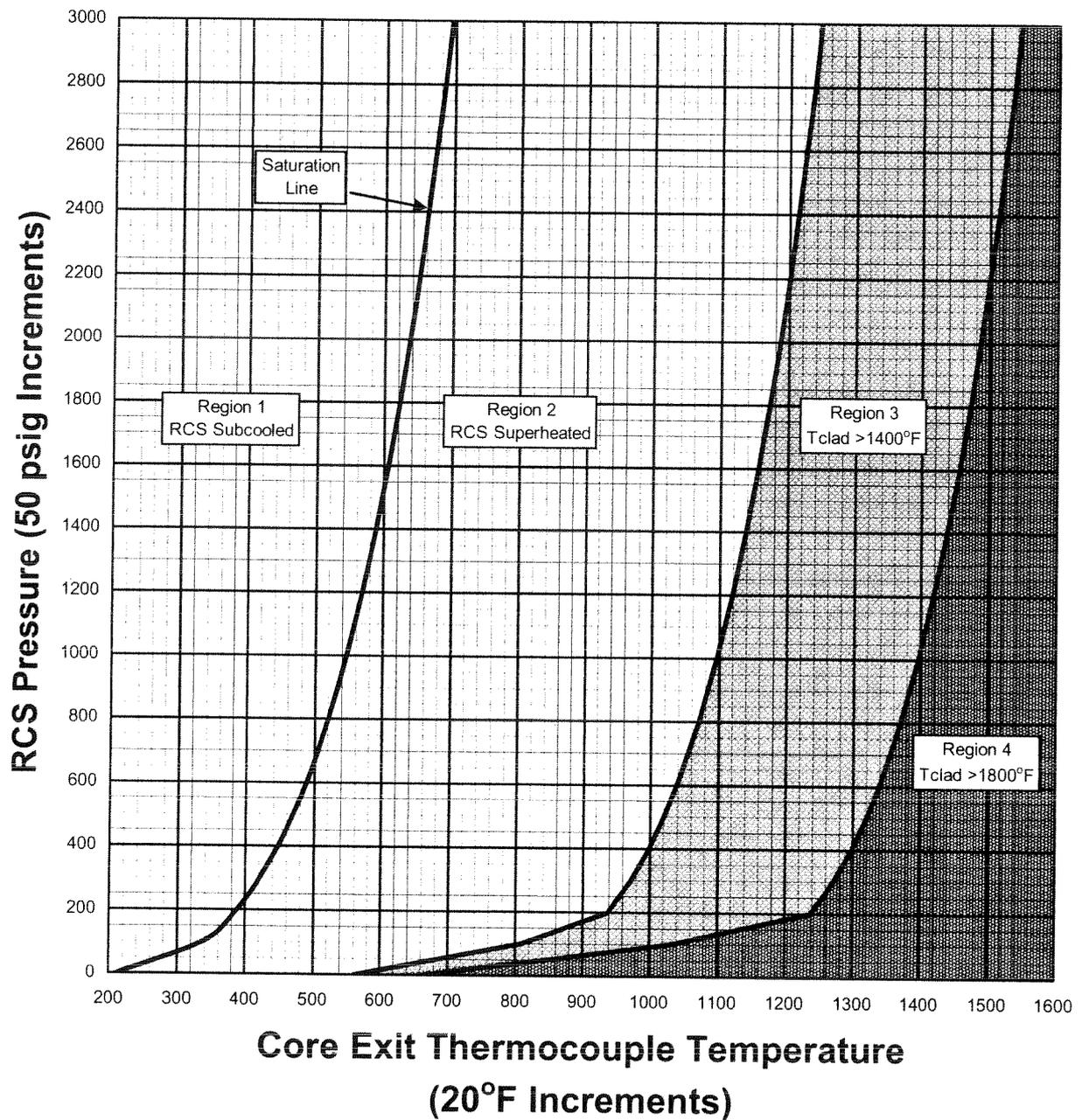


FIGURE 5

SG Pressure to Establish 40° to 60°F Primary to Secondary ΔT

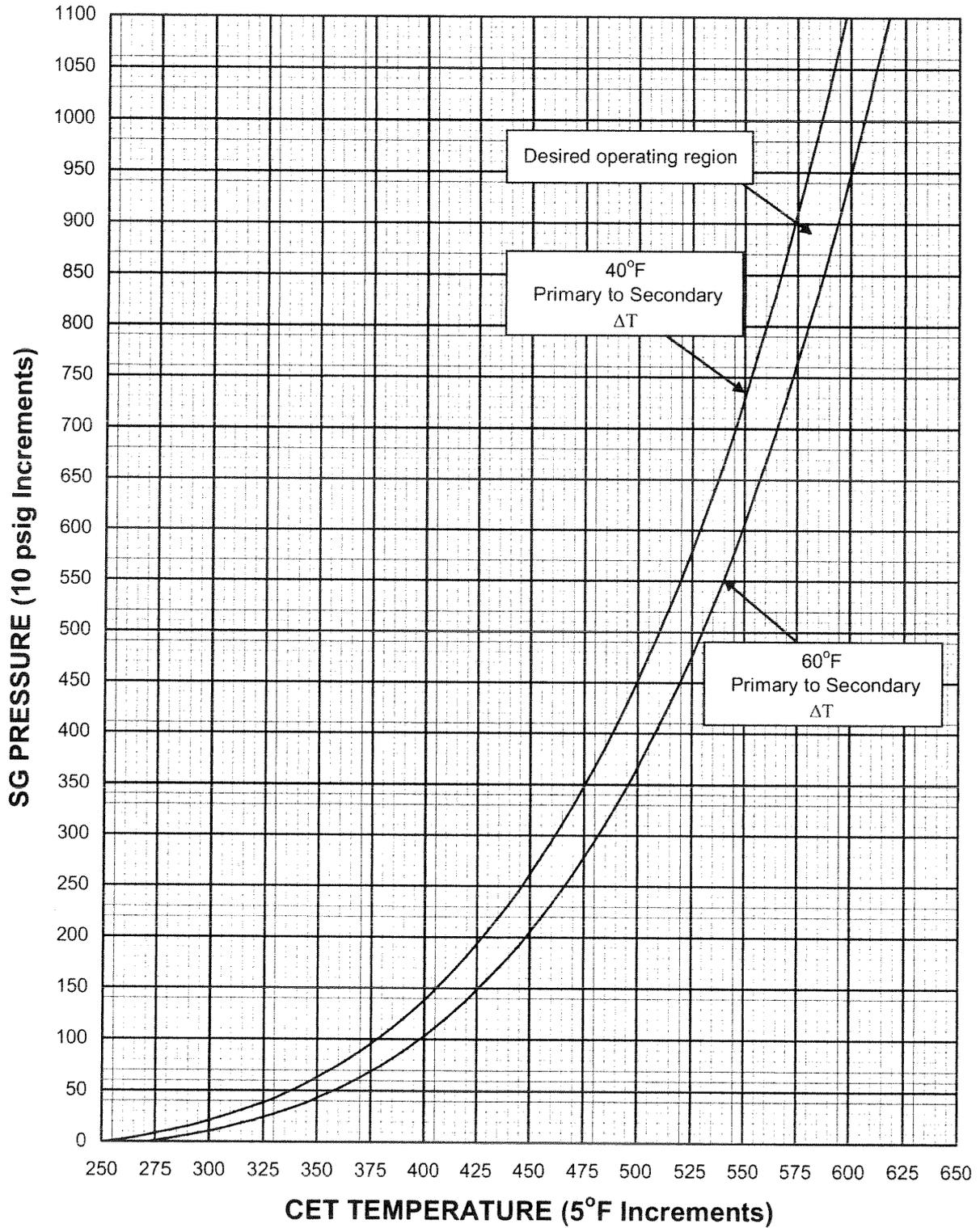
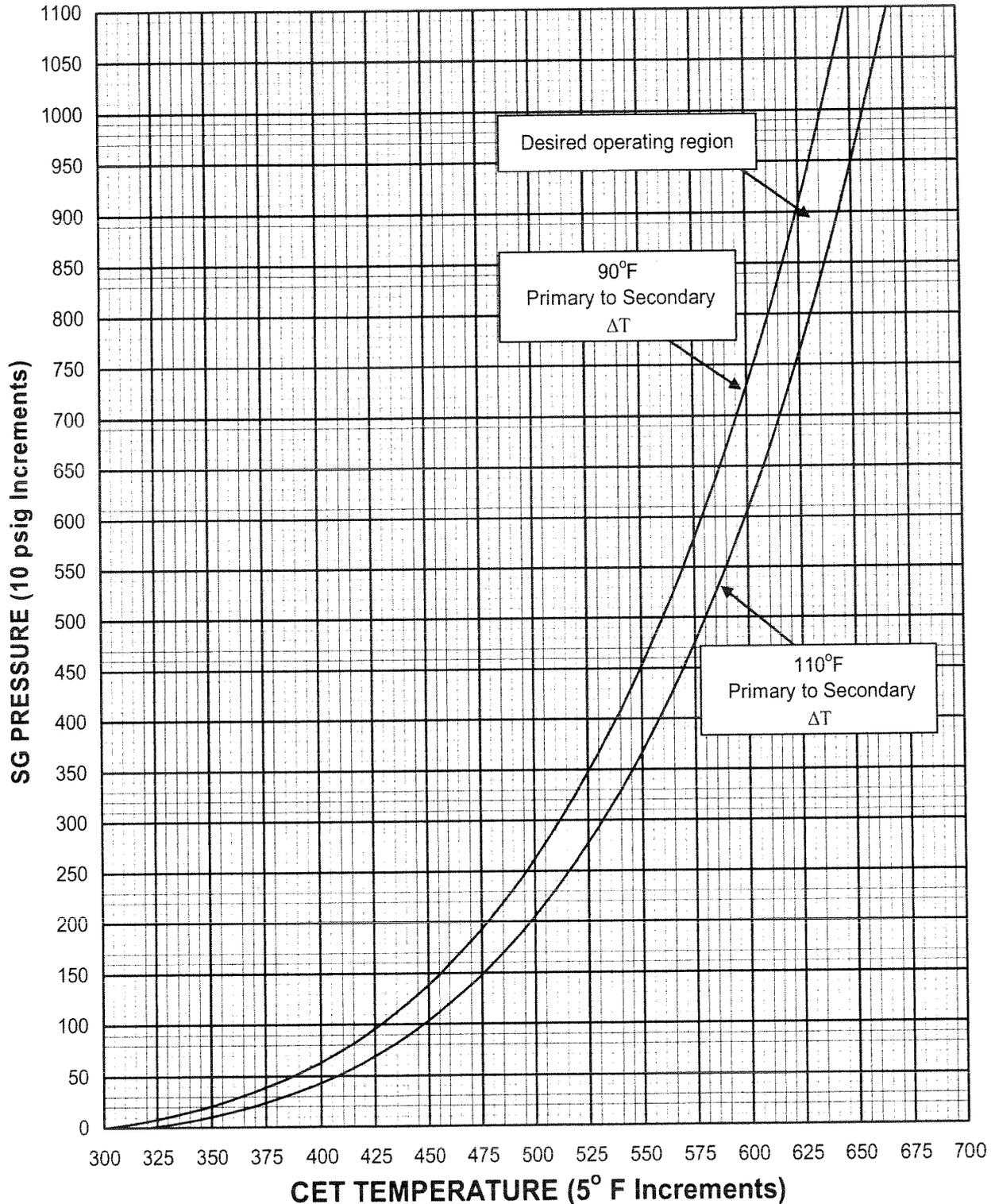


FIGURE 6

SG Pressure to Establish 90° to 110°F Primary to Secondary ΔT



3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 CONTROL ROD Group Alignment Limits

LCO 3.1.4 Each CONTROL ROD shall be OPERABLE and aligned to within 6.5% of its group average height.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CONTROL ROD inoperable, or not aligned to within 6.5% of its group average height, or both.	A.1.1 Verify SDM to be within the limit provided in the COLR.	1 hour
	<u>OR</u>	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	A.2.1 Restore CONTROL ROD alignment.	2 hours
	<u>OR</u>	
	A.2.2.1 Reduce THERMAL POWER to ≤ 60% of the ALLOWABLE THERMAL POWER.	2 hours
	<u>AND</u>	
	A.2.2.2 Verify the potential ejected rod worth is within the assumptions of the rod ejection analysis.	72 hours
	<u>AND</u>	

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2.3 -----NOTE----- Only required when THERMAL POWER is > 20% RTP. ----- Perform SR 3.2.5.1.	72 hours
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3.	6 hours
C. More than one CONTROL ROD inoperable, or not aligned within 6.5% of its group average height, or both.	C.1.1 Verify SDM to be within the limit provided in the COLR.	1 hour
	<u>OR</u>	
	C.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	C.2 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.4.1 Verify individual CONTROL ROD positions are within 6.5% of their group average height.	12 hours
SR 3.1.4.2 Verify CONTROL ROD freedom of movement for each individual CONTROL ROD that is not fully inserted.	92 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and
- b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	<p>A.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit.</p> <p><u>AND</u></p> <p>A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. (continued)</p>	<p>A.3 -----NOTE----- Startup Transformer No. 2 may be removed from service for up to 30 days for preplanned preventative maintenance. This 30 day Completion Time may be applied not more than once in any 10 year period. -----</p> <p>Restore required offsite circuit to OPERABLE status.</p>	<p>72 hours</p> <p><u>AND</u></p> <p>10 days from discovery of failure to meet LCO</p>
<p>B. One DG inoperable.</p>	<p>B.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit(s).</p> <p><u>AND</u></p> <p>B.2 Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p> <p>B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.</p> <p><u>OR</u></p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</p> <p>24 hours</p>

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3.	12 hours
	<u>AND</u> F.2 Be in MODE 5.	36 hours
G. Three or more required AC sources inoperable.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	7 days
SR 3.8.1.2	<p>-----NOTE----- All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. -----</p> <p>Verify each DG starts from standby conditions and, in ≤ 15 seconds achieves "ready-to-load" conditions.</p>	31 days
SR 3.8.1.3	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and follow, without shutdown, a successful performance of SR 3.8.1.2. <p>-----</p> <p>Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 2475 kW and ≤ 2750 kW.</p>	31 days

OPERATIONS DEPARTMENT DOCUMENT CHANGE REQUEST

Document Name: COPD-013 OPERATIONS MAINTENANCE INTERFACE
STANDARDS AND EXPECTATIONS

Revision/Change Number: 034

Purpose/Reason for Change: (May be handwritten, attach pages as required)

ATTACHMENT A: Changed Reactivity Management Program (EN-OP-103) to new procedure ANO Reactivity Management Program (COPD-030).

COPD013F CONTROL ROOM WORK ORDER AUTHORIZATION: Changed Reactivity Management Program (EN-OP-103) Att. 9.3 to new procedure ANO Reactivity Management Program (COPD-030) Risk Level appropriate attachment.

Heath A Kennamore Heath A Kennamore
Originator

5/13/2011
Date

Rich Crotty Rich Crotty
Unit 1 Ops. Independent Reviewer

5-13-11
Date

Lasnikow Lasnikow
Unit 2 Ops. Independent Reviewer

5/13/2011
Date

Paul Jones 0887
Ops Manager or Unit 1 AOM

5/13/2011
Date

Paul Jones 0887
Ops Manager or Unit 2 AOM

5/13/2011
Date

5/13/2011
Required Effective Date

FORM TITLE: OPERATIONS DEPARTMENT DOCUMENT CHANGE REQUEST	FORM NO. 1015.004A	CHANGE 007
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ATTACHMENT M

CONTROL ROOM SCHEDULING GUIDELINES

This is a guideline on Control Room scheduling aimed at minimizing online Control Room distractions. This guideline has been created in part based on INPO SOER 96-1 Control Room Supervision Operational Decision-Making and Teamwork which states: "Control Room activities must be coordinated and conducted in a professional manner that contributes to safe and reliable plant operation. It is important to manage control room activities so operators are not distracted from monitoring plant parameters properly. Excessive scheduled activities and other distractions and potential distractions to control room operators must be carefully managed and controlled." This guideline utilizes a base schedule written around standard activities with a point value assigned to maintenance affecting control room work load. The procedure assumes that a cumulative work load will not exceed a point value of 4 on-line or 8 during outages without Shift Manager approval.

1.0 Definitions

- 1.1 Control Room Activities: those activities that affect/distract control room personnel from routine monitoring of plant indications and controls.
- 1.2 Control Room Activity Grading: a point system that is assigned to control room activities based on the impact they have on control room personnel. The grading is a point value from 1 to 8. 1 is a minor impact such as a minor activity located in the control room or an activity that is limited to a single, expected control room alarm. A grade of 8 is a major impact to the control room such as a Reactor Startup.

2.0 Responsibilities

- 2.1 Operations Management
 - 2.1.1 Oversees the implementation of control room scheduling and work activities.
- 2.2 Shift Manager
 - 2.2.1 Reviews the schedule prior to T-6 to determine if control room work load is acceptable for the scheduled week.
 - 2.2.2 Approves deviations for control room activities exceeding the normal 4 point on-line or 8 point outage scheduling grade.
 - 2.2.3 When on-shift, retains the ultimate decision on whether a control room activity will be performed as scheduled.
 - 2.2.4 Approves non-scheduled, control room activities (e.g. RP surveys, procedure changes, SCBA inspections, housekeeping activities) using Generic Control Room Activity Values for grading.

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- 2.2.5 Ensures their respective crew reviews the schedule provided by the OWLs during the T-process By T-1. The crew will print/review impact statements and control room work authorization forms for scheduled control room activities on their upcoming dayshift (T-0). Crew will also print/review major PMTs, or PMTs associated with returning safety related equipment to service. These will be kept in files for each work day of the crews dayshift. If desired, the files may be maintained electronically.

- 2.3 Operations Work Control Supervisors
 - 2.3.1 Assists Schedulers and Planners with control room activity scheduling.
 - 2.3.2 Provides qualitative input to the Schedulers and Planners for the scheduling of simultaneous control room activities.

- 2.4 Scheduler
 - 2.4.1 Ensures that the total number of scheduled control room activities at any time does not create an undue distraction to the control room operating personnel.
 - 2.4.2 Screens scheduled activities for control room impact. If determined that an activity is a control room activity, then ensures that the work order is properly coded to reflect a control room activity.
 - 2.4.3 Provides a schedule visually showing the aggregate control room activity levels for the following work management schedule meetings: T-11 and T-10.

- 2.5 Planner
 - 2.5.1 Ensures that work orders are properly coded as a control room activity.

- 2.6 Work Week Manager
 - 2.6.1 Reviews the control room activities at the appropriate T-minus meeting.
 - 2.6.2 Ensures that the quantity and type of scheduled work activities do not create undue distractions to the control room operating personnel.
 - 2.6.3 Assigns a scheduler to review the T-10 (scope freeze) schedule prior to the appropriate T-minus meeting to ensure control room activities meet the requirements of this guideline.
 - 2.6.4 Obtains Shift Manager authorization if scheduled control room activities exceed the 4 point grade at any time on-line and 8 during outages.

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- 2.6.5 Distributes a schedule which visually shows the aggregate control room activity when schedule is approved at T-10 and T-6.
- 2.6.6 Updates the Control Room Activity Schedule daily when control room activities are added, deleted or rescheduled to a different time in the work week. If required to update the control room activity schedule, provides updated Control Room Activity Schedule to the organization at the Plan of the Day meeting.

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- 2.7 FIN Team
 - 2.7.1 Uses this guidance and the Control Room Activity Schedule to identify when FIN control room activities can take place.
- 2.8 FIN SRO
 - 2.8.1 Reviews the weekly schedule and ensures that FIN activities that impact the control room do not exceed the 4 point grade on-line or 8 point during outages without prior approval from the Shift Manager.

NOTE

Control room activity scheduling is accomplished by assigning a code to the activity that flags the activity as a control room impact. The activity is then assigned a control room distraction resource value, graded from 1 to 8. The schedule is then sorted to view only those activities that control the control room activity code and the resource view is used to see the aggregate effect.

- 3.0 Schedule Planning --- Basic Timeline for Scheduling of Control Room Activities
 - 3.1 During work order planning the Planner ensures that any work orders with control room impact are coded as control room activities.
 - 3.2 Scheduler schedules "base load" repetitive control room activities that have been previously approved by an Operations Work Control Supervisor.
 - 3.3 T-20 to T-11, the Schedulers schedule additional control room activity work orders and activities using the guidelines of this attachment.
 - 3.4 T-20 to T-6, the Schedulers ensure when moving or scheduling an activity, the control room activity level is acceptable.
 - 3.5 At T-11 meeting, Schedulers, Discipline Schedulers and Operations Work Control Supervisors meet and agree on control room activity level. A copy of the aggregate Control Room Activity Schedule is provided by Schedulers for this meeting.
 - 3.6 Prior to T-10 meeting, the Work Week Manager assigns a Scheduler to review control room activity level to verify levels are acceptable. Schedule activities should be moved as appropriate before the T-10 meeting.
 - 3.7 At T-10 meeting, a copy of the aggregate Control Room Activity Schedule is provided for this meeting.
 - 3.8 During T-10 meeting, control room activity levels are discussed.
 - 3.9 At T-10 approval, scope is frozen. No changes are made to control room activities without prior approval through the scope change process.

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- 3.10 At T-8, the aggregate Control Room Activity Schedule is provided to the implementing Operations crew to allow review as part of their normal schedule review.
- 3.11 T-7 to T-6, comments from the Operations crew reviews are incorporated into the schedule. Control Room Activities are rescheduled as appropriate.
- 3.12 At T-6 meeting, Schedulers provide a copy of the aggregate Control Room Activity Schedule to participants. Control room activity level is verified acceptable prior to T-6 approval.
- 3.13 When T-6 approved, aggregate Control Room Activity Schedule is distributed with approved color schedule.
- 3.14 During implementation week, Work Week Manager is responsible for updating aggregate Control Room Activity Schedule and providing the update daily to the organization if any control room activities are added, deleted, or rescheduled to a different time. This updated schedule is provided at the Plan of the Day meeting.

4.0 Control Room Activity Scheduling Guidance

- Control room activity should be normally limited to a value of 4 on-line and 8 during outages.
- On rare occasions, control room activity may be greater than 4 on-line or 8 during outages but requires prior approval by the Shift Manager.
- When the cumulative control room activity value is high, additional control room oversight should be scheduled during the activities.
- Schedulers and Shop Coordinators will use this guidance to schedule control room activities.
- The scheduling of control room activities should begin at T-20 and continue throughout work week development.
- Shift Managers will review the schedule for their assigned work week and approve control room activity prior to T-6.
- The on-shift Shift Manager retains the ultimate decision on whether a control room activity will be performed as scheduled.
- FIN team should use this guidance and the Control Room Activity Schedule to identify where FIN control room activities can take place.
- Operations Work Control Supervisors will provide qualitative input to the schedulers for the scheduling of simultaneous control room activities.

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4.0 (continued)

- The Generic Control Room Activity Value tables in this attachment provide the normal quantitative control room activity values. The list is not all inclusive. Control room activity assessment requires both a quantitative and qualitative assessment to determine the overall control room activity grade.
- The Operations Work Control Supervisors will determine final control room activity grade for scheduled items.
- No additional control room activities are scheduled during plant maneuvers. Emergent failed equipment may necessitate the need for additional control room activities and will only be allowed with the approval of the on-shift Shift Manager.

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5.0 Generic Control Room Activity Values (Unit 1)

Low Impact	
Walkdowns / inspections	1
Print or procedure updates	1
Chart recorder maintenance	1
Sigma / Dixon maintenance	1
Maintenance that causes 1-2 control room alarm occurrences	1
Cabinet PM's	1
Main Steam Rad monitor monthly	1
Containment Hi Range Rad monitor monthly	1
RB Leak Detector paper change out	1
Control Room Rad Monitor monthly	1
Operations PMT valve strokes	1
Fire extinguisher checks	1
CSG minor computer (PMS / SPDS) maintenance	1
Starting/Stopping RB Purge	1
Refueling/Defueling	1
Medium Impact	
RPS Monthly Test (non-trip initiator portion)	2
EFIC Monthly Test	2
Maintenance that causes >2 control room alarm occurrences	2
Operations control channel changes	2
I&C DROPS/AMSAC calibrations	2
Fire detector testing that causes repeat control room alarms	2
Rad Monitor testing that causes repeat control room alarms	2
Operations RPS bypass operations	2
RCS Heatup	2
RCS Cooldown in Mode 5	2
Starting/Stopping pumps (EFW, SW, HPI, etc.)	2
High Impact	
Operations pump surveillances	3
RPS Qrtly (Breaker trip test)	3
EDG Surveillance	3
Placing / removing control room on emergency recirc	3
Fire Panel maintenance	3
Fill Fuel Transfer Canal or RCS	3
Shifting Electrical Loads	3
RCS Cooldown to Mode 5	3
RCS Dilution	3
Starting or Stopping DHR or RCPs	3
Undervoltage Monitor Relay Testing	3
NI Calibration	4
ICS to Auto/Manual	4
CRD exercise	4
I & C Semi-annual DROPS/AMSAC Testing	4
TV/GV Stroke Testing	4
Plant maneuver	5
Physics Testing	5
Reactor Startup	8
Draining the RCS with fuel in vessel	8
Integrated ES Test	8

No additional CONTROL ROOM ACTIVITIES are scheduled during Plant maneuvers. Emergent failed equipment may necessitate the need for additional CONTRL ROOM ACTIVITIES and will only be allowed with the approval of the on-shift Shift Manager.

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6.0 Generic Control Room Activity Values (Unit 2)

Low Impact	
Chart recorder maintenance	1
Sigma / Dixson maintenance	1
Maintenance that causes 1-2 control room alarm occurrences	1
2C31A/B EHC cabinet PM's	1
Main Steam Rad monitor monthly	1
Containment Hi Range Rad monitor monthly	1
Operations PPS bypass operations	1
CAMS paper changout	1
Control Room Rad Monitor monthly	1
Operations PMT valve strokes	1
CSG minor computer (PMS / SPDS) maintenance	1
Starting/Stopping Cntrmt Purge	1
Refueling/Defueling	1
Medium Impact	
PPS Triannual (non-trip initiator portion)	2
Excore Monthly / Quarterly	2
Maintenance that causes >2 control room alarm occurrences	2
Operations control channel changes	2
Operations DSS/DEFAS operations	2
I&C DSS/ DEFAS calibrations	2
CPC Triannual	2
Fire detector testing that causes repeat control room alarms	2
Rad Monitor testing that causes repeat control room alarms	2
RCS Heatup	2
RCS Cooldown in Mode 5	2
Starting/Stopping pumps (AFW, SW, HPSI, etc.)	2
High Impact	
Operations pump surveillances	3
CPC / CEAC operations (updating addressable constants)	3
PPS Triannual (TCB & Matrix testing)	3
EDG Surveillance	3
AAC Surveillance	3
Placing / removing control room on emergency recirc	3
2C343 Fire Panel maintenance	3
COLSS addressable constant updates	3
Fill Refueling Canal or RCS	3
Shifting Electrical Loads	3
RCS Cooldown to Mode 5	3
RCS Dilution	3
SDC or RCP Operations	3
ESF Response Time Testing	3
NI Calibration	4
CEA exercise	4
MSIV partial stroke	4
MTG Control Valve Stroke	4
Pump Refueling Canal	4
Moving CEAs	4
Plant maneuver *	5
Physics Testing	5
RCS Drain with TRVH installed	5
Reactor Startup	8
Draining the RCS with fuel in vessel	8
Integrated ESF Test	8

No additional CONTROL ROOM ACTIVITIES are scheduled during Plant maneuvers. Emergent failed equipment may necessitate the need for additional CONTRL ROOM ACTIVITIES and will only be allowed with the approval of the on-shift Shift Manager.

ANO Unit 1 - 2011 SRO NRC Written Exam KEY

Question No. 76 **QID: 0855** **Point Value: 1**

Answer:

D. Control Turbine Bypass valves (TBVs) to quickly reduce SG pressures to reseal the MSSV per 1202.001, Reactor Trip.

Question No. 77 **QID: 0839** **Point Value: 1**

Answer:

A. 1202.002, "Loss of Subcooling Margin"

Question No. 78 **QID: 0639** **Point Value: 1**

Answer:

B. 1203.028, Loss of Decay Heat Removal

Question No. 79 **QID: 0731** **Point Value: 1**

Answer:

D. A cooldown rate of 110°F/hr with Tcold at 330°F.

Question No. 80 **QID: 0586** **Point Value: 1**

Answer:

D. Within 84 hours

Question No. 81 **QID: 0840** **Point Value: 1**

Answer:

A. 1, 2, 4, 7

Question No. 82 **QID: 0841** **Point Value: 1**

Answer:

C. Initiate boration to restore SDM by 1530.

Question No. 83 **QID: 0590** **Point Value: 1**

Answer:

B. Immediately suspend positive reactivity additions and initiate a shutdown so that all CRD breakers are open within one hour.

ANO Unit 1 - 2011 SRO NRC Written Exam KEY

Question No. 84 **QID: 0347** **Point Value: 1**

Answer:

D. Return the assembly to an available location in the reactor vessel.

Question No. 85 **QID: 0342** **Point Value: 1**

Answer:

D. 1203.019 High Activity In Reactor Coolant 40%

Question No. 86 **QID: 0607** **Point Value: 1**

Answer:

C. 1203.026, Loss of Reactor Coolant Makeup, Section 2 - Large Makeup and Purification System Leak

Question No. 87 **QID: 0842** **Point Value: 1**

Answer:

B. Close the ERV Isolation Valve (CV-1000) per OP-1203.015, Pressurizer Systems Failure

Question No. 88 **QID: 0843** **Point Value: 1**

Answer:

D. Place "A" in channel bypass and trip "C" RPS channel.

Question No. 89 **QID: 0844** **Point Value: 1**

Answer:

B. Override and throttle both LPI Pumps close to but not below 2800 gpm per pump per 1202.010 Att. 1, Shift to RB Sump Suction.

Question No. 90 **QID: 0740** **Point Value: 1**

Answer:

D. Valves open; 1203.036, "Loss of 125 V DC"

Question No. 91 **QID: 0570** **Point Value: 1**

Answer:

B. Verify ICS in track and runback in progress per 1203.022, Reactor Coolant Pump Trip

ANO Unit 1 - 2011 SRO NRC Written Exam KEY

Question No. 92 QID: 0450 Point Value: 1

Answer:

C. The fuel assembly may be moved to the Spent Fuel Pool but core alterations are not allowed.

Question No. 93 QID: 0845 Point Value: 1

Answer:

A. ICS Abnormal Operation 1203.001 and Rapid Plant Shutdown 1203.045

Question No. 94 QID: 0846 Point Value: 1

Answer:

C. SRO in Charge of Fuel Handling and Reactor Engineer

Question No. 95 QID: 0407 Point Value: 1

Answer:

A. 0400

Question No. 96 QID: 0119 Point Value: 1

Answer:

B. CFT level

Question No. 97 QID: 0852 Point Value: 1

Answer:

C. 3, 4, 5

Question No. 98 QID: 0391 Point Value: 1

Answer:

c. Radiation Protection Manager, Plant General Manager and Site Vice President.

Question No. 99 QID: 0411 Point Value: 1

Answer:

B. Notification to the NRC is required immediately following notification of the ADH and within 1 hour of the declaration of an emergency class.

ANO Unit 1 - 2011 SRO NRC Written Exam KEY

Question No. 100 QID: 0357 Point Value: 1

Answer:

- C. The TSC Director receives a turnover from the SM and assumes responsibility for EDC.
-