

September 22, 2000

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

SUBJECT: MILLSTONE UNIT 2 GENERATING STATION REACTOR OPERATOR AND  
SENIOR REACTOR OPERATOR INITIAL EXAMINATION REPORT  
05000336/2000-302

Dear Mr. Scace:

This report transmits the results of the subject operator licensing examinations conducted by the NRC during the period of August 7 through 11, 2000. These examinations addressed areas important to public health and safety and were developed and administered using the guidelines of the "Examination Standards for Power Reactors" (NUREG-1021, Revision 8).

Based on the results of the examinations, eleven of twelve applicants (four instant Senior Reactor Operator (SRO) and seven Reactor Operator (RO)) passed all portions of the examinations. One RO applicant failed the administrative portion of the operating test. The preliminary performance insights observed during the examination were discussed between Mr. L. Briggs and Mr. M. Baughman on August 11, 2000. The final results were discussed via telephone conference call on September 8, 2000. No significant inspection findings were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

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

Sincerely,

/RA/

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

Docket No. 05000336  
License No. DPR-65

Mr. S. E. Scace

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Enclosure: Initial Examination Report No. 05000336/2000-302 w/Attachments 1, 2, 3, and 4

cc w/encl; w/Attachments 1-4:

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-3-

Distribution w/encl; w/Attachments 1-4:

C. Buracker, DRS (Master Exam File)

Distribution w/encl; w/o Attachments 1-4:

Region I Docket Room (with concurrences)

L. Briggs, Chief Examiner, DRS

S. Jones, SRI - Millstone 2

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OFFICE	RI/DRS	RI/DRP	RI/DRS		
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DATE	09/11/00	09/11/00	09/13/00	09/ /00	09/ /00

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 05000336

Report Nos: 05000336/2000-302

License Nos: DPR-65

Licensee: Northeast Nuclear Energy Company

Facility: Millstone Unit 2

Location: Waterford, CT

Dates: August 4 - 11, 2000 (Operating and Written Test Administration)  
August 14 - 25, 2000 (Grading)

Chief Examiner: L. Briggs, Senior Operations Engineer/Examiner

Examiners: J. D'Antonio, Operations Engineer/Examiner  
H. Peterson, Senior Operations Engineer/Examiner (Region 3)

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

## SUMMARY OF FINDINGS

IR 05000336-00-302; on 08/07-11/2000; Millstone Unit 2; Initial Operator Licensing Examination. Eleven of 12 applicants passed (4 SRO and 7 RO). One RO failure.

The examination was conducted by NRC region-based examiners. If applicable, the significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609.

- There were no findings.

## Report Details

### **4. OTHER ACTIVITIES (OA)**

#### **4OA4 Cross Cutting Issues**

##### **.1 Reactor Operator and Senior Reactor Operator Initial License Examinations**

###### **a. Inspection Scope**

The NRC examination team reviewed the written and operating initial examinations submitted by the Millstone Unit 2 training staff to verify or ensure, as applicable, the following:

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

The NRC examiners administered the operating portion of the exam to all applicants from August 7 through 11, 2000. The written examinations were administered by Millstone Unit 2 training staff on August 4, 2000.

###### **b. Issues and Findings**

###### **Grading and Results**

Eleven of 12 applicants (4 SRO and 7 RO) passed all portions of the initial licensing examination. One RO applicant failed the administrative portion of the operating test.

The facility had one post-examination comment (see Attachment 3).

###### **Examination Preparation and Quality**

No inspection findings were identified.

### Examination Administration and Performance

There were several observations made by the examination team that appeared to be generic applicant weaknesses during the performance of the following operating tasks:

1. Calculate new steam generator radiation monitor setpoint (administrative JPM).
2. Perform a shutdown margin determination (administrative JPM).
3. Shift turnover log review and verification of acceptable plant conditions (administrative JPM).
4. Initiate Boron precipitation control (alternate path JPM). Applicants experienced some difficulty overriding the sump recirculation actuation signal to start a low pressure safety injection pump.

### 4OA6 Exit Meeting Summary

On August 11, 2000, the NRC Chief Examiner discussed preliminary overall observations noted during the examination with the Manager, Operations Training. On September 8, 2000, the Chief Examiner provided final conclusions and examination results to Millstone management representative, Mr. D. Hicks, Director, Nuclear Training Services, and other management personnel, via telephone. License numbers for the eleven successful applicants were also provided during the final exit meeting.

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

### Attachments:

1. SRO Written Exam w/Answer Key
2. RO Written Exam w/Answer Key
3. Resolution of Post-Examination Comment
4. Licensee Post-Examination Comment

## PARTIAL LIST OF PERSONS CONTACTED

FACILITY

M. Baughman, Manager, Operations Training  
J. Bergin, Supervisor, Unit 2 Operator Training  
R. Cimmino, Jr., Senior Operator Instructor (exam team)  
D. Hagan, Operations Manager, Unit 2  
D. Hicks, Director, Nuclear Training Services  
K. Truesdale, Shift Manager (exam team)  
F. Nygard, Senior Operator Instructor (exam team)

NRC

L. Briggs, Senior Operations Engineer/Examiner  
J. D'Antonio, Operations Engineer/Examiner  
H. Peterson, Senior Operations Engineer/Examiner (NRC Region 3)



**Attachment 1**

**SRO WRITTEN EXAM W/ANSWER KEY**

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

Name:	Region: ① / II / III / IV
Date:	Facility/Unit: <i>Millstone Unit Two</i>
License Level: <del>RO</del> / <u>SRO</u>	Reactor Type: W / <u>CE</u> / 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. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected five hours after the examination starts.

**Applicant Certification**

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

\_\_\_\_\_  
Applicant's Signature

**Results**

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

## SRO NRC Exam

# 1

The plant has experienced an Excess Steam Demand Event. The following conditions exist:

- \* EOP 2525 has been completed and the appropriate Event Specific EOP entered.
- \* All ESAS equipment has fully actuated.
- \* Pressurizer pressure = 1665 psia and stable.
- \* Pressurizer level = 15% and rising.
- \* Reactor vessel level = 100%.
- \* Th = 485°F and stable.
- \* Tc = 450°F and stable.
- \* Containment pressure = 9.75 psig and slowly dropping.
- \* S/G #1 = depressurized and empty.
- \* S/G #2 level is 30% and rising.
- \* All RCPs secured.

Based on these indications, which of the following actions is appropriate?

- A** Reset and secure CTMT Spray.
- B** Secure Low Pressure Safety Injection (LPSI) pumps.
- C** Throttle or stop High Pressure Safety Injection (HPSI) pumps.
- D** Block and reset SIAS, CIAS, and EBFAS actuation modules.

## SRO NRC Exam

# 2

While operating at 100% power, a plant trip occurs. While carrying out EOP-2525, Standard Post Trip Actions, the operators observe the following plant conditions:

- \* All CEAs are inserted.
- \* All buses are energized.
- \* Pressurizer Level is 10%, lowering.
- \* Pressurizer Pressure is 1700 psia, lowering.
- \* Tavg is 505 °F, lowering.
- \* RCS subcooling is 100 °F, rising.
- \* Feeding both SGs with Main Feedwater.
- \* #1 SG level 15% and dropping.
- \* #2 SG level 42% and stable.
- \* #1 SG pressure 450psia and dropping.
- \* #2 SG pressure 650 psia and dropping.
- \* Containment pressure 1.5 psig, rising.
- \* NO Rad. Monitors in alarm, NONE going up.

Which procedure will the operators implement next?

- A** EOP 2532, Loss of Coolant Accident
- B** EOP 2534, S/G Tube Rupture
- C** EOP 2536, Excess Steam Demand
- D** EOP 2537, Loss Of All Feedwater.

## SRO NRC Exam

# 3

A small circulating water leak has occurred in the 'B' main condenser bay.

In what order should the condenser bay conductivity recorders respond to this leak?

- A** 'A' and 'B' bays at approximately the same time, followed by 'C' and 'D'
- B** "B bay first, 'A' second, 'D' third, 'C' fourth
- C** 'B' bay first, 'D' second, 'A' third, 'C' fourth
- D** 'B' bay first, 'D' second, 'C' third, 'A' fourth

## SRO NRC Exam

# 4

The following conditions exist:

- \* The plant is in Mode 5.
- \* A Containment Purge is in progress.
- \* RM-8262B and RM-8123B (Containment Gaseous Radiation Monitor) alarm setpoint is  $7.0 \text{ E } 4$ .
- \* RM-8262B is currently reading  $7.5 \text{ E } 4$ .
- \* RM-8123B is currently reading  $6.8 \text{ E } 4$ .
- \* NO alarms attributable to any Containment Radiation Monitoring are present.

What immediate action must you take in response to the report?

- A** Request chemistry sample Containment atmosphere.
- B** Ensure purge supply fan, F-23, automatically stops.
- C** Determine the cause of the gaseous activity increase.
- D** Close or verify closed the purge isolation valves.

## **SRO NRC Exam**

**# 5**

Which of the following condenser circulating valve positions is required in order to start a circulating water pump?

- A** The condenser INLET valve must be between 20 and 25% open.
- B** The condenser OUTLET valve must be between 20 and 25% open.
- C** The condenser OUTLET valve must be between 5 and 10% open.
- D** The condenser INLET valve must be between 5 and 10% open.

## SRO NRC Exam

# 6

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

- \* A major plant casualty has occurred and the applicable EOP has been entered.
- \* Subcooled margin has been lost.
- \* Core Exit Thermocouples (CETs) are increasing, with some in excess of 800 °F.

What plant status is indicated by this CET response?

- A** CETs are failing (reading above steam "critical point").
- B** Steam Generator tube voiding is imminent.
- C** Core heat removal is inadequate.
- D** RCS is in stable two-phase Natural Circulation.



## SRO NRC Exam

# 7

The plant is operating at 100% power, with all secondary system controls in automatic mode and with normal, expected setpoints.

The pressure TRANSMITTER that feeds the #1 Atmospheric Dump Valve controller, fails HIGH such that the dump valve controller "sees" a main steam pressure input of 940 psia.

How will the #1 S/G level respond to this malfunction, assuming no operator action?

- A** It will slowly rise until indicated feed flow is less than indicated steam flow.
- B** It will remain at setpoint until indicated feed flow begins to change.
- C** It will stabilize when indicated feed flow equals indicated steam flow.
- D** It will slowly drop until indicated feed flow is greater than indicated steam flow.

## SRO NRC Exam

# 8

The plant is at 100% power with a resin transfer to the spent resin tank in progress.

A flange in the resin transfer line begins to leak spent resin to the floor of the -25 Aux. Building. The "VENT STACK RADMONITOR HI/FAIL" annunciator on C-06/7 is one of the radiation alarms received. On the Unit 2 Stack High Range KAMAN rad. monitor (RM-8168) on C-101, the following lights are flashing:

- \* HIGH-ACK
- \* ALERT-ACK
- \* RATE-ACK
- \* EQUIP FAIL

All controls on the Kaman rad. monitor are aligned normally.

As radiation levels in the Aux. Building continue to rise, how will the Unit 2 Stack Low Range gaseous rad. monitor (RM-8132B) recorder on C-06 trend over the next five minutes?

- A** Rise consistent with the rising radiation levels.
- B** Begin to lower, even as radiation levels continue to rise.
- C** Remain constant, with the Unit 2 Stack Low Range gaseous rad.. monitor (RM-8132B) failed "as-is".
- D** Pegged low, indicating the Unit 2 Stack Low Range gaseous rad.. monitor (RM-8132B) has electronically failed low.

## SRO NRC Exam

# 9

A plant trip has occurred, and the following conditions exist:

- o RCS is in the process of developing normal Natural Circulation flow.
- o Both MSIV's are open.
- o All other plant systems are responding normally.

Which of the following actions is required to prevent a sudden, non-controlled RCS cooldown from occurring?

- A** Tave controller for the Condenser Dump valves is placed in manual and closed.
- B** Pressure controller for the Condenser Dump valves is placed in manual and closed.
- C** Pressure controllers for the Atmospheric Dump valves are placed in manual and closed.
- D** Quick Open selector switch is placed on "OFF".

## **SRO NRC Exam**

**# 10**

Which of the following statements correctly describes Service Water System response on a SIAS?

- A** Service Water inlet valves to the TBCCW Heat Exchangers get an open signal.
- B** Service Water valves to non-vital chillers, X-196A and X-196B, get an open signal.
- C** All three RBCCW Heat Exchanger TCVs get a full open signal.
- D** All three Service Water pumps start.

## SRO NRC Exam

# 11

AOP 2569 (Steam Generator Tube Leak) directs verification of automatic actions if a SJAE or S/G Blowdown RM alarms.

Which of the following valves must be verified automatically closed based on the above RM alarm?

- A** S/G Blowdown Primary Sample Sink Sample Isolation (2-MS-191A & 2-MS-191B).
- B** Atmospheric Drain Collection Tank Drain to Long Island Sound (2-CN-334).
- C** Blowdown Tank Discharge Isolation (2-MS-15).
- D** Condenser Air Removal to Unit 2 Stack (2-EB-57).

## SRO NRC Exam

# 12

The plant is in MODE 6 for REFUELING with all necessary equipment operable. Fuel movement is in progress. No other work is planned or in progress in containment and steam generator secondary manways are installed.

Under these conditions, which of the following VIOLATES "containment closure"?

- A One personnel airlock door is open.
- B Containment purge is in progress.
- C #1 Atmospheric Dump Valve has been removed for repair.
- D An electrical penetration has been removed for repair.

## SRO NRC Exam

### # 13

The plant is on Shutdown Cooling using the "B" LPSI pump.  
The following conditions exist:

- \* RCS level is at the Reactor Vessel Flange and slowly decreasing.
- \* RCS temperature is 100 degrees F.
- \* RCS pressure is 15 psia.
- \* PDT level is steady.
- \* RWST level is slowly increasing.
- \* RBCCW Surge Tank level is steady.

Which of the following is the most likely leakage path causing the RCS level to lower?

- A** RCS cold leg drain valve leakage.
- B** PORV leakage.
- C** "B" LPSI Pump minimum flow recirc leakage.
- D** 'B' SDC Heat Exchanger tube leakage.

## SRO NRC Exam

# 14

A plant cooldown is in progress. The US has directed you to establish a cooldown rate that will result in the MAXIMUM allowable rate per Technical Specifications, for the hour between 0900 and 1000.

During the plant cooldown, RCS temperature dropped from 500 °F to 490 °F from 0900 to 0910.

What should the cooldown rate be raised to in order to reach the Technical Specification MAXIMUM allowable RCS cooldown limit for the rest of the hour?

- A 1.8 °F/min.
- B 1.6 °F/min.
- C 1.4 °F/min.
- D 1.1 °F/min.



## **SRO NRC Exam**

**# 15**

Which of the following is the purpose of the Safety Function Status Check in an EOP?

- A** Verifies the procedure in use is appropriate for the event in progress.
- B** Determines which Optimal Recovery Procedure should be implemented.
- C** Specifies which Functional Recovery Success Paths should be followed.
- D** Ensures the operator has performed all continuously applicable steps of an EOP.

## SRO NRC Exam

### # 16

Which of the following items fall within the classification of Bypasses, Jumpers, and Lifted Leads?

- 1) Plugged floor drain
- 2) Hose connected from a system drain to a floor drain
- 3) Temporary scaffolding
- 4) Gagged safety valve
- 5) Portable airborne radiation monitor
- 6) Pulled annunciator circuit card (nuisance alarm do to faulty level switch)
- 7) Use of the Alarming Remote Transmitter (ART)

**A** 1, 3, and 7

**B** 2, 5, and 6

**C** 3, 4, and 7

**D** 1, 4, and 6

## SRO NRC Exam

**# 17**

The following conditions exist:

- o A loss of coolant accident occurred, resulting in Containment pressure exceeding 40 psig and rising.
- o One containment spray pump failed to start when CSAS actuated.

With only one (1) containment spray pump operating, what is the MINIMUM number of CAR fans that must be running to provide adequate cooling for the Containment?

- A** 1 in Slow
- B** 1 in Fast
- C** 2 in Slow
- D** 2 in Fast

## SRO NRC Exam

# 18

The following conditions exist:

- \* A Large Break Loss of Coolant Accident occurred ~5 minutes ago.
- \* RCS pressure has bottomed out at ~50 psia.
- \* RVLMS indicates 0% on both channels.
- \* All ICCS points indicate saturated conditions.
- \* CTMT pressure peaked at ~40 psig and is slowly going down, (presently 36 psig).

What is the flowpath by which decay heat is presently being removed from the core and transferred to the environment?

- A** Rx Core --> RCS --> ECCS break flow --> CTMT atmosphere --> CTMT Spray --> SDC heat exchangers --> RBCCW --> SW --> LIS.
- B** Rx Core --> RCS --> SG's w/Aux. Feed --> steam flow --> Atmospheric Dump Valves --> Atmosphere.
- C** Rx Core --> RCS --> ECCS break flow --> CTMT atmosphere --> CAR coolers --> RBCCW --> SW --> LIS.
- D** Rx Core --> RCS --> SG's w/Aux. Feed --> steam flow --> Condenser Steam Dumps --> Condenser --> Circ. Water --> LIS.

## SRO NRC Exam

# 19

Which of the following is the proper method for verifying the position of an unlocked throttle valve per WC-6, "Determination and Performance of Independent and Dual Verification"?

- A** Two operators, each at a different time, verify the valve to be in its throttled position by checking the valve stem position or mechanical position indicator.
- B** The first operator closes the valve and counts the number of turns to close it. Then, at a different time, the second operator re-opens the valve to its original position.
- C** Two operators, each at a different time, verify the valve to be in its throttled position by observing the process parameters affected by the valve to be within the desired range.
- D** One operator closes the valve and counts the number of turns to close it, then the operator re-opens the valve to its original position, while the second operator observes the manipulation.

## SRO NRC Exam

# 20

The plant is operating in MODE 1 at 100% power with the following conditions:

- \* Injection temperature is 68°F
- \* "A" and "C" Service Water Pumps are supplying Facility 1 and 2, respectively.
- \* "B" Service Water Pump is out of service for planned maintenance.

The "C" Service Water (SW) Pump trips on overload. Within a few minutes, the "B" RBCCW Header high temperature alarm annunciates and the SPO informs the US that the "C" RBCCW heat exchanger outlet temperature is reading 122°F and rising.

Which of the following describes an action required due to the above conditions?

- A** Reduce heat loads to allow time for repairs.
- B** Cross-tie the "A" Service Water Pump to supply both SW headers.
- C** Commence a rapid downpower to Mode 3.
- D** Trip the plant and carry out EOP-2525.

## SRO NRC Exam

# 21

The Refuel Machine operator is moving a fuel assembly when it drops into the South saddle area of the Refuel Pool. A large amount of gas is bubbling up from the dropped fuel assembly.

Under these conditions, which of the following actions should the Refuel Machine operator take?

- A** Notify the Control Room and then discuss options on recovering the fuel assembly with the Refueling SRO and HP Technician.
- B** Notify the HP Tech on the refueling floor to take a Containment air sample.
- C** Notify the Control Room and immediately evacuate Containment.
- D** Sound the Containment Evacuation Alarm from the Refuel Machine then contact control room for additional instructions

## SRO NRC Exam

# 22

The plant is shutdown and a "Backfeeding" lineup is being used for the In-House Electrical and 345KV Systems. For this condition, what is the expected status of 345KV equipment associated with the Main Transformer and the Main Generator?

- A** Breakers 15G-8T-2 and 15G-9T-2 are open, Main Transformer MOD 15G-2X1-4 is open, the MOD 15G-2X1-9 is closed and the Main Generator Disconnect Links are removed.
- B** Breakers 15G-8T-2 and 15G-9T-2 are open, Main Transformer MOD 15G-2X1-4 is closed, the MOD 15G-2X1-9 is closed and the Main Generator Disconnect Links are installed.
- C** Breakers 15G-8T-2 and 15G-9T-2 are closed, Main Transformer MOD 15G-2X1-4 is open, the MOD 15G-2X1-9 is open and the Main Generator Disconnect Links are installed.
- D** Breakers 15G-8T-2 and 15G-9T-2 are closed, Main Transformer MOD 15G-2X1-4 is closed, the MOD 15G-2X1-9 is open and the Main Generator Disconnect Links are removed.



## SRO NRC Exam

# 23

During a Loss Of Coolant Accident, the following conditions exist:

- \* Containment Pressure peaked at 3.8 psig and is now slowly lowering.
- \* Reactor Coolant System temperature is 442 °F and stable.

What is the approximate MINIMUM RCS pressure required to satisfy the subcooling margin requirements for the existing condition?

- A** 388 psia
- B** 461 psia
- C** 505 psia
- D** 525 psia

## SRO NRC Exam

# 24

Which of the following describe a potential impact to Unit Two systems, if the site fire main were unavailable for any purpose other than fire fighting?

- A** On a plant trip with a Loss-Of-Normal-Power, the instrument air system **MUST** be x-tied with another unit to ensure long term availability.
- B** On a loss of the Condensate Storage Tank inventory, the Auxiliary Feedwater system will **NOT** have any source of water available.
- C** The hard-piped emergency makeup supply for the Spent Fuel Pool and for SFP cooling is **NOT** available.
- D** The emergency makeup supply for the Refueling Water Storage Tank is unavailable.

## SRO NRC Exam

# 25

If the actual Reactor Coolant System (RCS) dose equivalent I-131 activity is 75 uCi/gm, which one of the following power levels is the maximum thermal power the reactor is allowed to attain?

- A 76%
- B 78%
- C 80%
- D 100%

## SRO NRC Exam

# 26

The plant is operating normally at 100% power with the "A" Emergency Diesel Generator (EDG) tagged out for PMs.

As the "A" EDG breaker is racked up for return to service, a mechanical failure in the breaker causes a fault on bus 24C.

The 24A-to-24C tie breaker trips due to the fault and 24C is deenergized. All other plant components and systems respond as expected.

Which of the following plant components is in danger of being damaged without prompt operator action?

- A "A" & "C" RCPs.
- B CVCS Ion exchangers.
- C Main Generator stator.
- D Main Condenser.

## SRO NRC Exam

### # 27

A plant startup is in progress, with the following containment (CTMT) equipment status:

- \* "A", "B" and "C" CAR fans are running in fast speed; "D" CAR fan is secured.
- \* 10" RBCCW outlet isolations on "A", "C" and "D" CAR fans are open.
- \* 10" RBCCW outlet isolation on "B" CAR fan is closed.
- \* Both CTMT Auxiliary Circulation fans are secured.

The CTMT atmosphere begins to heat up.

Which of the following actions will stop the CTMT temperature rise without violating procedures?

- A** Start both CTMT Auxiliary Circulation fans in fast speed.
- B** Start the fourth CAR fan in fast speed.
- C** Lower "B" RBCCW Header temperature.
- D** Open the "B" CAR fan 10" RBCCW outlet isolation.

## SRO NRC Exam

# 28

While conducting a plant cooldown the following plant conditions exist:

- \* RCS Temperature 250 °F.
- \* RCS pressure 250 psia.
- \* 'A' LPSI Pump supplying Shutdown Cooling.
- \* All electrical supplies are normal.

If a LOCA were to now occur, which of the following operator actions is required?

- A** Ensure automatic SIAS actuation and verify adequate Safety Injection flow.
- B** Initiate Safety Injection flow by starting both Facility HPSI Pumps and 'B' LPSI Pump with a flow path from the RWST.
- C** Manually initiate SIAS using C01 pushbuttons for both facilities of Safety Injection.
- D** Initiate Safety Injection flow using both LPSI Pumps and all three HPSI Pumps with a flowpath from the RWST.

## SRO NRC Exam

# 29

The plant has experienced a loss of all Feedwater (both main and auxiliary) and the crew has initiated Once-Through-Cooling (OTC).

Which of the following describe when OTC may be terminated?

- A** Only after subcooling has been restored to greater than 30 °F.
- B** Immediately after feed flow has been restored to at least one steam generator.
- C** As soon as RCS pressure is low enough to allow adequate HPSI injection flow.
- D** Only after feed flow has restored at least one steam generator to greater than 70" of level.

## SRO NRC Exam

# 30

The plant had been operating at 100% when it tripped due to a stuck open Pressurizer Safety Valve.

Which of the following are expected conditions for this event?

- A** ACTUAL pressurizer level rise is indication of RCS inventory recovery.
- B** Safety injection flow ALONE will provide sufficient core heat removal.
- C** RCS delta-T will drop as steam generator pressure drops.
- D** Inventory loss rate will lower as RCS pressure lowers throughout the event.



## SRO NRC Exam

**# 31**

The plant is operating at 100% power, normal electrical line-up, when the "A" Battery Charger fails and all of its output breakers open.

Which of the following describes the control room indication of this malfunction on the 125VDC System?

- A** ALL breaker indicating lights for 24A and 24C are deenergized.
- B** 201A Battery bus amp meter indicates a discharge, with slightly below normal bus voltage.
- C** 201A Battery bus amp meter indicates zero (0) amps, with normal indicated bus voltage.
- D** Alarms are received for VA-10 and VA-30 being powered by their alternate source.

## SRO NRC Exam

**# 32**

The crew is in the process of performing the operability run on the 'C' charging pump. The 'B' charging pump is aligned to Fac. 1 (B51).

A major fire occurs in the control room requiring evacuation. The control switch for the 'C' charging pump on C02 is left in the 'Pull-to-lock' (SIAS start only) position, when control is shifted to C10.

How many charging pumps can be manually controlled from C10 at this time? (Assume no other operator action.)

- A** None
- B** One
- C** Two
- D** Three

## SRO NRC Exam

# 33

The following conditions exist:

- \* The plant is at NOP/NOT, Mode 3.
- \* A special test of RPS is being performed by I&C.
- \* The Zero Power Mode Bypass (ZPMB) is in effect (light is lit on RPS) on all four channels.
- \* All four Reactor Coolant Pumps (RCPs) are running.
- \* All TCBs are closed and all CEDMs are energized.

A breaker fault on the "B" RCP causes the pump to trip.

Which of the following would then occur?

- A** No protective action occurs because all four channels are currently bypassed.
- B** No protective action occurs because trip logic coincidence is shifted from 2/4 to 3/4 with ZPMB in effect.
- C** A trip occurs because >2/4 trip logic coincidence has occurred.
- D** A trip occurs because trip logic coincidence is shifted from 2/4 to 1/4 with ZPMB in effect.

## **SRO NRC Exam**

### **# 34**

While performing EOP 2525, Standard Post Trip Actions, the Secondary Plant Operator (SPO) discovers that Bus 24C did not transfer to the Reserve Station Services Transformer (RSST) and the "A" emergency diesel generator (EDG) will NOT start.

Which of the following actions must the SPO take?

- A** Discuss the impact of the loss of 24C with the Primary Plant Operator and then continue with EOP 2525 Immediate and Subsequent Actions.
- B** Immediately send a PEO to investigate the "A" EDG and report status before continuing in EOP 2525.
- C** Continue implementing EOP 2525 Immediate and Subsequent Actions and inform the SM/US of the situation when queried.
- D** Immediately inform the SM/US of the need to reference EOP 2528, Electrical Emergency, contingency actions, before continuing in EOP 2525.

## SRO NRC Exam

# 35

The following conditions exist:

- \* Fuel stored in the Spent Fuel Pool (SFP) meets the criteria for each storage region.
- \* Fuel stored in the SFP meets the storage pattern criteria for each region.
- \* All fuel burnup requirements are currently satisfied.
- \* Fuel movement is presently occurring within the SFP.

Then, a spent fuel bundle is dropped while being moved over the fuel storage racks.

Which of the following ensures shutdown margin is maintained in the SFP, regardless of where the fuel bundle lands?

- A** The cell blocking devices in one-out-of-four cells in the SFP fuel storage racks.
- B** The height of borated water above the fuel bundles in the SFP.
- C**  $\geq 800$  ppm boron concentration throughout the SFP water.
- D** The poison plates contained in the SFP fuel storage racks.

## SRO NRC Exam

# 36

The following events have occurred:

The Charging Header has ruptured in CTMT requiring all charging and letdown to be secured. The leak is NOT isolable.

The plant is then tripped due to the rupture.  
On the trip, the RSST is lost and three (3) CEAs are stuck fully withdrawn.  
All other equipment responded normally per the above conditions.

Based on these conditions, the appropriate EOP directs that a plant cooldown be immediately initiated and that RCS pressure be reduced.

Which of the following is the reason for this procedural guidance?

- A** Recover reactivity control using Thot-leg injection.
- B** Recover inventory control using safety injection.
- C** Recover reactivity control using HPSI injection.
- D** Mitigate the consequences of a Type-V LOCA.

## **SRO NRC Exam**

**# 37**

Following a Loss of Main Feedwater, the Auxiliary Feedwater (AFW) System automatically started. The Secondary Plant Operator (SPO) shifted the "A" Aux Feed Reg Valve Controller to Manual and a 50% output signal.

What additional control manipulations must be performed to allow the SPO to throttle AFW to the #1 Steam Generator (S/G)?

- A** Momentarily place #1 S/G Auxiliary Feedwater Regulating Valve "RESET NORM OVRD" switch to "OVRD", then to the "RESET" position and allow it to return to "NORM".
- B** Momentarily place #1 S/G Auxiliary Feedwater Regulating Valve "RESET NORM OVRD" switch in the "RESET" position and allow it to return to "NORM".
- C** Place Facility 1 Auto Aux. Feedwater Override Switch (C05, Apron section) in "Pull to Lock" position.
- D** Momentarily place #1 S/G Auxiliary Feedwater Regulating Valve "RESET NORM OVRD" switch to "OVRD", then allow it to return to "NORM".

## SRO NRC Exam

# 38

The plant is at 100% power, with condenser air removal aligned to the Unit One stack. A major event then occurs resulting in the following conditions:

- \* Pressurizer pressure = 1750 psia and dropping
- \* Containment pressure = 5.5 psig and rising

All plant systems and equipment has responding normally per the above conditions. NO operator actions have yet been taken.

How would the Condenser Air Removal be aligned?

- A** Discharging to the Unit 2 stack.
- B** Discharging to the Unit 1 stack.
- C** Discharging to the Main Exhaust System.
- D** Discharge path is totally isolated.



## SRO NRC Exam

# 39

The plant is at 90% power, steady state, with the SP-2601D surveillance in progress.

Power Range Safety Channel NI power is manually raised above the RPS Delta-T power using the "Nuclear PWR Calibration" potentiometer on the RPS.  
ALL other plant parameters are maintained constant.

Which of the following items are directly affected by this manual adjustment to the NI calibration potentiometer?

- A** Safety Channel Power Indication on the NI drawers.
- B** Variable High Power Trip Setpoint.
- C** Wide Range Log Power Indication on RPS.
- D** Variable TM/LP Trip setpoint.

## SRO NRC Exam

**# 40**

A plant startup is in progress with the plant at 25% power and the RSST still in service.

Then, a total loss of Bus 201A occurs resulting in a plant trip.

Plant procedures direct the "A" emergency diesel generator (EDG) be tripped and secured.

Which of the following explains why the "A" EDG is secured at this time?

- A** The EDG is running without control power or protection.
- B** The EDG is running unloaded and it should not be run unloaded for long periods of time.
- C** The EDG is running without a cooling water supply.
- D** The EDG is running without auto voltage control, requiring a "dedicated operator" on manual control.

## SRO NRC Exam

**# 41**

The plant is at 100% power and a discharge of the "A" Waste Gas Decay Tank is in progress. A control room operator has just noted the link between the Met Tower and the Plant Process Computer is NOT working (the Met Tower is off-line).

Which of the following actions is required?

- A** Ensure the time of the Met Tower loss is recorded on the ongoing Waste Gas discharge permit and continue the discharge.
- B** Commence logging the local weather conditions posted on the company intranet every 15 minutes for the duration of the discharge.
- C** Solicit weather conditions from CONVEX every 15 minutes for the duration of the discharge.
- D** Immediately secure the discharge, close out the permit and log the time of the Met Tower loss occurred.

## SRO NRC Exam

# 42

A reactor startup is in progress with power presently at  $1 \times 10^{-6}\%$ . While withdrawing Regulating Group 5 to 45 steps, a malfunction causes a Group 5 CEA to drop into the core.

Which of the following interlocks would be expected to cause a CEA Motion Inhibit (CMI) at this time BECAUSE OF the dropped CEA?

- A** MISH
- B** Out-Of-Sequence
- C** Group Deviation
- D** MIRG

## SRO NRC Exam

# 43

The plant is operating at 100% power, steady state when the following alarms are received:

- \* "INVERTER INV-3 TROUBLE" (C08).
- \* "VA-30 ON ALTERNATE SUPPLY VR-11" (C08)
- \* "High Temperature Alarm" (INV-3 local)

A scan of the control room reveals Channel "C" safety instruments are still energized.

Which of the following describe the status of VA-30 based on the above alarms?

- A** VA-30 is NOT operable, and will temporarily deenergize if a Loss-Of-Offsite-Power occurred.
- B** VA-30 is operable, and will NOT be affected by a Loss-Of-Offsite-Power.
- C** VA-30 is NOT operable, and safety channel "C" is being powered from a battery backup source.
- D** VA-30 is NOT operable, and will NOT be affected by a Loss-Of-Offsite-Power.

## SRO NRC Exam

**# 44**

Which of the following conditions will directly cause the Station Air to Instrument Air Cross-tie Valve (2-SA-10.1) to OPEN and the Station Air Isolation Valve (2-SA-11.1) to CLOSE?

- A** Instrument Air Receiver Tank pressure lowers to less than 85 psig.
- B** Station Air header pressure lowers to less than 85 psig.
- C** Instrument Air header pressure by "C" air compressor lowers to less than 85 psig.
- D** Turbine Building header pressure lowers to less than 85 psig

## SRO NRC Exam

# 45

Which of the following could be a direct result of having LESS than the required amount of Trisodium Phosphate (TSP) inside containment, in a post-LOCA environment?

- A** Containment spray water could induce higher levels of corrosion in the wetted containment surfaces.
- B** The containment spray nozzles will have a higher probability of clogging from boric acid coming out of solution.
- C** The ability of containment spray to remove fission product gases through water absorption would be substantially reduced.
- D** The optimum "window" for boron precipitation control could be substantially reduced (smaller window for success).

## SRO NRC Exam

# 46

The plant is at 100% power with VA-20 on it's alternate source, due to maintenance on the normal inverter.

Then, a problem in the Turbine Building deenergizes the Turbine Battery Bus.

Which of the following is a result of the above conditions?

- A** Four Trip Circuit Breakers (TCBs) will open, the rest will remain closed.
- B** The plant will trip when eight of the TCBs open.
- C** RPS will be in a 2/3 trip logic.
- D** The Comparater Averager alarms on channel "B" of RPS will be lit.



## SRO NRC Exam

**# 47**

The plant has the following Instrument Air Compressor lineup:

- \* "A" Compressor in Lead
- \* "B" Compressor in Lag
- \* "C" Compressor in Standby

What will be the proper loading sequence of the three (3) compressors?

- A** "A", then "B", then "C".
- B** "A", then "C", then "B"
- C** "C", then "A", then "B"
- D** "C", then "B", then "A"

## SRO NRC Exam

# 48

A Reactor startup is in progress with the following conditions:

- \* All Wide Range channels are indicating approximately 100 cps and rising.
- \* "Extended Range OFF" light is NOT lit (deenergized) on all channels of RPS.
- \* "Extended Range" light is lit (energized) on all channels of RPS.

Reactor power is then raised above 1000 cps and continues to rise slowly. NO control manipulations are made on any of the RPS or Nuclear Instrument channels.

Which of the following is an expected condition CAUSED BY raising reactor power above 1000 cps?

- A** The "Extended Range OFF" light will turn ON (energize) on all four channels.
- B** The "Extended Range" light remains energized on all four channels.
- C** All four wide range power meters on C04 will shift from "CPS" to "Percent Power" indication.
- D** All four wide range power meters on C04 momentarily drop by half (1000 cps --> 500 cps) and then continue to rise in CPS.

## SRO NRC Exam

**# 49**

A major storm has caused the loss of all four circulating water pumps due to intake screen fouling. Subsequently, the plant was tripped due to loss of condenser vacuum.

On the plant trip, the "A" Condenser Steam Dump and Bypass Valve (SDBV) failed OPEN 50% and continued to dump steam to the main condenser for fifteen minutes.

Which one of the following describes a possible effect on the plant DUE TO the "A" SDBV failing to close on the loss of condenser vacuum?

- A** Air cutting of turbine gland seals.
- B** Loss of forced circulation due to excessive shrinkage of the RCS.
- C** Rupture of the diaphragms on the top of the low pressure turbine casings.
- D** Violation of main condenser delta-T limits.

## SRO NRC Exam

**# 50**

The plant is in Mode 1, steady state, with all components in their normal position. While setting up staging in the enclosure building, the normal instrument air supply for containment (CTMT) purge valve 2-AC-4 is severed.

Which of the following describes the possible consequences of the loss of normal air supply to 2-AC-4?

- A** If during a LOCA, post incident hydrogen control is required, CTMT purge will NOT be an available option.
- B** The indication for 2-AC-4 on C01X will shift from blue light energized to white light energized.
- C** Purging of CTMT while making preparations for a refueling outage will require 2-AC-4 to be opened by Maintenance.
- D** The backup air bottles (-5' Aux. Building) must be aligned to 2-AC-4 to allow for remote operation from the control room.

## SRO NRC Exam

# 51

'A' HPSI Pump is aligned and being used to fill #1 SIT when a large-break LOCA occurs.

What is the post-SIAS status of flow from the 'A' HPSI pump?

- A** Flow to #1 SIT only.
- B** Flow to RCS only.
- C** Flow to #1 SIT and RCS.
- D** No flow to RCS or #1 SIT.

## **SRO NRC Exam**

**# 52**

The following plant conditions exist:

- \* A Station Blackout has occurred.
- \* The Instrument Air System has depressurized.
- \* A full decay heat load is present.
- \* To conserve Vital DC power, bus 201A has been deenergized.
- \* All other equipment is operating as expected or designed.

Which of the following describes where local manual control **MUST** be established to ensure continued RCS heat removal by natural circulation over the next two to three hours?

- A** Turbine Driven Auxiliary Feedwater Pump
- B** Letdown Flow Control Valves
- C** Atmospheric Dump Valves
- D** Auxiliary Feedwater Control Valves

## SRO NRC Exam

# 53

A plant startup is in progress following a 45 day refueling outage. "A" and "B" RCPs are running in concurrent operation with Shutdown Cooling (SDC).

Then, a failure in the ESAS cabinet results in an inadvertent SIAS signal on both facilities.

Assuming NO operator action, which of the following components would see a temperature RISE as a result of this SIAS signal?

- A** SDC system temperature return to the RCS.
- B** "A" & "B" RCP seals.
- C** Spent Fuel Pool Cooling Heat Exchanger outlet.
- D** Containment atmosphere.

## SRO NRC Exam

# 54

Preparations for a reactor startup are being performed when an I&C technician informs the on shift crew that the pulse height discrimination on all Wide Range Nuclear Instrument (NI) drawers was inadvertently set too high (little or no pulse height discrimination will occur throughout their operating range).

IF the reactor startup were to continue, which of the following describes the effect of a loss of pulse height discrimination?

- A** During the reactor startup, count rate doublings will be masked by high levels of detector noise.
- B** At the power level the NIs shift to % power indication, the wide range channels will respond accurately.
- C** The PDIL interlock will NOT be armed until reactor power exceeds the point of adding heat.
- D** The Local Power Density trip will be armed at a higher power level than that allowed by Technical Specifications.



## SRO NRC Exam

**# 55**

A plant start up is in progress. The reactor has been brought critical with power being held steady at  $1 \times 10^{-3}\%$  power to obtain critical data.

While installing the opening coil in an MSIV Bypass valve breaker, a malfunction in the breaker causes the valve to open temporarily, until closed by operator action.

Due to the valve opening, RCS Tavg lowers to 512 °F before stabilizing.

Based on the Plant Startup Conditional Actions of OP-2303, which of the following operator actions are required be taken? (Your answer should be based ONLY on procedural requirements.)

- A** Immediately trip the plant and carry out EOP-2525.
- B** Raise reactor power to greater than 5% within 15 minutes and hold at that level until Tavg is greater than 525 °F, or be in HOT SHUTDOWN within the next 15 minutes.
- C** Immediately commence dilution and return Tavg to greater than 532 °F within 15 minutes, or be in HOT SHUTDOWN within the next 15 minutes.
- D** Raise Tavg to greater than 515 °F within 15 minutes or be in HOT SHUTDOWN within the next 15 minutes.

## SRO NRC Exam

**# 56**

The plant is at 100% power, steady state, with the forcing of pressurizer spray flow in operation.

Then, a pressurizer backup heater group breaker trips due to a breaker failure.

Which of the following describe how the pressurizer will respond to this failure, assuming NO operator action?

- A** RCS pressure will stabilize at some lower pressure with less spray flow.
- B** RCS pressure will remain relatively constant at the desired pressure while the spray valves throttle closed.
- C** The proportional heater output will rise as RCS pressure lowers, spray flow will remain constant.
- D** RCS pressure will continue to drop without operator action and spray flow will remain constant.

## SRO NRC Exam

**# 57**

The plant is in normal operation at 100% power with the controlling pressurizer pressure controller setpoint set at 2250 psia. The pressurizer level surge bistable (which actuates ~3.6% above setpoint) has failed such that it will NOT actuate on a pressurizer surge.

Then, a perturbation in a secondary system causes a pressurizer surge that raises pressurizer level to 70% and causes a corresponding rise in pressurizer pressure.

What action will the Pressurizer Level and Pressure Control System take to automatically stop the rise in pressure?

- A** The spray valves will start to open immediately and any backup charging pumps running in Manual will automatically stop.
- B** The spray valves will start to open and all heaters will deenergize at 2300 psia.
- C** The proportional heaters will go to minimum at 2275 psia, and the spray valves will start to open at 2300 psia.
- D** The proportional heaters will remain at maximum, and the spray valves will start to open at 2300 psia.

## SRO NRC Exam

# 58

If all of the following conditions exist, LIMIT feedwater flow to each steam generator (SG) to 300 gpm (150 klbm/hr):

- \* SG water temperature is greater than 212°F
- \* SG water level is below feedwater sparger (equivalent to less than 45% corrected level indicated on C-05)
- \* All feedwater flow has been lost for greater than 5 minutes

Which of the following conditions is this precaution trying to prevent?

- A** Water hammer in the SG feed ring.
- B** Loss of pressurizer level.
- C** Loss of core reactivity control.
- D** Steam Generator tube thermal stress.

## SRO NRC Exam

# 59

A reactor trip has occurred and numerous alarms are received, including:

- \* RSST Lockouts I & II (C08).
- \* Loss of Power alarms for the following busses: 22A/B/C/D & 22F (C08).
- \* A & B EDG trouble alarms (C08).
- \* Low RBCCW Flow on the "B" header (C06/7).
- \* Low Service Water (SW) Flow on the "B" header (C06/7).
- \* SIAS, CIAS, EBFAS, MSI, CSAS & UV on Fac. 1 & 2 (C01).
- \* Low Pressurizer Level & Low Pressurizer Pressure (numerous channels).
- \* High CTMT Pressure on Ch. A-D (C01).
- \* High-High CTMT Pressure on Ch. A-D (C01).

CTMT pressure indicates 22 psig and rising (C01).

The "A" EDG is running loaded (C08).

The "B" EDG is running but its breaker is open with NO breaker alarms (C08).

24E is aligned to 24C.

There are NO fault alarms on 24D.

Which of the following is a required response to this event?

- A** Close the "B" EDG breaker and verify flow to Fac. 2 RBCCW and SW restored.
- B** Start the "B" RBCCW and "B" SW pumps and verify flow to Fac. 2 RBCCW and SW is restored.
- C** Place the "C" RBCCW pump in PULL-TO-LOCK, then close the "B" EDG breaker and verify flow to Fac. 2 SW is restored.
- D** Trip the "B" EDG and utilize Loss of 24D AOP to restore Fac. 2 RBCCW and SW flow.

## SRO NRC Exam

# 60

Which of the following impacts must a fire have on the plant for the fire to be classified as an "Appendix R" fire?

- A** Prevents a plant startup or requires a shutdown.
- B** Results in the release of offsite radiation through smoke or spill.
- C** Affects the capability to achieve and maintain safe shutdown.
- D** Causes the violation of EPA standards or requirements.

## SRO NRC Exam

# 61

The following plant conditions exist:

- \* Plant has just been stabilized at 68% power after a CEA dropped to the fully inserted position.
- \* The I&C technicians investigating state repairs will take approximately two (2) hours.

Which of the following describes the concern for staying at 68% power until repairs are made?

- A** Radial power distribution will bring the Thermal Margin/Low Pressure trip setpoint closer to actual pressure.
- B** Possible automatic trip on Local Power Density due to the xenon transient caused by the dropped CEA.
- C** Colder Tcold entering the bottom of the core will cause thermal contraction of the lower CEA guide tubes, making it increasingly difficult to withdraw the dropped CEA.
- D** The development of excessive radial power peaks as xenon returns to equilibrium.

## SRO NRC Exam

# 62

The plant is at 100% power with all CEAs fully withdrawn. An I&C technician performing a routine check of the coil power programmer (CPP) power supplies reports that the main CPP power supply to #1 CEA is dead (zero power output) and that the alternate CPP power supply is at minimum output.

What would be the result of the alternate CPP power supply also failing completely (zero power output) before the main power supply is replaced?

- A** The CEA will immediately drop to the zero rod position.
- B** CEAPDS will NOT be able to generate a CEA Motion Inhibit (CMI) for the CEA.
- C** Pulse counting position indication for the CEA will be inaccurate.
- D** The CEDM will "lockup", preventing the CEA from being moved from the fully withdrawn position.



## **SRO NRC Exam**

**# 63**

Which of the following conditions will result in the Control Room Ventilation System shifting automatically into the Recirculation Mode of operation?

- A** Control Room area radiation monitor (RM-7899) in alarm.
- B** Control Room gaseous process radiation monitor (RM-8011) in alarm.
- C** Control Room ventilation intake duct radiation monitor (RM-9799A) fails high.
- D** Control Room ventilation intake duct smoke detector fails high.

## **SRO NRC Exam**

**# 64**

A reactor startup is in progress. The Primary Plant Operator (PPO) has just started withdrawing regulating group CEAs in Manual-Sequential mode, when the "Withdraw-Insert" switch fails in the WITHDRAW mode (indicative of holding the switch in the withdraw position). The PPO releases the control switch and notes that regulating group CEAs are continuing to withdraw.

Which one of the following conditions applies to this transient?

- A** Two TM/LP pre-trips activating at the same time will stop the CEA movement.
- B** CEAPDS will indicate the uncontrolled withdrawal but the plant process computer (PPC) will NOT.
- C** The CEA Motion Inhibit (CMI) activating on group deviation will NOT stop the uncontrolled withdrawal.
- D** The uncontrolled withdrawal will completely stop when the first regulating group reaches the Upper Core Stop.

## SRO NRC Exam

# 65

Which of the following set of pressurizer conditions would be expected immediately following a pressurizer insurge?

(Consider each set of conditions separately, with the plant in a mode consistent with the conditions)

- A** Pressurizer Pressure = 1550 psia  
Steam Space Temperature = 602 °F  
Pressurizer Water Temperature = 598 °F
- B** Pressurizer Pressure = 1950 psia  
Steam Space Temperature = 630 °F  
Pressurizer Water Temperature = 635 °F
- C** Pressurizer Pressure = 2000 psia  
Steam Space Temperature = 600 °F  
Pressurizer Water Temperature = 600 °F
- D** Pressurizer Pressure = 2200 psia  
Steam Space Temperature = 647 °F  
Pressurizer Water Temperature = 648 °F

## SRO NRC Exam

# 66

The plant is at 100% power with all systems operating normally when an excess steam demand (ESD) event occurs inside containment (CTMT).

The following plant conditions then exist:

- \* CTMT Pressure = 45 psig and slowly dropping.
- \* CTMT Temperature = 280 °F and slowly dropping.
- \* RCS Pressure = 1250 psia and stable.

Injection flow has refilled the pressurizer to an indicated level of 45%.

Which of the following is the expected effect on pressurizer (PZR) level indication and control due to the degraded CTMT conditions?

- A** Indicated PZR level (LI-110 X/Y) will be higher than ACTUAL PZR level.
- B** Indicated PZR level (LI-110 X/Y) will equal ACTUAL PZR level.
- C** PZR Level-Cold Calibrated indication (LI-103) will be higher than ACTUAL PZR level.
- D** Indicated PZR level (LI-110 X/Y) and the PZR Level-Cold Calibrated indication (LI-103) will be equal.

## SRO NRC Exam

# 67

Which of the following statements describes the design feature that prevents inadvertent draining of the spent fuel pool through the Spent Fuel Pool cooling (SFPC) System?

- A** The deepest SFPC suction piping extends only halfway down into the pool.
- B** The SFPC discharge piping has a siphon breaker near the normal water level.
- C** The SFPC normal suction piping has a siphon breaker near the normal water level.
- D** All piping in the SFPC system which could drain the SFP have loop-seals to prevent draining the SFP.

## **SRO NRC Exam**

**# 68**

The plant is at 100% power when a condensate pump trips on breaker overload.

Which of the following describes a correct mitigating action for the loss of the Condensate Pump?

- A** Open the Condensate Polishing Facility (CPF) bypass valve.
- B** Raise the speed (rpm) of the slower running main feed pump.
- C** Open the heater drain pump subcooling valve.
- D** Take manual control of both Main Feedwater Regulating Valves and open to the pre-event position.

## SRO NRC Exam

**# 69**

The plant is operating normally at 100% power, MOL conditions. Main feedwater line to the #1 steam generator (SG) has developed a 100gpm leak in the enclosure building.

Which of the following is indicative of the automatic plant response to the main feedwater leak over the FIRST MINUTE?

- A** RCS Tcold temperature begins to rise.
- B** Nuclear power on RPS begins to rise.
- C** #1 main feed regulating valve opens to match feed flow with steam flow.
- D** Condensate pump amps begin to lower.

## SRO NRC Exam

# 70

The three highest core exit thermocouples (CETs) on channel 1 read as follows:

- \* G18 = 569
- \* S11 = 565
- \* V15 = 565

CET G18 has just failed due to an OPEN in its circuit. All other CET outputs remain unchanged.

Which of the following describe the effect that this CET failure will have on Channel 1 subcooled margin indication?

- A** Superheated conditions will be indicated.
- B** Subcooled margin indication will NOT change.
- C** Subcooled margin will indicate higher than actual.
- D** Subcooled margin will indicate as an "error" only.



## SRO NRC Exam

# 71

The plant is at 75% power, shutting down for a refuel outage, when VR-11 deenergizes, causing a loss of CEAPDS.

Then, the PPO requests permission to insert CEAs for ASI control.

What automatic protection (if any) will CEDS provide to prevent CEA motion from violating Shutdown Margin requirements?

- A** NO protection is provided, regardless of CEA insertion.
- B** The RPS interface with the CEDS logic cabinets will prevent CEA motion that endangers shutdown margin.
- C** ISH will prevent CEA insertion from altering power distribution such that it violates shutdown margin.
- D** PDIL Violation Backup will occur, if CEA insertion reaches the PDIL setpoint.

## SRO NRC Exam

# 72

Which one of the following is correct with regard to announcing the start of a Service Water pump using the plant page?

- A** Any control room, non-dedicated, dial phone can be used.
- B** The Unit Supervisor's phone **MUST NOT** be in use.
- C** Call block for shift turnover ("shields up") must **NOT** be active.
- D** The outside page switch on the Unit Supervisor's desk **MUST** be in the "outside page" position.

## SRO NRC Exam

**# 73**

A plant startup is in progress with power presently being held at 12%. Charging and letdown have been isolated to repair a packing leak in the "C" charging pump discharge isolation valve. All other systems are aligned and operating normally for the power level.

The operators note that pressurizer level is dropping at the rate of approximately 15 minutes per percent (15 min./%). Pressurizer level is presently exactly equal to the setpoint for 12% power level with  $T_{avg} = 535^{\circ}\text{F}$ .

Which of the following states the time it will take for pressurizer level to reach the minimum level allowed by Technical Specifications?

- A** 60 minutes.
- B** 75 minutes.
- C** 300 minutes.
- D** 450 minutes.

## SRO NRC Exam

### # 74

The plant is operating at 100% power, one (1) charging pump running, normal letdown flow and all components normally aligned.

Then, the pressure transmitter feeding the letdown backpressure controller slowly fails LOW. All components respond as designed to the malfunction.

Which of the following describe an effect of this malfunction, over the next several minutes?

- A** VCT level will slowly go down.
- B** Letdown flow control valve will throttle closed.
- C** A standby charging pump will start.
- D** Indicated letdown flow will oscillate rapidly.

## SRO NRC Exam

**# 75**

The plant has just tripped due to a Loss Of Offsite Power and the RCS is stabilizing in Natural Circulation, with steam generator levels at ~195" each. The SPO has not noticed that an Auto Aux. Feed Actuation has occurred and feed flow has risen to ~350 gpm per steam generator (SG). Feed flow required to maintain SG levels at this time is ~200 gpm, per SG.

Which of the following describe how Heat Removal, RCS Th, and RCS delta-T will respond to this event over the next 10-15 minutes?

- A** Heat removal rate goes up    RCS Th goes down    RCS delta-T goes up
- B** Heat removal rate is stable    RCS Th goes down    RCS delta-T goes down
- C** Heat removal rate goes up    RCS Th is stable    RCS delta-T goes up
- D** Heat removal rate is stable    RCS Th goes up    RCS delta-T goes up

## SRO NRC Exam

**# 76**

The following plant conditions exist:

- \* The plant is operating at 100% power.
- \* The Instrument Air (IA) supply line to all three RBCCW Heat Exchanger Temperature Control Valves (TCVs) ruptures.
- \* The rupture is isolated by closing 2-IA-255, isolating IA to all RBCCW TCVs.
- \* To control temperature, Service Water from the "A" and "C" RBCCW heat exchangers has been manually throttled.
- \* No dedicated operator is available to attend the valves.

Which of the following describes the Technical Specification Requirement while repairs are being completed on the IA rupture?

- A** If repairs can not be completed within one (1) hour, the plant must be placed in HOT SHUTDOWN within the next hour.
- B** If all repairs and testing are completed within one (1) hour, a plant shutdown does NOT have to be initiated.
- C** Once a plant cooldown is commenced, all Tech. Spec. time requirements are met.
- D** If repairs are completed within 48 hours, the reactor may remain critical.

## SRO NRC Exam

# 77

The following conditions exist:

- \* A Large Break LOCA occurred approximately 9 hours ago.
- \* SRAS was initiated approximately 7.5 hours ago.
- \* An RCS sample taken 4 hours ago indicated a boron concentration of 1945 ppm.
- \* Chemistry Department reports the current RCS sample indicates 1500 ppm boron concentration.

Given these conditions, which of the following is the PREFERRED method, per EOP-2532, for dealing with the change in boron concentration?

- A** Continue to Emergency Borate to the RCS to use any remaining borated water.
- B** Secure all charging pumps and the 'B' HPSI pump, then align 'A' HPSI pump to auxiliary spray.
- C** Realign charging to inject to the RCS through 'A' HPSI header.
- D** Utilize the 'B' LPSI pump to inject to the RCS hot leg through the SDC suction line.

## SRO NRC Exam

# 78

Which of the following conditions will allow the Shift Manager to approve the resetting of a tripped AFW pump motor breaker?

- A** If the cause of the tripped motor breaker is unknown and the AFW pump is required to prevent boiling a S/G dry.
- B** If the cause of a second trip of the motor breaker is unknown, however the second trip occurred only TWO (2) minutes after resetting of the breaker the first time.
- C** If the cause of a second trip of the motor breaker is the same as the cause of the initial trip and the second trip occurred TEN (10) minutes after the initial trip during AFW pump testing.
- D** If the cause of the tripped motor breaker is known but cannot be corrected, then Instrument and Controls or Maintenance Supervisor permission is required.



## **SRO NRC Exam**

**# 79**

On the day shift during routine maintenance on a Unit 3 breaker, a worker receives an electrical shock and is unconscious. Plant operations are NOT affected by the electrical discharge.

Which of the following will take the lead and coordinate the Emergency Plan Implementation Plan requirements?

- A** Unit One Shift Manager
- B** Unit Two Shift Manager
- C** Unit Three Shift Manager
- D** Station Duty Officer

## SRO NRC Exam

# 80

The plant is operating at 100% power with Group 7 Control Element Assemblies (CEAs) at 170 steps. The CEAPDS computer and the Backup Scanner suddenly deenergize. Subsequent investigation reveals that the breaker on bus VR-11 which supplies power to the CEAPDS computer and the Backup Scanner has tripped and will not reset. Upon investigation, Maintenance reports the breaker can be fully repaired in approximately one hour.

What administrative effect will this malfunction have on continued plant operation?

- A** Plant operation may continue for up to 24 hours provided all pulse counting position indication channels are operable.
- B** Plant operation may continue indefinitely provided all CEAs are fully withdrawn and maintained there.
- C** If the breaker is not repaired within four (4) hours, reduce power to < 70% and within the next four hours ensure all CEAs are fully withdrawn.
- D** If the breaker is not repaired within one (1) hour commence a plant shutdown to Mode 3.

## SRO NRC Exam

**# 81**

Which one of the following indications, by procedure, would result in plant conditions that would require outside agencies be notified within one hour per EPIP-4400?

- A** Condenser backpressure rises to 4.5" while mussel cooking.
- B** Loss of the "C" charging pump with 24E aligned to 24C.
- C** Instrument Air (IA) header pressure lowers to 75 psig due to a rupture in the turbine building.
- D** Group 7 Control Element Assemblies (CEAs) at the Pre Power Dependent Insertion Limit (PRE-PDIL)

## **SRO NRC Exam**

**# 82**

While preparing for an Aerated Waste Discharge, the PEO reported to the Shift Manager that during the initial setup of the Aerated Waste System radiation monitor (RM-9116), the rad. monitor appears to be failed such that the discharge isolation valves will NOT close on a high rad. alarm. I&C troubleshooting reveals a three (3) day repair time for the control circuit.

Based on ADMINISTRATIVE Requirements, which of the following actions must be taken to COMPLETE this discharge?

- A** A SECOND sample must be drawn and analysis results verified by a SECOND Chemist, before the tank may be discharged.
- B** The Chemist must resample the tank and calculate a new discharge LIMIT for the existing permit based on the maximum allowed by 10CFR20.
- C** The Aerated Waste Monitor Tank must be discharged at a flow rate based on the quantity of the radioactive isotope with the GREATEST concentration.
- D** I&C must repair or replace the rad. monitor BEFORE the Aerated Waste Monitor Tank may be discharged.

## SRO NRC Exam

# 83

The plant is operating at 100% power when a failure in the selected pressurizer pressure controller causes actual pressure to drop to 2200 psia.

Operator action must be taken to prevent which of the following design concerns of operating at this pressure (2200 psia)?

- A** Potential for severe damage to the fuel due to centerline melt.
- B** Loss of RCS integrity and potential release of radio nuclides to the containment atmosphere.
- C** Fuel cladding may exceed 2200 °F in the event of a LOCA.
- D** Invalidate the accident and transient analysis by operating outside the assumed initial conditions.

## SRO NRC Exam

# 84

The plant is at 100% power with all components and systems operating normally.

A lightning strike causes the loss (deenergizing) of two (2) transmission lines between the switchyard and the offsite transmission network. ALL other lines between the off-site transmission network and the onsite distribution system are operable.

Which one of the following describe the administrative requirements of the loss of these two power lines?

- A** The unit must be shut down to Mode 3 within one hour and Mode 5 within the next 24 hours.
- B** No action required provided the two energized lines remain operable and within their power transmission limits.
- C** Perform Tech. Spec. surveillance on the remaining two lines within one hour and restore at least one of the deenergized lines within 72 hours.
- D** If Unit 3 is operating above 75% power, immediately perform an emergency load reduction to less than 50% generator capacity.

## SRO NRC Exam

**# 85**

The plant is stable at 98% power following the loss of VA-10 (deenergized).  
Plant personnel are trouble-shooting the deenergized bus when the following occurs:

- \* "A" main steam header breaks in containment (CTMT) and the plant is tripped.
- \* On the trip, 24C fails to transfer to the RSST due to a failure of the RSST-to-24C Feeder breaker.
- \* ALL other equipment operates as appropriate for the above conditions.
- \* 2-FW-44 (Aux. Feed Header X-tie) has been closed.
- \* Aux. Feed is aligned to #2 steam generator (SG) using the Turbine Driven Aux. Feed Pump.
- \* Both electric Aux. Feed Pumps are secured.

Which of the following actions must the Unit Supervisor direct to prevent over-feeding the #1 SG?

- A** Manually actuate Facility 1 SIAS, CIAS and EBFAS.
- B** Reenergize Facility 1 4160 VAC busses via Unit 1.
- C** Manually isolate #1 Aux. Feed Regulating Valve.
- D** Ensure all running Condensate Pumps are secured.

## SRO NRC Exam

**# 86**

The plant was at 100% power when VA-20 is lost, resulting in the loss of several components and indications, including the following:

- \* Safety Channel "B" for several systems has failed low.
- \* Safety Injection Tanks #3 and #4 Level and Pressure indications have failed low.
- \* ESAS Actuation Cabinet #6 is deenergized.

The plant is stabilized and remains at 100% power.

Based on the above conditions, which one of the following Technical Specification concerns is the most time restrictive (i.e., allows the shortest time to regain VA-20)?

- A** Engineered Safety Feature Actuation System Instrumentation (3.3.2.1).
- B** Engineered Safety Feature Actuation System Sensor Cabinet Power Supply Drawers (3.3.2.2).
- C** Emergency Core Cooling Systems Safety Injection Tanks (3.5.1).
- D** Electrical Power Systems, Onsite Power Distribution Systems, A.C. Distribution (3.8.2.1).



## **SRO NRC Exam**

**# 87**

Which of the following includes the administrative requirements of DC-1 for making a temporary change (non-intent) to a plant procedure which is needed to support required plant activities?

- A** Must be approved by the Unit Director and one (1) SRO before using the procedure; with final documentation, review and approval obtained within 30 days.
- B** Must be approved by one (1) SRO only before using the procedure; with final documentation, review and approval obtained within 14 days.
- C** Any member of plant management staff must fully document, review and approve the changed procedure before using the procedure.
- D** Must be approved by any member of plant management staff and an SRO before using the procedure; with final documentation, review and approval obtained within 14 days.

## SRO NRC Exam

# 88

Which of the following actions is NOT the responsibility of the Shift Manager/Unit Supervisor during the process of reviewing/installing a Bypass/Jumper?

- A Assurance that the bypass/jumper is compatible for the use intended.
- B Determine whether the verification method will be visual inspection or functional check.
- C Determination of the operational conditions or modes that the bypass/jumper will be limited to.
- D Approval of the Safety Evaluation and the Integrated Safety Evaluation.

## SRO NRC Exam

# 89

Which of the following conditions would require implementation of the Functional Recovery Procedure, EOP 2540?

- A** While performing actions of EOP 2534 (SGTR), it is determined that the radiation release cannot be terminated because both steam generators have tube ruptures.
- B** After the affected steam generator blows dry during an excess steam demand event in CTMT, it is noted that pressurizer level is not recovering with full safety injection flow and CTMT rad monitors are slowly rising.
- C** EOP 2525 Diagnostic Flowchart recommends considering EOP 2532 and EOP 2528 due to indications of a LOCA with concurrent loss of offsite power.
- D** EOP 2532 (LOCA) is being implemented with concurrent indication of severe fuel damage, necessitating a classification of Site Area Emergency.

## SRO NRC Exam

# 90

An event occurred in the plant which resulted in a reactor trip and entry into EOP 2525. During the performance of EOP 2525, it was determined that Reactivity Control was not being satisfied. Subsequently, entry was made into EOP 2540 with the following conditions:

- \* Pressurizer pressure = 1950 psia and rising.
- \* Pressurizer level = 36% and rising.
- \* RCS Tavg = 532 °F.

Once in EOP 2540, the Unit Supervisor made the determination that RC-3 (Boration Using Safety Injection) would be the most appropriate Reactivity Control success path.

Which of the following describe actions required to successfully complete boration using RC-3?

- A** Open both PORVs until adequate SI flow is achieved, and then SI flow will cool the plant providing additional pressure reduction.
- B** Utilize a plant cooldown to depressurize the RCS until adequate SI flow is achieved.
- C** Raise letdown flow to reduce RCS pressure until adequate SI flow is achieved.
- D** Utilize the appropriate Inventory and Pressure Control success path for guidance to ensure adequate SI flow is achieved.

## SRO NRC Exam

# 91

A pump component manufacturer has just notified plant management that the seal rings used in both containment spray pumps are defective and will cause the pumps to seize if they are run at temperatures of 150°F or more. All containment spray pumps are logged as inoperable and the appropriate action is taken.

All OTHER safety system components are functioning as designed.

Which of the following describes the concern for continued operation with the inoperable containment spray pumps, based on the Technical Specification Basis?

- A** Inability to limit the fuel cladding temperature to less than 2200 °F in the event of a LOCA.
- B** Delay in the initial reflood of the reactor core under large break LOCA conditions.
- C** The generation of larger amounts of hydrogen during a LOCA by the zirconium-water reaction.
- D** Delay in the reduction of containment pressure during a large excess steam demand event.

## SRO NRC Exam

# 92

A plant startup is in progress with power at 8% when the plant automatically trips. During the performance of EOP-2525, the Unit Supervisor (US) receives the following input:

- \* "A" Steam Generator level is 200" and dropping rapidly.
- \* "B" Steam Generator level is 15% and dropping slowly.
- \* "A" Steam Generator pressure is 350 psia and dropping rapidly.
- \* "B" Steam Generator pressure is 740 psia and dropping slowly.
- \* Pressurizer pressure is 1380 psia and dropping.
- \* Pressurizer level is off scale low.
- \* RCS temperature is 460°F and dropping.
- \* CTMT pressure 28 psig and rising.
- \* No rad monitors are rising or in alarm.

Which one of the following administrative limits is in place to prevent this accident from exceeding design basis?

- A** Moderator Temperature Coefficient limit of  $-2.8 \times 10^{-4}$  delta-K/K/°F at rated thermal power.
- B** Maximum steam generator level of 90% when greater than Mode 4.
- C** The reactor core Safety Limit combination of thermal power, pressurizer pressure.
- D** Maximum cold leg temperature of 549°F when in Mode 1.

## SRO NRC Exam

# 93

The plant is in normal operation at 65% power, all rods out (ARO), with the CEA Partial Movement surveillance in progress.

When CEA #4 in Group 5 is inserted to 175 steps, it suddenly slips to 80 steps withdrawn.

Then, while I&C is investigating CEA #4, the following NEW alarms are received:

- \* "CEA REG GP 1 PPDI LIMIT"
- \* "CEA REG GP 1 PDI LIMIT"
- \* "CEA REG GP 1 DEV"
- \* "CEA REG GP 1 GROSS DEV"
- \* "CEA DROPPED RD SW"

Which of the following actions should the Unit Supervisor direct be taken in this condition?

- A** Immediately commence an orderly shutdown until I&C completes all repairs on CEDS.
- B** Immediately trip the plant and carry out EOP-2525.
- C** Allow I&C to repair the problems with CEA #4 and then immediately withdraw CEA #4 to at least 175 steps within the next 45 minutes or log into TSAS 3.0.3.
- D** Allow I&C to repair the problems with CEA #4 and then immediately begin withdrawing CEA #4 to at least 175 steps within the next 45 minutes. While withdrawing CEA #4, have I&C troubleshoot the alarms for Group #1.

## SRO NRC Exam

# 94

Maintenance personnel want to weld-repair a through-wall pipe leak on the outlet of the Waste Gas System Discharge Radiation Monitor.

Which of the following includes required actions that should be performed to ensure personnel safety before repairing this leak?

- A** A temporary glove box should be constructed to contain any leaking gas as the weld repair is being made.
- B** All associated piping should be purged with nitrogen before any weld repair is attempted.
- C** The Waste Gas System compressors must be tagged out to ensure flow through the rad. monitor is isolated.
- D** The Waste Gas rad. monitor high voltage power supply needs to be deenergized with grounds installed before allowing work in the area.



## SRO NRC Exam

# 95

Which of the following manual actuations would be considered a NON-CONSERVATIVE action?

- A** Initiation of SRAS with the RWST level at 20% and dropping during a large-break LOCA.
- B** Initiation of Once-Through-Cooling with both steam generators at 100" and dropping and only one HPSI pump available.
- C** Maintaining the operating crew on station, past normal watch relief, with the reactor achieving its fifth (5th) doubling of counts on startup.
- D** Maintaining the plant at power with a loss of all three Auxiliary Feedwater Pumps.

## SRO NRC Exam

# 96

The following plant conditions exist:

- \* The plant is in Mode 3.
- \* "C" Service Water Pump is OOS for maintenance.
- \* "B" Service Water Pump is aligned to Facility 2.
- \* The "B" Diesel (EDG) is operating for a scheduled surveillance run.
- \* It was just discovered that the shear key for the "A" Service Water Pump strainer has failed.

Then, while attempting to shutdown the "B" EDG, the operator inadvertently opens the EDG output breaker under full load. The "B" EDG immediately trips on overspeed.

Which one of the following describes the maximum amount of time allowed to reset and test the "B" EDG, before action must be taken to place the unit in a lower mode?

- A** One hour
- B** Two hours
- C** Seven hours
- D** Forty-eight hours

## SRO NRC Exam

# 97

A plant cooldown is in progress.

- \* Shutdown Cooling has been initiated.
- \* RCS Temperature is 180°F.
- \* The steam generators are available.

A loss of Shutdown cooling occurs due to failure of the LPSI pumps.

When will you declare the plant has entered Mode 4?

- A** When any RCS Tcold is greater than 200°F.
- B** When any RCS Thot is greater than 200°F.
- C** When the average of both RCS cold leg temperatures and both hot leg temperatures are greater than 200°F.
- D** When the average of the core exit thermocouple temperatures are greater than 200°F.

## **SRO NRC Exam**

**# 98**

A plant event is in progress that substantially raised the radiation levels in the Auxiliary Building. In order to complete a required action in the governing EOP, a Plant Equipment Operator (PEO) must operate equipment in an "above normal" radiation field of the Auxiliary Building which will probably result in ten (10) Rem TEDE exposure. The event has been ongoing for two (2) hours and the SERO is fully manned.

Which of the following SERO positions is authorized to raise the exposure limits of the PEO needing to enter this radiation area?

- A** Assistant Director Technical Support (ADTS)
- B** Manager Control Room Operations (MCRO)
- C** Shift Manager/Unit Supervisor (SM/US)
- D** Manager Operational Support Center (MOSC)

## SRO NRC Exam

# 99

The plant is in Mode 5 with the following conditions:

- \* Shutdown Cooling System is in operation
- \* Shutdown cooling return temperature T351X is 140°F.
- \* Both reactor coolant loops with associated steam generator and one associated RCP per loop is operable.

Then, a loss of shutdown cooling occurs and RCS temperature reaches 240°F before SDC flow is reestablished.

What does AOP 2572 "Loss of Shutdown Cooling" specify regarding the cooldown as you take actions to return the plant to the initial condition?

- A** Technical Specification cooldown limits may be exceeded if cooling back down following unplanned Mode changes.
- B** A one hour "soak" is required following a heatup of > 100°F before starting to cool down.
- C** The cooldown rate is limited to 30°F/hour until Mode 5 is achieved and then 5°F/hour
- D** The cooldown rate is limited to 30°F/hour.

## SRO NRC Exam

**# 100**

A steam generator tube rupture (SGTR) has occurred in Unit 2. The Director of Station Emergency Operations has decided to have personnel seek shelter to limit exposure from the radioactive plume. The wind is blowing out of the southwest, from a heading of 240°.

Using the attached site map, in which of the following areas are personnel in danger of direct exposure to the blowing radioactive plume?

- A** North Access Point (NAP).
- B** South Access Point (SAP).
- C** Main Cafeteria (Bldg. 475).
- D** Unit Two Turbine Building.

August 1, 1975

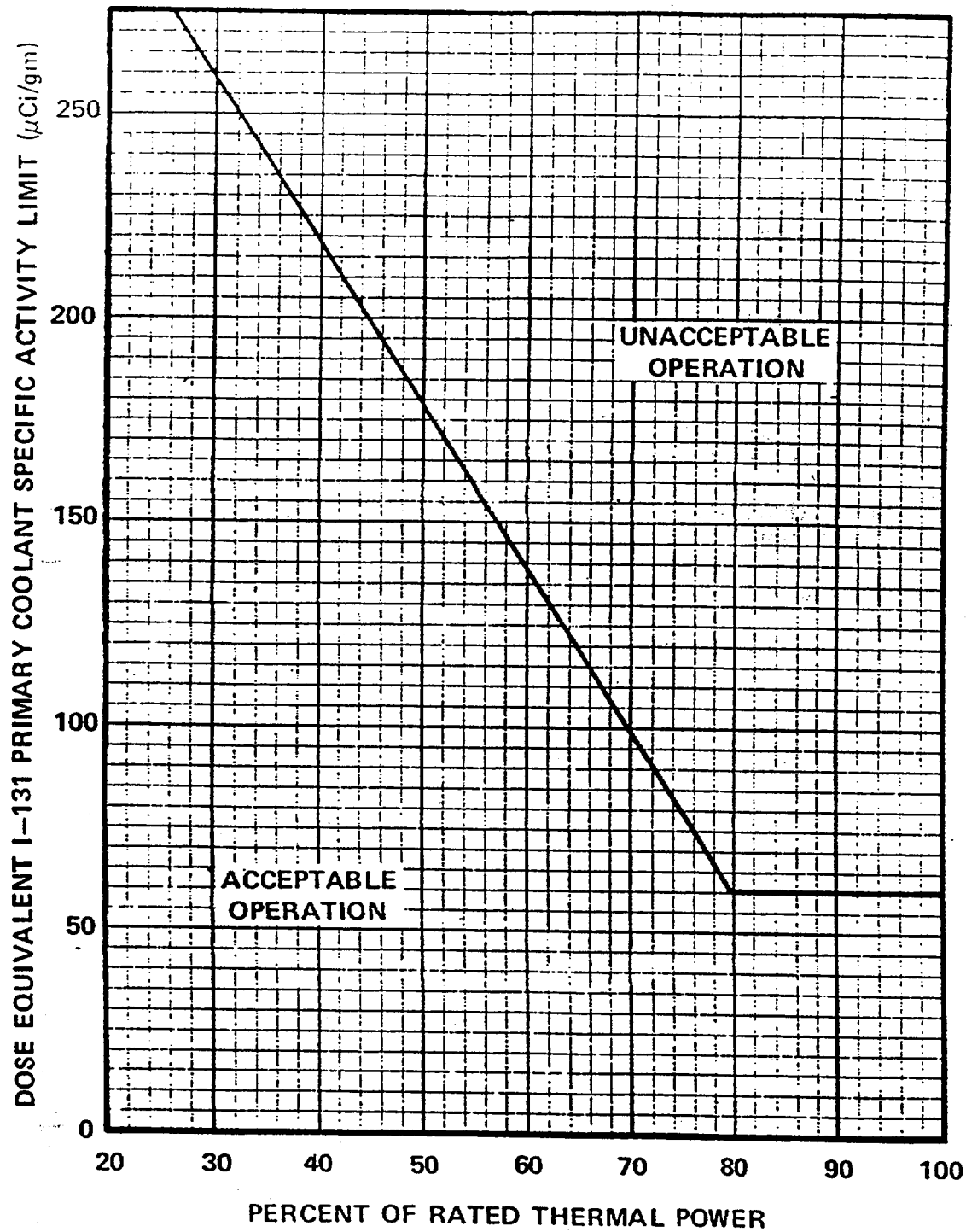
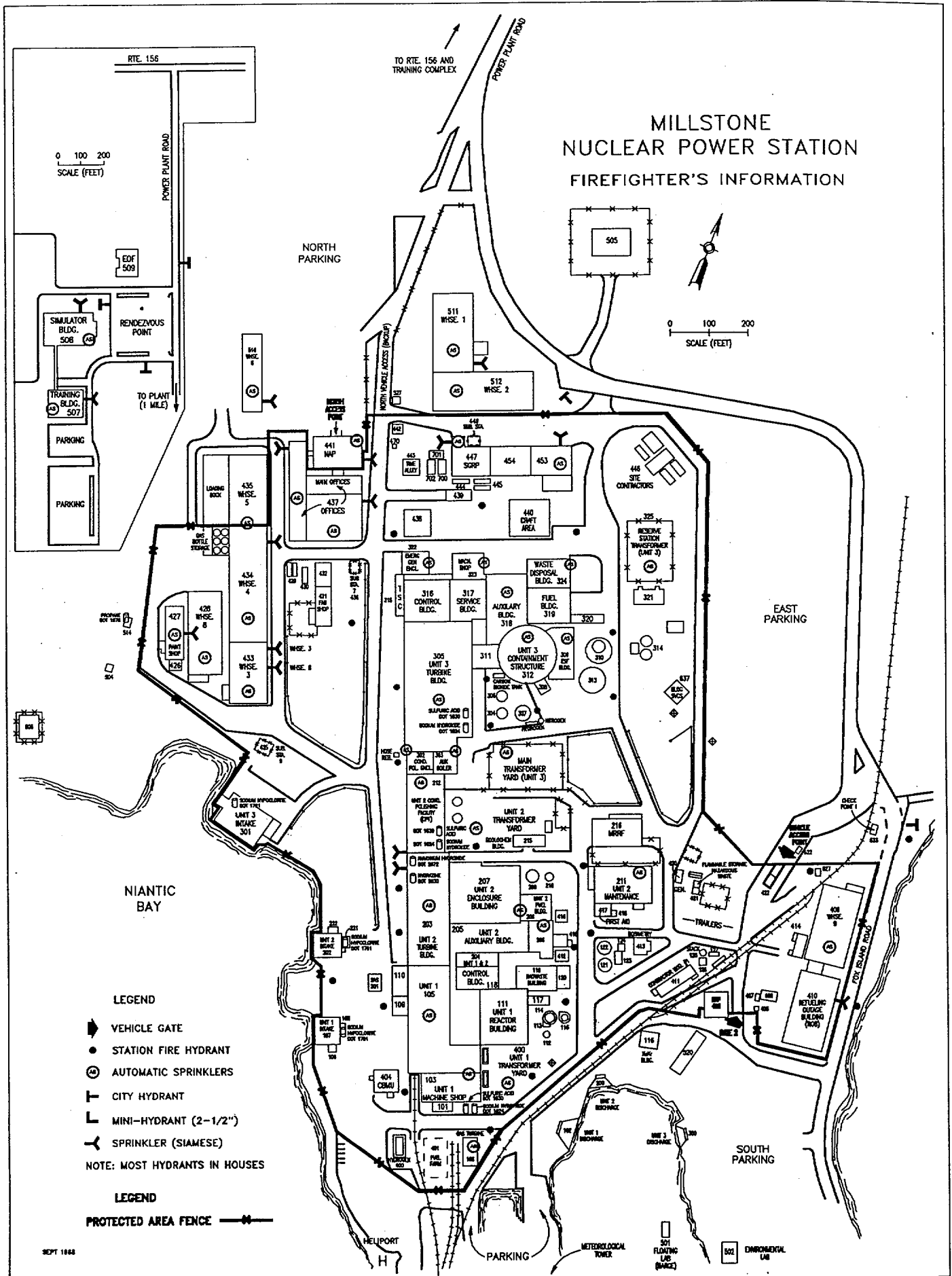


FIGURE 3.4-1

DOSE EQUIVALENT I-131 Primary Coolant Specific Activity Limit Versus Percent of RATED THERMAL POWER with the Primary Coolant Specific Activity  $> 1.0 \mu\text{Ci/gram}$  Dose Equivalent I-131

MILLSTONE  
NUCLEAR POWER STATION  
FIREFIGHTER'S INFORMATION





U.S. Nuclear Regulatory Commission  
Site-Specific Written Examination Answer Sheet  
Millstone Unit Two Senior Reactor Operator Examination

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Grade: \_\_\_\_\_

1) [A] [B] [C] [D]

2) [A] [B] [C] [D]

3) [A] [B] [C] [D]

4) [A] [B] [C] [D]

5) [A] [B] [C] [D]

6) [A] [B] [C] [D]

7) [A] [B] [C] [D]

8) [A] [B] [C] [D]

9) [A] [B] [C] [D]

10) [A] [B] [C] [D]

11) [A] [B] [C] [D]

12) [A] [B] [C] [D]

13) [A] [B] [C] [D]

14) [A] [B] [C] [D]

15) [A] [B] [C] [D]

16) [A] [B] [C] [D]

17) [A] [B] [C] [D]

18) [A] [B] [C] [D]

19) [A] [B] [C] [D]

20) [A] [B] [C] [D]

21) [A] [B] [C] [D]

22) [A] [B] [C] [D]

23) [A] [B] [C] [D]

24) [A] [B] [C] [D]

25) [A] [B] [C] [D]

26) [A] [B] [C] [D]

27) [A] [B] [C] [D]

28) [A] [B] [C] [D]

29) [A] [B] [C] [D]

30) [A] [B] [C] [D]

31) [A] [B] [C] [D]

32) [A] [B] [C] [D]

33) [A] [B] [C] [D]

34) [A] [B] [C] [D]

35) [A] [B] [C] [D]

36) [A] [B] [C] [D]

37) [A] [B] [C] [D]

38) [A] [B] [C] [D]

39) [A] [B] [C] [D]

40) [A] [B] [C] [D]

41) [A] [B] [C] [D]

42) [A] [B] [C] [D]

43) [A] [B] [C] [D]

44) [A] [B] [C] [D]

45) [A] [B] [C] [D]

46) [A] [B] [C] [D]

47) [A] [B] [C] [D]

48) [A] [B] [C] [D]

49) [A] [B] [C] [D]

50) [A] [B] [C] [D]

U.S. Nuclear Regulatory Commission  
Site-Specific Written Examination Answer Sheet  
Millstone Unit Two Senior Reactor Operator Examination

- 51) [A] [B] [C] [D]  
52) [A] [B] [C] [D]  
53) [A] [B] [C] [D]  
54) [A] [B] [C] [D]  
55) [A] [B] [C] [D]  
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72) [A] [B] [C] [D]  
73) [A] [B] [C] [D]  
74) [A] [B] [C] [D]  
75) [A] [B] [C] [D]

- 76) [A] [B] [C] [D]  
77) [A] [B] [C] [D]  
78) [A] [B] [C] [D]  
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87) [A] [B] [C] [D]  
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89) [A] [B] [C] [D]  
90) [A] [B] [C] [D]  
91) [A] [B] [C] [D]  
92) [A] [B] [C] [D]  
93) [A] [B] [C] [D]  
94) [A] [B] [C] [D]  
95) [A] [B] [C] [D]  
96) [A] [B] [C] [D]  
97) [A] [B] [C] [D]  
98) [A] [B] [C] [D]  
99) [A] [B] [C] [D]  
100) [A] [B] [C] [D]

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

\_\_\_\_\_  
Examinee's Signature

U.S. Nuclear Regulatory Commission  
Site-Specific Written Examination Answer Sheet  
Millstone Unit Two Senior Reactor Operator Examination

Name: Answer Key

Date: 8/7/00

Grade: 100%

- 1) [A] ☒ [B] [C] [D]
- 2) [A] [B] ☒ [C] [D]
- 3) [A] [B] ☒ [C] [D]
- 4) [A] [B] [C] ☒ [D]
- 5) ☒ [A] [B] [C] [D]
- 6) [A] [B] ☒ [C] [D]
- 7) [A] [B] [C] ☒ [D]
- 8) [A] ☒ [B] [C] [D]
- 9) ☒ [A] [B] [C] [D]
- 10) [A] [B] ☒ [C] [D]
- 11) [A] [B] ☒ [C] [D]
- 12) [A] [B] [C] ☒ [D]
- 13) [A] [B] ☒ [C] [D]
- 14) [A] [B] ☒ [C] [D]
- 15) ☒ [A] [B] [C] [D]
- 16) [A] [B] [C] ☒ [D]
- 17) [A] [B] ☒ [C] [D]
- 18) [A] [B] ☒ [C] [D]
- 19) [A] [B] [C] ☒ [D]
- 20) [A] [B] [C] ☒ [D]
- 21) [A] [B] ☒ [C] [D]
- 22) [A] [B] [C] ☒ [D]
- 23) [A] [B] [C] ☒ [D]
- 24) [A] ☒ [B] [C] [D]
- 25) ☒ [A] [B] [C] [D]

- 26) ☒ [A] [B] [C] [D]
- 27) [A] [B] [C] ☒ [D]
- 28) [A] ☒ [B] [C] [D]
- 29) [A] [B] [C] ☒ [D]
- 30) [A] [B] [C] ☒ [D]
- 31) [A] ☒ [B] [C] [D]
- 32) [A] ☒ [B] [C] [D]
- 33) ☒ [A] [B] [C] [D]
- 34) [A] [B] ☒ [C] [D]
- 35) [A] [B] ☒ [C] [D]
- 36) [A] [B] ☒ [C] [D]
- 37) [A] [B] [C] ☒ [D]
- 38) [A] [B] [C] ☒ [D]
- 39) [A] [B] [C] ☒ [D]
- 40) ☒ [A] [B] [C] [D]
- 41) [A] [B] [C] ☒ [D]
- 42) [A] [B] ☒ [C] [D]
- 43) ☒ [A] [B] [C] [D]
- 44) ☒ [A] [B] [C] [D]
- 45) ☒ [A] [B] [C] [D]
- 46) ☒ [A] [B] [C] [D]
- 47) [A] ☒ [B] [C] [D]
- 48) [A] [B] ☒ [C] [D]
- 49) [A] [B] ☒ [C] [D]
- 50) [A] [B] ☒ [C] [D]

U.S. Nuclear Regulatory Commission  
Site-Specific Written Examination Answer Sheet  
Millstone Unit Two Senior Reactor Operator Examination

- 51) [A] (B) [C] [D]  
52) [A] [B] (C) [D]  
53) [A] [B] (C) [D]  
54) (A) [B] [C] [D]  
55) [A] [B] [C] (D)  
56) (A) [B] [C] [D]  
57) [A] [B] (C) [D]  
58) (A) [B] [C] [D]  
59) [A] [B] (C) [D]  
60) [A] [B] (C) [D]  
61) [A] [B] [C] (D)  
62) (A) [B] [C] [D]  
63) [A] [B] (C) [D]  
64) (A) [B] [C] [D]  
65) (A) [B] [C] [D]  
66) (A) [B] [C] [D]  
67) [A] (B) [C] [D]  
68) (A) [B] [C] [D]  
69) (A) [B] [C] [D]  
70) [A] (B) [C] [D]  
71) (A) [B] [C] [D]  
72) (A) [B] [C] [D]  
73) [A] (B) [C] [D]  
74) (A) [B] [C] [D]  
75) (A) [B] [C] [D]

ACCEPT EITHER  
A OR C  
YES

- 76) [A] (B) [C] [D]  
77) [A] [B] [C] (D)  
78) (A) [B] [C] [D]  
79) (A) (B) (C) [D]  
80) [A] [B] [C] (D)  
81) [A] [B] (C) [D]  
82) (A) [B] [C] [D]  
83) [A] [B] [C] (D)  
84) [A] (B) [C] [D]  
85) [A] [B] [C] (D)  
86) [A] [B] (C) [D]  
87) [A] [B] [C] (D)  
88) [A] [B] [C] (D)  
89) [A] (B) [C] [D]  
90) [A] (B) [C] [D]  
91) [A] [B] [C] (D)  
92) (A) [B] [C] [D]  
93) [A] (B) [C] [D]  
94) [A] (B) [C] [D]  
95) (A) [B] [C] [D]  
96) [A] (B) [C] [D]  
97) [A] [B] (C) [D]  
98) (A) [B] [C] [D]  
99) [A] [B] [C] (D)  
100) [A] (B) [C] [D]

See Key  
Comments

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

N/A

Examinee's Signature

**Attachment 2**

**RO WRITTEN EXAM W/ANSWER KEY**

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

Name:

Region: ① II / III / IV

Date:

Facility/Unit: Millstone Unit TwoLicense Level: RO / ~~SRO~~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. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected five hours after the examination starts.

**Applicant Certification**

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

\_\_\_\_\_  
Applicant's Signature**Results**

Examination Value

\_\_\_\_\_  
Points

Applicant's Score

\_\_\_\_\_  
Points

Applicant's Grade

\_\_\_\_\_  
Percent

## RO NRC Exam

# 1

The plant has experienced an Excess Steam Demand Event. The following conditions exist:

- \* EOP 2525 has been completed and the appropriate Event Specific EOP entered.
- \* All ESAS equipment has fully actuated.
- \* Pressurizer pressure = 1665 psia and stable.
- \* Pressurizer level = 15% and rising.
- \* Reactor vessel level = 100%.
- \* Th = 485°F and stable.
- \* Tc = 450°F and stable.
- \* Containment pressure = 9.75 psig and slowly dropping.
- \* S/G #1 = depressurized and empty.
- \* S/G #2 level is 30% and rising.
- \* All RCPs secured.

Based on these indications, which of the following actions is appropriate?

- A** Reset and secure CTMT Spray.
- B** Secure Low Pressure Safety Injection (LPSI) pumps.
- C** Throttle or stop High Pressure Safety Injection (HPSI) pumps.
- D** Block and reset SIAS, CIAS, and EBFAS actuation modules.

## RO NRC Exam

# 2

While operating at 100% power, a plant trip occurs. While carrying out EOP-2525, Standard Post Trip Actions, the operators observe the following plant conditions:

- \* All CEAs are inserted.
- \* All buses are energized.
- \* Pressurizer Level is 10%, lowering.
- \* Pressurizer Pressure is 1700 psia, lowering.
- \* Tavg is 505 °F, lowering.
- \* RCS subcooling is 100 °F, rising.
- \* Feeding both SGs with Main Feedwater.
- \* #1 SG level 15% and dropping.
- \* #2 SG level 42% and stable.
- \* #1 SG pressure 450psia and dropping.
- \* #2 SG pressure 650 psia and dropping.
- \* Containment pressure 1.5 psig, rising.
- \* NO Rad. Monitors in alarm, NONE going up.

Which procedure will the operators implement next?

- A** EOP 2532, Loss of Coolant Accident
- B** EOP 2534, S/G Tube Rupture
- C** EOP 2536, Excess Steam Demand
- D** EOP 2537, Loss Of All Feedwater.



## RO NRC Exam

# 3

A small circulating water leak has occurred in the 'B' main condenser bay.

In what order should the condenser bay conductivity recorders respond to this leak?

- A** 'A' and 'B' bays at approximately the same time, followed by 'C' and 'D'
- B** "B bay first, 'A' second, 'D' third, 'C' fourth
- C** 'B' bay first, 'D' second, 'A' third, 'C' fourth
- D** 'B' bay first, 'D' second, 'C' third, 'A' fourth

## RO NRC Exam

# 4

The following conditions exist:

- \* The plant is in Mode 5.
- \* A Containment Purge is in progress.
- \* RM-8262B and RM-8123B (Containment Gaseous Radiation Monitor) alarm setpoint is  $7.0 \text{ E } 4$ .
- \* RM-8262B is currently reading  $7.5 \text{ E } 4$ .
- \* RM-8123B is currently reading  $6.8 \text{ E } 4$ .
- \* NO alarms attributable to any Containment Radiation Monitoring are present.

What immediate action must you take in response to the report?

- A** Request chemistry sample Containment atmosphere.
- B** Ensure purge supply fan, F-23, automatically stops.
- C** Determine the cause of the gaseous activity increase.
- D** Close or verify closed the purge isolation valves.

## **RO NRC Exam**

**# 5**

Which of the following condenser circulating valve positions is required in order to start a circulating water pump?

- A** The condenser INLET valve must be between 20 and 25% open.
- B** The condenser OUTLET valve must be between 20 and 25% open.
- C** The condenser OUTLET valve must be between 5 and 10% open.
- D** The condenser INLET valve must be between 5 and 10% open.

## RO NRC Exam

# 6

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

- \* A major plant casualty has occurred and the applicable EOP has been entered.
- \* Subcooled margin has been lost.
- \* Core Exit Thermocouples (CETs) are increasing, with some in excess of 800 °F.

What plant status is indicated by this CET response?

- A** CETs are failing (reading above steam "critical point").
- B** Steam Generator tube voiding is imminent.
- C** Core heat removal is inadequate.
- D** RCS is in stable two-phase Natural Circulation.

## RO NRC Exam

# 7

The plant is operating at 100% power, with all secondary system controls in automatic mode and with normal, expected setpoints.

The pressure TRANSMITTER that feeds the #1 Atmospheric Dump Valve controller, fails HIGH such that the dump valve controller "sees" a main steam pressure input of 940 psia.

How will the #1 S/G level respond to this malfunction, assuming no operator action?

- A It will slowly rise until indicated feed flow is less than indicated steam flow.
- B It will remain at setpoint until indicated feed flow begins to change.
- C It will stabilize when indicated feed flow equals indicated steam flow.
- D It will slowly drop until indicated feed flow is greater than indicated steam flow.

## RO NRC Exam

# 8

The plant is at 100% power with a resin transfer to the spent resin tank in progress.

A flange in the resin transfer line begins to leak spent resin to the floor of the -25 Aux. Building. The "VENT STACK RADMONITOR HI/FAIL" annunciator on C-06/7 is one of the radiation alarms received. On the Unit 2 Stack High Range KAMAN rad. monitor (RM-8168) on C-101, the following lights are flashing:

- \* HIGH-ACK
- \* ALERT-ACK
- \* RATE-ACK
- \* EQUIP FAIL

All controls on the Kaman rad. monitor are aligned normally.

As radiation levels in the Aux. Building continue to rise, how will the Unit 2 Stack Low Range gaseous rad. monitor (RM-8132B) recorder on C-06 trend over the next five minutes?

- A** Rise consistent with the rising radiation levels.
- B** Begin to lower, even as radiation levels continue to rise.
- C** Remain constant, with the Unit 2 Stack Low Range gaseous rad.. monitor (RM-8132B) failed "as-is".
- D** Pegged low, indicating the Unit 2 Stack Low Range gaseous rad.. monitor (RM-8132B) has electronically failed low.

## RO NRC Exam

# 9

A plant trip has occurred, and the following conditions exist:

- o RCS is in the process of developing normal Natural Circulation flow.
- o Both MSIV's are open.
- o All other plant systems are responding normally.

Which of the following actions is required to prevent a sudden, non-controlled RCS cooldown from occurring?

- A** Tave controller for the Condenser Dump valves is placed in manual and closed.
- B** Pressure controller for the Condenser Dump valves is placed in manual and closed.
- C** Pressure controllers for the Atmospheric Dump valves are placed in manual and closed.
- D** Quick Open selector switch is placed on "OFF".

## RO NRC Exam

# 10

Which of the following statements correctly describes Service Water System response on a SIAS?

- A** Service Water inlet valves to the TBCCW Heat Exchangers get an open signal.
- B** Service Water valves to non-vital chillers, X-196A and X-196B, get an open signal.
- C** All three RBCCW Heat Exchanger TCVs get a full open signal.
- D** All three Service Water pumps start.



## **RO NRC Exam**

**# 11**

AOP 2569 (Steam Generator Tube Leak) directs verification of automatic actions if a SJAE or S/G Blowdown RM alarms.

Which of the following valves must be verified automatically closed based on the above RM alarm?

- A** S/G Blowdown Primary Sample Sink Sample Isolation (2-MS-191A & 2-MS-191B).
- B** Atmospheric Drain Collection Tank Drain to Long Island Sound (2-CN-334).
- C** Blowdown Tank Discharge Isolation (2-MS-15).
- D** Condenser Air Removal to Unit 2 Stack (2-EB-57).

## RO NRC Exam

**# 12**

The plant is in MODE 6 for REFUELING with all necessary equipment operable. Fuel movement is in progress. No other work is planned or in progress in containment and steam generator secondary manways are installed.

Under these conditions, which of the following VIOLATES "containment closure"?

- A** One personnel airlock door is open.
- B** Containment purge is in progress.
- C** #1 Atmospheric Dump Valve has been removed for repair.
- D** An electrical penetration has been removed for repair.

## RO NRC Exam

**# 13**

The plant is on Shutdown Cooling using the "B" LPSI pump.  
The following conditions exist:

- \* RCS level is at the Reactor Vessel Flange and slowly decreasing.
- \* RCS temperature is 100 degrees F.
- \* RCS pressure is 15 psia.
- \* PDT level is steady.
- \* RWST level is slowly increasing.
- \* RBCCW Surge Tank level is steady.

Which of the following is the most likely leakage path causing the RCS level to lower?

- A** RCS cold leg drain valve leakage.
- B** PORV leakage.
- C** "B" LPSI Pump minimum flow recirc leakage.
- D** 'B' SDC Heat Exchanger tube leakage.

## RO NRC Exam

**# 14**

A plant cooldown is in progress. The US has directed you to establish a cooldown rate that will result in the MAXIMUM allowable rate per Technical Specifications, for the hour between 0900 and 1000.

During the plant cooldown, RCS temperature dropped from 500 °F to 490 °F from 0900 to 0910.

What should the cooldown rate be raised to in order to reach the Technical Specification MAXIMUM allowable RCS cooldown limit for the rest of the hour?

- A** 1.8 °F/min.
- B** 1.6 °F/min.
- C** 1.4 °F/min.
- D** 1.1 °F/min.

## RO NRC Exam

**# 15**

Which of the following is the purpose of the Safety Function Status Check in an EOP?

- A** Verifies the procedure in use is appropriate for the event in progress.
- B** Determines which Optimal Recovery Procedure should be implemented.
- C** Specifies which Functional Recovery Success Paths should be followed.
- D** Ensures the operator has performed all continuously applicable steps of an EOP.

## RO NRC Exam

### # 16

Which of the following items fall within the classification of Bypasses, Jumpers, and Lifted Leads?

- 1) Plugged floor drain
- 2) Hose connected from a system drain to a floor drain
- 3) Temporary scaffolding
- 4) Gagged safety valve
- 5) Portable airborne radiation monitor
- 6) Pulled annunciator circuit card (nuisance alarm do to faulty level switch)
- 7) Use of the Alarming Remote Transmitter (ART)

**A** 1, 3, and 7

**B** 2, 5, and 6

**C** 3, 4, and 7

**D** 1, 4, and 6

## RO NRC Exam

**# 17**

The following conditions exist:

- o A loss of coolant accident occurred, resulting in Containment pressure exceeding 40 psig and rising.
- o One containment spray pump failed to start when CSAS actuated.

With only one (1) containment spray pump operating, what is the MINIMUM number of CAR fans that must be running to provide adequate cooling for the Containment?

- A** 1 in Slow
- B** 1 in Fast
- C** 2 in Slow
- D** 2 in Fast

## RO NRC Exam

# 18

The following conditions exist:

- \* A Large Break Loss of Coolant Accident occurred ~5 minutes ago.
- \* RCS pressure has bottomed out at ~50 psia.
- \* RVLMS indicates 0% on both channels.
- \* All ICCS points indicate saturated conditions.
- \* CTMT pressure peaked at ~40 psig and is slowly going down, (presently 36 psig).

What is the flowpath by which decay heat is presently being removed from the core and transferred to the environment?

- A** Rx Core --> RCS --> ECCS break flow --> CTMT atmosphere --> CTMT Spray --> SDC heat exchangers --> RBCCW --> SW --> LIS.
- B** Rx Core --> RCS --> SG's w/Aux. Feed --> steam flow --> Atmospheric Dump Valves --> Atmosphere.
- C** Rx Core --> RCS --> ECCS break flow --> CTMT atmosphere --> CAR coolers --> RBCCW --> SW --> LIS.
- D** Rx Core --> RCS --> SG's w/Aux. Feed --> steam flow --> Condenser Steam Dumps --> Condenser --> Circ. Water --> LIS.



## RO NRC Exam

# 19

Which of the following is the proper method for verifying the position of an unlocked throttle valve per WC-6, "Determination and Performance of Independent and Dual Verification"?

- A** Two operators, each at a different time, verify the valve to be in its throttled position by checking the valve stem position or mechanical position indicator.
- B** The first operator closes the valve and counts the number of turns to close it. Then, at a different time, the second operator re-opens the valve to its original position.
- C** Two operators, each at a different time, verify the valve to be in its throttled position by observing the process parameters affected by the valve to be within the desired range.
- D** One operator closes the valve and counts the number of turns to close it, then the operator re-opens the valve to its original position, while the second operator observes the manipulation.

## RO NRC Exam

# 20

The plant is operating in MODE 1 at 100% power with the following conditions:

- \* Injection temperature is 68°F
- \* "A" and "C" Service Water Pumps are supplying Facility 1 and 2, respectively.
- \* "B" Service Water Pump is out of service for planned maintenance.

The "C" Service Water (SW) Pump trips on overload. Within a few minutes, the "B" RBCCW Header high temperature alarm annunciates and the SPO informs the US that the "C" RBCCW heat exchanger outlet temperature is reading 122°F and rising.

Which of the following describes an action required due to the above conditions?

- A** Reduce heat loads to allow time for repairs.
- B** Cross-tie the "A" Service Water Pump to supply both SW headers.
- C** Commence a rapid downpower to Mode 3.
- D** Trip the plant and carry out EOP-2525.

## **RO NRC Exam**

**# 21**

The Refuel Machine operator is moving a fuel assembly when it drops into the South saddle area of the Refuel Pool. A large amount of gas is bubbling up from the dropped fuel assembly.

Under these conditions, which of the following actions should the Refuel Machine operator take?

- A** Notify the Control Room and then discuss options on recovering the fuel assembly with the Refueling SRO and HP Technician.
- B** Notify the HP Tech on the refueling floor to take a Containment air sample.
- C** Notify the Control Room and immediately evacuate Containment.
- D** Sound the Containment Evacuation Alarm from the Refuel Machine then contact control room for additional instructions

## RO NRC Exam

# 22

The plant is shutdown and a "Backfeeding" lineup is being used for the In-House Electrical and 345KV Systems. For this condition, what is the expected status of 345KV equipment associated with the Main Transformer and the Main Generator?

- A** Breakers 15G-8T-2 and 15G-9T-2 are open, Main Transformer MOD 15G-2X1-4 is open, the MOD 15G-2X1-9 is closed and the Main Generator Disconnect Links are removed.
- B** Breakers 15G-8T-2 and 15G-9T-2 are open, Main Transformer MOD 15G-2X1-4 is closed, the MOD 15G-2X1-9 is closed and the Main Generator Disconnect Links are installed.
- C** Breakers 15G-8T-2 and 15G-9T-2 are closed, Main Transformer MOD 15G-2X1-4 is open, the MOD 15G-2X1-9 is open and the Main Generator Disconnect Links are installed.
- D** Breakers 15G-8T-2 and 15G-9T-2 are closed, Main Transformer MOD 15G-2X1-4 is closed, the MOD 15G-2X1-9 is open and the Main Generator Disconnect Links are removed.

## RO NRC Exam

# 23

During a Loss Of Coolant Accident, the following conditions exist:

- \* Containment Pressure peaked at 3.8 psig and is now slowly lowering.
- \* Reactor Coolant System temperature is 442 °F and stable.

What is the approximate MINIMUM RCS pressure required to satisfy the subcooling margin requirements for the existing condition?

- A 388 psia
- B 461 psia
- C 505 psia
- D 525 psia

## RO NRC Exam

# 24

Which of the following describe a potential impact to Unit Two systems, if the site fire main were unavailable for any purpose other than fire fighting?

- A** On a plant trip with a Loss-Of-Normal-Power, the instrument air system **MUST** be x-tied with another unit to ensure long term availability.
- B** On a loss of the Condensate Storage Tank inventory, the Auxiliary Feedwater system will **NOT** have any source of water available.
- C** The hard-piped emergency makeup supply for the Spent Fuel Pool and for SFP cooling is **NOT** available.
- D** The emergency makeup supply for the Refueling Water Storage Tank is unavailable.

## RO NRC Exam

# 25

If the actual Reactor Coolant System (RCS) dose equivalent I-131 activity is 75 uCi/gm, which one of the following power levels is the maximum thermal power the reactor is allowed to attain?

- A 76%
- B 78%
- C 80%
- D 100%

## RO NRC Exam

**# 26**

The plant is operating normally at 100% power with the "A" Emergency Diesel Generator (EDG) tagged out for PMs.

As the "A" EDG breaker is racked up for return to service, a mechanical failure in the breaker causes a fault on bus 24C.

The 24A-to-24C tie breaker trips due to the fault and 24C is deenergized. All other plant components and systems respond as expected.

Which of the following plant components is in danger of being damaged without prompt operator action?

- A** "A" & "C" RCPs.
- B** CVCS Ion exchangers.
- C** Main Generator stator.
- D** Main Condenser.



## RO NRC Exam

**# 27**

A plant startup is in progress, with the following containment (CTMT) equipment status:

- \* "A", "B" and "C" CAR fans are running in fast speed; "D" CAR fan is secured.
- \* 10" RBCCW outlet isolations on "A", "C" and "D" CAR fans are open.
- \* 10" RBCCW outlet isolation on "B" CAR fan is closed.
- \* Both CTMT Auxiliary Circulation fans are secured.

The CTMT atmosphere begins to heat up.

Which of the following actions will stop the CTMT temperature rise without violating procedures?

- A** Start both CTMT Auxiliary Circulation fans in fast speed.
- B** Start the fourth CAR fan in fast speed.
- C** Lower "B" RBCCW Header temperature.
- D** Open the "B" CAR fan 10" RBCCW outlet isolation.

## RO NRC Exam

# 28

While conducting a plant cooldown the following plant conditions exist:

- \* RCS Temperature 250 °F.
- \* RCS pressure 250 psia.
- \* 'A' LPSI Pump supplying Shutdown Cooling.
- \* All electrical supplies are normal.

If a LOCA were to now occur, which of the following operator actions is required?

- A** Ensure automatic SIAS actuation and verify adequate Safety Injection flow.
- B** Initiate Safety Injection flow by starting both Facility HPSI Pumps and 'B' LPSI Pump with a flow path from the RWST.
- C** Manually initiate SIAS using C01 pushbuttons for both facilities of Safety Injection.
- D** Initiate Safety Injection flow using both LPSI Pumps and all three HPSI Pumps with a flowpath from the RWST.

## RO NRC Exam

# 29

The plant has experienced a loss of all Feedwater (both main and auxiliary) and the crew has initiated Once-Through-Cooling (OTC).

Which of the following describe when OTC may be terminated?

- A** Only after subcooling has been restored to greater than 30 °F.
- B** Immediately after feed flow has been restored to at least one steam generator.
- C** As soon as RCS pressure is low enough to allow adequate HPSI injection flow.
- D** Only after feed flow has restored at least one steam generator to greater than 70" of level.

## RO NRC Exam

# 30

The plant had been operating at 100% when it tripped due to a stuck open Pressurizer Safety Valve.

Which of the following are expected conditions for this event?

- A** ACTUAL pressurizer level rise is indication of RCS inventory recovery.
- B** Safety injection flow ALONE will provide sufficient core heat removal.
- C** RCS delta-T will drop as steam generator pressure drops.
- D** Inventory loss rate will lower as RCS pressure lowers throughout the event.

## RO NRC Exam

# 31

The plant is operating at 100% power, normal electrical line-up, when the "A" Battery Charger fails and all of its output breakers open.

Which of the following describes the control room indication of this malfunction on the 125VDC System?

- A** ALL breaker indicating lights for 24A and 24C are deenergized.
- B** 201A Battery bus amp meter indicates a discharge, with slightly below normal bus voltage.
- C** 201A Battery bus amp meter indicates zero (0) amps, with normal indicated bus voltage.
- D** Alarms are received for VA-10 and VA-30 being powered by their alternate source.

## RO NRC Exam

# 32

The crew is in the process of performing the operability run on the 'C' charging pump. The 'B' charging pump is aligned to Fac. 1 (B51).

A major fire occurs in the control room requiring evacuation. The control switch for the 'C' charging pump on C02 is left in the 'Pull-to-lock' (SIAS start only) position, when control is shifted to C10.

How many charging pumps can be manually controlled from C10 at this time? (Assume no other operator action.)

- A** None
- B** One
- C** Two
- D** Three

## RO NRC Exam

### # 33

The following conditions exist:

- \* The plant is at NOP/NOT, Mode 3.
- \* A special test of RPS is being performed by I&C.
- \* The Zero Power Mode Bypass (ZPMB) is in effect (light is lit on RPS) on all four channels.
- \* All four Reactor Coolant Pumps (RCPs) are running.
- \* All TCBs are closed and all CEDMs are energized.

A breaker fault on the "B" RCP causes the pump to trip.

Which of the following would then occur?

- A** No protective action occurs because all four channels are currently bypassed.
- B** No protective action occurs because trip logic coincidence is shifted from 2/4 to 3/4 with ZPMB in effect.
- C** A trip occurs because >2/4 trip logic coincidence has occurred.
- D** A trip occurs because trip logic coincidence is shifted from 2/4 to 1/4 with ZPMB in effect.

## RO NRC Exam

# 34

While performing EOP 2525, Standard Post Trip Actions, the Secondary Plant Operator (SPO) discovers that Bus 24C did not transfer to the Reserve Station Services Transformer (RSST) and the "A" emergency diesel generator (EDG) will NOT start.

Which of the following actions must the SPO take?

- A** Discuss the impact of the loss of 24C with the Primary Plant Operator and then continue with EOP 2525 Immediate and Subsequent Actions.
- B** Immediately send a PEO to investigate the "A" EDG and report status before continuing in EOP 2525.
- C** Continue implementing EOP 2525 Immediate and Subsequent Actions and inform the SM/US of the situation when queried.
- D** Immediately inform the SM/US of the need to reference EOP 2528, Electrical Emergency, contingency actions, before continuing in EOP 2525.



## RO NRC Exam

**# 35**

The following conditions exist:

- \* Fuel stored in the Spent Fuel Pool (SFP) meets the criteria for each storage region.
- \* Fuel stored in the SFP meets the storage pattern criteria for each region.
- \* All fuel burnup requirements are currently satisfied.
- \* Fuel movement is presently occurring within the SFP.

Then, a spent fuel bundle is dropped while being moved over the fuel storage racks.

Which of the following ensures shutdown margin is maintained in the SFP, regardless of where the fuel bundle lands?

- A** The cell blocking devices in one-out-of-four cells in the SFP fuel storage racks.
- B** The height of borated water above the fuel bundles in the SFP.
- C**  $\geq 800$  ppm boron concentration throughout the SFP water.
- D** The poison plates contained in the SFP fuel storage racks.

## RO NRC Exam

# 36

The following events have occurred:

The Charging Header has ruptured in CTMT requiring all charging and letdown to be secured. The leak is NOT isolable.

The plant is then tripped due to the rupture.

On the trip, the RSST is lost and three (3) CEAs are stuck fully withdrawn.

All other equipment responded normally per the above conditions.

Based on these conditions, the appropriate EOP directs that a plant cooldown be immediately initiated and that RCS pressure be reduced.

Which of the following is the reason for this procedural guidance?

- A** Recover reactivity control using Thot-leg injection.
- B** Recover inventory control using safety injection.
- C** Recover reactivity control using HPSI injection.
- D** Mitigate the consequences of a Type-V LOCA.

## RO NRC Exam

### # 37

Following a Loss of Main Feedwater, the Auxiliary Feedwater (AFW) System automatically started. The Secondary Plant Operator (SPO) shifted the "A" Aux Feed Reg Valve Controller to Manual and a 50% output signal.

What additional control manipulations must be performed to allow the SPO to throttle AFW to the #1 Steam Generator (S/G)?

- A** Momentarily place #1 S/G Auxiliary Feedwater Regulating Valve "RESET NORM OVRD" switch to "OVRD", then to the "RESET" position and allow it to return to "NORM".
- B** Momentarily place #1 S/G Auxiliary Feedwater Regulating Valve "RESET NORM OVRD" switch in the "RESET" position and allow it to return to "NORM".
- C** Place Facility 1 Auto Aux. Feedwater Override Switch (C05, Apron section) in "Pull to Lock" position.
- D** Momentarily place #1 S/G Auxiliary Feedwater Regulating Valve "RESET NORM OVRD" switch to "OVRD", then allow it to return to "NORM".

## RO NRC Exam

**# 38**

The plant is at 100% power, with condenser air removal aligned to the Unit One stack. A major event then occurs resulting in the following conditions:

- \* Pressurizer pressure = 1750 psia and dropping
- \* Containment pressure = 5.5 psig and rising

All plant systems and equipment has responding normally per the above conditions. NO operator actions have yet been taken.

How would the Condenser Air Removal be aligned?

- A** Discharging to the Unit 2 stack.
- B** Discharging to the Unit 1 stack.
- C** Discharging to the Main Exhaust System.
- D** Discharge path is totally isolated.

## RO NRC Exam

# 39

The plant is at 90% power, steady state, with the SP-2601D surveillance in progress.

Power Range Safety Channel NI power is manually raised above the RPS Delta-T power using the "Nuclear PWR Calibration" potentiometer on the RPS.  
ALL other plant parameters are maintained constant.

Which of the following items are directly affected by this manual adjustment to the NI calibration potentiometer?

- A** Safety Channel Power Indication on the NI drawers.
- B** Variable High Power Trip Setpoint.
- C** Wide Range Log Power Indication on RPS.
- D** Variable TM/LP Trip setpoint.

## RO NRC Exam

# 40

A plant startup is in progress with the plant at 25% power and the RSST still in service.

Then, a total loss of Bus 201A occurs resulting in a plant trip.

Plant procedures direct the "A" emergency diesel generator (EDG) be tripped and secured.

Which of the following explains why the "A" EDG is secured at this time?

- A** The EDG is running without control power or protection.
- B** The EDG is running unloaded and it should not be run unloaded for long periods of time.
- C** The EDG is running without a cooling water supply.
- D** The EDG is running without auto voltage control, requiring a "dedicated operator" on manual control.

## RO NRC Exam

# 41

The plant is at 100% power and a discharge of the "A" Waste Gas Decay Tank is in progress. A control room operator has just noted the link between the Met Tower and the Plant Process Computer is NOT working (the Met Tower is off-line).

Which of the following actions is required?

- A** Ensure the time of the Met Tower loss is recorded on the ongoing Waste Gas discharge permit and continue the discharge.
- B** Commence logging the local weather conditions posted on the company intranet every 15 minutes for the duration of the discharge.
- C** Solicit weather conditions from CONVEX every 15 minutes for the duration of the discharge.
- D** Immediately secure the discharge, close out the permit and log the time of the Met Tower loss occurred.

## RO NRC Exam

# 42

A reactor startup is in progress with power presently at  $1 \times 10^{-6}\%$ . While withdrawing Regulating Group 5 to 45 steps, a malfunction causes a Group 5 CEA to drop into the core.

Which of the following interlocks would be expected to cause a CEA Motion Inhibit (CMI) at this time BECAUSE OF the dropped CEA?

- A** MISH
- B** Out-Of-Sequence
- C** Group Deviation
- D** MIRG



## RO NRC Exam

# 43

The plant is operating at 100% power, steady state when the following alarms are received:

- \* "INVERTER INV-3 TROUBLE" (C08).
- \* "VA-30 ON ALTERNATE SUPPLY VR-11" (C08)
- \* "High Temperature Alarm" (INV-3 local)

A scan of the control room reveals Channel "C" safety instruments are still energized.

Which of the following describe the status of VA-30 based on the above alarms?

- A** VA-30 is NOT operable, and will temporarily deenergize if a Loss-Of-Offsite-Power occurred.
- B** VA-30 is operable, and will NOT be affected by a Loss-Of-Offsite-Power.
- C** VA-30 is NOT operable, and safety channel "C" is being powered from a battery backup source.
- D** VA-30 is NOT operable, and will NOT be affected by a Loss-Of-Offsite-Power.

## RO NRC Exam

**# 44**

Which of the following conditions will directly cause the Station Air to Instrument Air Cross-tie Valve (2-SA-10.1) to OPEN and the Station Air Isolation Valve (2-SA-11.1) to CLOSE?

- A** Instrument Air Receiver Tank pressure lowers to less than 85 psig.
- B** Station Air header pressure lowers to less than 85 psig.
- C** Instrument Air header pressure by "C" air compressor lowers to less than 85 psig.
- D** Turbine Building header pressure lowers to less than 85 psig

## RO NRC Exam

# 45

Which of the following could be a direct result of having LESS than the required amount of Trisodium Phosphate (TSP) inside containment, in a post-LOCA environment?

- A** Containment spray water could induce higher levels of corrosion in the wetted containment surfaces.
- B** The containment spray nozzles will have a higher probability of clogging from boric acid coming out of solution.
- C** The ability of containment spray to remove fission product gases through water absorption would be substantially reduced.
- D** The optimum "window" for boron precipitation control could be substantially reduced (smaller window for success).

## RO NRC Exam

**# 46**

The plant is at 100% power with VA-20 on it's alternate source, due to maintenance on the normal inverter.

Then, a problem in the Turbine Building deenergizes the Turbine Battery Bus.

Which of the following is a result of the above conditions?

- A** Four Trip Circuit Breakers (TCBs) will open, the rest will remain closed.
- B** The plant will trip when eight of the TCBs open.
- C** RPS will be in a 2/3 trip logic.
- D** The Comparater Averager alarms on channel "B" of RPS will be lit.

## RO NRC Exam

**# 47**

The plant has the following Instrument Air Compressor lineup:

- \* "A" Compressor in Lead
- \* "B" Compressor in Lag
- \* "C" Compressor in Standby

What will be the proper loading sequence of the three (3) compressors?

- A** "A", then "B", then "C".
- B** "A", then "C", then "B"
- C** "C", then "A", then "B"
- D** "C", then "B", then "A"

## RO NRC Exam

**# 48**

A Reactor startup is in progress with the following conditions:

- \* All Wide Range channels are indicating approximately 100 cps and rising.
- \* "Extended Range OFF" light is NOT lit (deenergized) on all channels of RPS.
- \* "Extended Range" light is lit (energized) on all channels of RPS.

Reactor power is then raised above 1000 cps and continues to rise slowly. NO control manipulations are made on any of the RPS or Nuclear Instrument channels.

Which of the following is an expected condition CAUSED BY raising reactor power above 1000 cps?

- A** The "Extended Range OFF" light will turn ON (energize) on all four channels.
- B** The "Extended Range" light remains energized on all four channels.
- C** All four wide range power meters on C04 will shift from "CPS" to "Percent Power" indication.
- D** All four wide range power meters on C04 momentarily drop by half (1000 cps --> 500 cps) and then continue to rise in CPS.

## RO NRC Exam

# 49

A major storm has caused the loss of all four circulating water pumps due to intake screen fouling. Subsequently, the plant was tripped due to loss of condenser vacuum.

On the plant trip, the "A" Condenser Steam Dump and Bypass Valve (SDBV) failed OPEN 50% and continued to dump steam to the main condenser for fifteen minutes.

Which one of the following describes a possible effect on the plant DUE TO the "A" SDBV failing to close on the loss of condenser vacuum?

- A Air cutting of turbine gland seals.
- B Loss of forced circulation due to excessive shrinkage of the RCS.
- C Rupture of the diaphragms on the top of the low pressure turbine casings.
- D Violation of main condenser delta-T limits.

## RO NRC Exam

# 50

The plant is in Mode 1, steady state, with all components in their normal position. While setting up staging in the enclosure building, the normal instrument air supply for containment (CTMT) purge valve 2-AC-4 is severed.

Which of the following describes the possible consequences of the loss of normal air supply to 2-AC-4?

- A** If during a LOCA, post incident hydrogen control is required, CTMT purge will NOT be an available option.
- B** The indication for 2-AC-4 on C01X will shift from blue light energized to white light energized.
- C** Purging of CTMT while making preparations for a refueling outage will require 2-AC-4 to be opened by Maintenance.
- D** The backup air bottles (-5' Aux. Building) must be aligned to 2-AC-4 to allow for remote operation from the control room.



## RO NRC Exam

**# 51**

'A' HPSI Pump is aligned and being used to fill #1 SIT when a large-break LOCA occurs.

What is the post-SIAS status of flow from the 'A' HPSI pump?

- A** Flow to #1 SIT only.
- B** Flow to RCS only.
- C** Flow to #1 SIT and RCS.
- D** No flow to RCS or #1 SIT.

## RO NRC Exam

# 52

The following plant conditions exist:

- \* A Station Blackout has occurred.
- \* The Instrument Air System has depressurized.
- \* A full decay heat load is present.
- \* To conserve Vital DC power, bus 201A has been deenergized.
- \* All other equipment is operating as expected or designed.

Which of the following describes where local manual control **MUST** be established to ensure continued RCS heat removal by natural circulation over the next two to three hours?

- A** Turbine Driven Auxiliary Feedwater Pump
- B** Letdown Flow Control Valves
- C** Atmospheric Dump Valves
- D** Auxiliary Feedwater Control Valves

## RO NRC Exam

**# 53**

A plant startup is in progress following a 45 day refueling outage. "A" and "B" RCPs are running in concurrent operation with Shutdown Cooling (SDC).

Then, a failure in the ESAS cabinet results in an inadvertent SIAS signal on both facilities.

Assuming NO operator action, which of the following components would see a temperature RISE as a result of this SIAS signal?

- A** SDC system temperature return to the RCS.
- B** "A" & "B" RCP seals.
- C** Spent Fuel Pool Cooling Heat Exchanger outlet.
- D** Containment atmosphere.

## RO NRC Exam

# 54

Preparations for a reactor startup are being performed when an I&C technician informs the on shift crew that the pulse height discrimination on all Wide Range Nuclear Instrument (NI) drawers was inadvertently set too high (little or no pulse height discrimination will occur throughout their operating range).

IF the reactor startup were to continue, which of the following describes the effect of a loss of pulse height discrimination?

- A** During the reactor startup, count rate doublings will be masked by high levels of detector noise.
- B** At the power level the NIs shift to % power indication, the wide range channels will respond accurately.
- C** The PDIL interlock will NOT be armed until reactor power exceeds the point of adding heat.
- D** The Local Power Density trip will be armed at a higher power level than that allowed by Technical Specifications.

## RO NRC Exam

# 55

A plant start up is in progress. The reactor has been brought critical with power being held steady at 1x10<sup>-3</sup>% power to obtain critical data.

While installing the opening coil in an MSIV Bypass valve breaker, a malfunction in the breaker causes the valve to open temporarily, until closed by operator action.

Due to the valve opening, RCS Tavg lowers to 512 °F before stabilizing.

Based on the Plant Startup Conditional Actions of OP-2303, which of the following operator actions are required be taken? (Your answer should be based ONLY on procedural requirements.)

- A** Immediately trip the plant and carry out EOP-2525.
- B** Raise reactor power to greater than 5% within 15 minutes and hold at that level until Tavg is greater than 525 °F, or be in HOT SHUTDOWN within the next 15 minutes.
- C** Immediately commence dilution and return Tavg to greater than 532 °F within 15 minutes, or be in HOT SHUTDOWN within the next 15 minutes.
- D** Raise Tavg to greater than 515 °F within 15 minutes or be in HOT SHUTDOWN within the next 15 minutes.

## RO NRC Exam

**# 56**

The plant is at 100% power, steady state, with the forcing of pressurizer spray flow in operation.

Then, a pressurizer backup heater group breaker trips due to a breaker failure.

Which of the following describe how the pressurizer will respond to this failure, assuming NO operator action?

- A** RCS pressure will stabilize at some lower pressure with less spray flow.
- B** RCS pressure will remain relatively constant at the desired pressure while the spray valves throttle closed.
- C** The proportional heater output will rise as RCS pressure lowers, spray flow will remain constant.
- D** RCS pressure will continue to drop without operator action and spray flow will remain constant.

## RO NRC Exam

**# 57**

The plant is in normal operation at 100% power with the controlling pressurizer pressure controller setpoint set at 2250 psia. The pressurizer level surge bistable (which actuates ~3.6% above setpoint) has failed such that it will NOT actuate on a pressurizer surge.

Then, a perturbation in a secondary system causes a pressurizer surge that raises pressurizer level to 70% and causes a corresponding rise in pressurizer pressure.

What action will the Pressurizer Level and Pressure Control System take to automatically stop the rise in pressure?

- A** The spray valves will start to open immediately and any backup charging pumps running in Manual will automatically stop.
- B** The spray valves will start to open and all heaters will deenergize at 2300 psia.
- C** The proportional heaters will go to minimum at 2275 psia, and the spray valves will start to open at 2300 psia.
- D** The proportional heaters will remain at maximum, and the spray valves will start to open at 2300 psia.

## RO NRC Exam

# 58

If all of the following conditions exist, LIMIT feedwater flow to each steam generator (SG) to 300 gpm (150 klbm/hr):

- \* SG water temperature is greater than 212°F
- \* SG water level is below feedwater sparger (equivalent to less than 45% corrected level indicated on C-05)
- \* All feedwater flow has been lost for greater than 5 minutes

Which of the following conditions is this precaution trying to prevent?

- A** Water hammer in the SG feed ring.
- B** Loss of pressurizer level.
- C** Loss of core reactivity control.
- D** Steam Generator tube thermal stress.



## RO NRC Exam

# 59

A reactor trip has occurred and numerous alarms are received, including:

- \* RSST Lockouts I & II (C08).
- \* Loss of Power alarms for the following busses: 22A/B/C/D & 22F (C08).
- \* A & B EDG trouble alarms (C08).
- \* Low RBCCW Flow on the "B" header (C06/7).
- \* Low Service Water (SW) Flow on the "B" header (C06/7).
- \* SIAS, CIAS, EBFAS, MSI, CSAS & UV on Fac. 1 & 2 (C01).
- \* Low Pressurizer Level & Low Pressurizer Pressure (numerous channels).
- \* High CTMT Pressure on Ch. A-D (C01).
- \* High-High CTMT Pressure on Ch. A-D (C01).

CTMT pressure indicates 22 psig and rising (C01).

The "A" EDG is running loaded (C08).

The "B" EDG is running but its breaker is open with NO breaker alarms (C08).

24E is aligned to 24C.

There are NO fault alarms on 24D.

Which of the following is a required response to this event?

- A** Close the "B" EDG breaker and verify flow to Fac. 2 RBCCW and SW restored.
- B** Start the "B" RBCCW and "B" SW pumps and verify flow to Fac. 2 RBCCW and SW is restored.
- C** Place the "C" RBCCW pump in PULL-TO-LOCK, then close the "B" EDG breaker and verify flow to Fac. 2 SW is restored.
- D** Trip the "B" EDG and utilize Loss of 24D AOP to restore Fac. 2 RBCCW and SW flow.

## **RO NRC Exam**

**# 60**

Which of the following impacts must a fire have on the plant for the fire to be classified as an "Appendix R" fire?

- A** Prevents a plant startup or requires a shutdown.
- B** Results in the release of offsite radiation through smoke or spill.
- C** Affects the capability to achieve and maintain safe shutdown.
- D** Causes the violation of EPA standards or requirements.

## RO NRC Exam

# 61

The following plant conditions exist:

- \* Plant has just been stabilized at 68% power after a CEA dropped to the fully inserted position.
- \* The I&C technicians investigating state repairs will take approximately two (2) hours.

Which of the following describes the concern for staying at 68% power until repairs are made?

- A** Radial power distribution will bring the Thermal Margin/Low Pressure trip setpoint closer to actual pressure.
- B** Possible automatic trip on Local Power Density due to the xenon transient caused by the dropped CEA.
- C** Colder Tcold entering the bottom of the core will cause thermal contraction of the lower CEA guide tubes, making it increasingly difficult to withdraw the dropped CEA.
- D** The development of excessive radial power peaks as xenon returns to equilibrium.

## RO NRC Exam

# 62

The plant is at 100% power with all CEAs fully withdrawn. An I&C technician performing a routine check of the coil power programmer (CPP) power supplies reports that the main CPP power supply to #1 CEA is dead (zero power output) and that the alternate CPP power supply is at minimum output.

What would be the result of the alternate CPP power supply also failing completely (zero power output) before the main power supply is replaced?

- A** The CEA will immediately drop to the zero rod position.
- B** CEAPDS will NOT be able to generate a CEA Motion Inhibit (CMI) for the CEA.
- C** Pulse counting position indication for the CEA will be inaccurate.
- D** The CEDM will "lockup", preventing the CEA from being moved from the fully withdrawn position.

## **RO NRC Exam**

**# 63**

Which of the following conditions will result in the Control Room Ventilation System shifting automatically into the Recirculation Mode of operation?

- A** Control Room area radiation monitor (RM-7899) in alarm.
- B** Control Room gaseous process radiation monitor (RM-8011) in alarm.
- C** Control Room ventilation intake duct radiation monitor (RM-9799A) fails high.
- D** Control Room ventilation intake duct smoke detector fails high.

## RO NRC Exam

# 64

A reactor startup is in progress. The Primary Plant Operator (PPO) has just started withdrawing regulating group CEAs in Manual-Sequential mode, when the "Withdraw-Insert" switch fails in the WITHDRAW mode (indicative of holding the switch in the withdraw position). The PPO releases the control switch and notes that regulating group CEAs are continuing to withdraw.

Which one of the following conditions applies to this transient?

- A** Two TM/LP pre-trips activating at the same time will stop the CEA movement.
- B** CEAPDS will indicate the uncontrolled withdrawal but the plant process computer (PPC) will NOT.
- C** The CEA Motion Inhibit (CMI) activating on group deviation will NOT stop the uncontrolled withdrawal.
- D** The uncontrolled withdrawal will completely stop when the first regulating group reaches the Upper Core Stop.

## RO NRC Exam

# 66

The plant is at 100% power with all systems operating normally when an excess steam demand (ESD) event occurs inside containment (CTMT).

The following plant conditions then exist:

- \* CTMT Pressure = 45 psig and slowly dropping.
- \* CTMT Temperature = 280 °F and slowly dropping.
- \* RCS Pressure = 1250 psia and stable.

Injection flow has refilled the pressurizer to an indicated level of 45%.

Which of the following is the expected effect on pressurizer (PZR) level indication and control due to the degraded CTMT conditions?

- A** Indicated PZR level (LI-110 X/Y) will be higher than ACTUAL PZR level.
- B** Indicated PZR level (LI-110 X/Y) will equal ACTUAL PZR level.
- C** PZR Level-Cold Calibrated indication (LI-103) will be higher than ACTUAL PZR level.
- D** Indicated PZR level (LI-110 X/Y) and the PZR Level-Cold Calibrated indication (LI-103) will be equal.

## RO NRC Exam

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- C** PZR Level-Cold Calibrated indication (LI-103) will be higher than ACTUAL PZR level.
- D** Indicated PZR level (LI-110 X/Y) and the PZR Level-Cold Calibrated indication (LI-103) will be equal.



## RO NRC Exam

# 68

The plant is at 100% power when a condensate pump trips on breaker overload.

Which of the following describes a correct mitigating action for the loss of the Condensate Pump?

- A** Open the Condensate Polishing Facility (CPF) bypass valve.
- B** Raise the speed (rpm) of the slower running main feed pump.
- C** Open the heater drain pump subcooling valve.
- D** Take manual control of both Main Feedwater Regulating Valves and open to the pre-event position.

## **RO NRC Exam**

**# 68**

The plant is at 100% power when a condensate pump trips on breaker overload.

Which of the following describes a correct mitigating action for the loss of the Condensate Pump?

- A** Open the Condensate Polishing Facility (CPF) bypass valve.
- B** Raise the speed (rpm) of the slower running main feed pump.
- C** Open the heater drain pump subcooling valve.
- D** Take manual control of both Main Feedwater Regulating Valves and open to the pre-event position.

## RO NRC Exam

**# 70**

The three highest core exit thermocouples (CETs) on channel 1 read as follows:

- \* G18 = 569
- \* S11 = 565
- \* V15 = 565

CET G18 has just failed due to an OPEN in its circuit. All other CET outputs remain unchanged.

Which of the following describe the effect that this CET failure will have on Channel 1 subcooled margin indication?

- A** Superheated conditions will be indicated.
- B** Subcooled margin indication will NOT change.
- C** Subcooled margin will indicate higher than actual.
- D** Subcooled margin will indicate as an "error" only.

## RO NRC Exam

**# 70**

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- \* S11 = 565
- \* V15 = 565

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- D** Subcooled margin will indicate as an "error" only.

## RO NRC Exam

# 72

Which one of the following is correct with regard to announcing the start of a Service Water pump using the plant page?

- A** Any control room, non-dedicated, dial phone can be used.
- B** The Unit Supervisor's phone MUST NOT be in use.
- C** Call block for shift turnover ("shields up") must NOT be active.
- D** The outside page switch on the Unit Supervisor's desk MUST be in the "outside page" position.

## RO NRC Exam

# 72

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- B** The Unit Supervisor's phone **MUST NOT** be in use.
- C** Call block for shift turnover ("shields up") **must NOT** be active.
- D** The outside page switch on the Unit Supervisor's desk **MUST** be in the "outside page" position.

## RO NRC Exam

**# 74**

The plant is operating at 100% power, one (1) charging pump running, normal letdown flow and all components normally aligned.

Then, the pressure transmitter feeding the letdown backpressure controller slowly fails LOW. All components respond as designed to the malfunction.

Which of the following describe an effect of this malfunction, over the next several minutes?

- A** VCT level will slowly go down.
- B** Letdown flow control valve will throttle closed.
- C** A standby charging pump will start.
- D** Indicated letdown flow will oscillate rapidly.

## RO NRC Exam

**# 74**

The plant is operating at 100% power, one (1) charging pump running, normal letdown flow and all components normally aligned.

Then, the pressure transmitter feeding the letdown backpressure controller slowly fails LOW. All components respond as designed to the malfunction.

Which of the following describe an effect of this malfunction, over the next several minutes?

- A** VCT level will slowly go down.
- B** Letdown flow control valve will throttle closed.
- C** A standby charging pump will start.
- D** Indicated letdown flow will oscillate rapidly.



## RO NRC Exam

# 76

The plant is operating in Mode 5 with excess purification in progress. Routine Chemistry samples indicate the 'A' RBCCW Pump suction header has significantly higher activity than the 'C' RBCCW Pump suction header.

Which of the following components is the possible source of the in-leakage?

- A** 'A' SDC heat exchanger
- B** Letdown Heat Exchanger
- C** Primary sample coolers
- D** 'A' SFP Cooling Heat Exchanger

## RO NRC Exam

**# 76**

The plant is operating in Mode 5 with excess purification in progress. Routine Chemistry samples indicate the 'A' RBCCW Pump suction header has significantly higher activity than the 'C' RBCCW Pump suction header.

Which of the following components is the possible source of the in-leakage?

- A** 'A' SDC heat exchanger
- B** Letdown Heat Exchanger
- C** Primary sample coolers
- D** 'A' SFP Cooling Heat Exchanger

## RO NRC Exam

**# 78**

The plant is operating in Mode 1.

When may the ONE licensed operator "at the controls" leave the surveillance area of the Control Room without obtaining a normal watch relief?

- A** Initiate a surveillance.
- B** Monitor maintenance inside the Control Room.
- C** Verify receipt of an annunciator.
- D** Use the restroom in the Unit One control room.

## RO NRC Exam

# 78

The plant is operating in Mode 1.

When may the ONE licensed operator "at the controls" leave the surveillance area of the Control Room without obtaining a normal watch relief?

- A** Initiate a surveillance.
- B** Monitor maintenance inside the Control Room.
- C** Verify receipt of an annunciator.
- D** Use the restroom in the Unit One control room.

## RO NRC Exam

# 80

Given the following:

- \* Unit 2 is in REFUELING.
- \* Wide Range Nuclear Instrument channels "B" and "D" are out of service for maintenance.
- \* Wide Range Nuclear Instrument channel "A" is in service with its associated audible indication in containment OPERABLE.
- \* Wide Range Nuclear Instrument channel "C" has just failed offscale HIGH.
- \* Core alterations are in progress.

Which of the following actions should be implemented?

- A** Suspend all operations involving positive reactivity changes.
- B** Initiate emergency boration to ensure an adequate shutdown margin is maintained.
- C** Establish continuous monitoring of the operable wide range channel.
- D** Immediately evacuate all personnel from CTMT.

## RO NRC Exam

**# 80**

Given the following:

- \* Unit 2 is in REFUELING.
- \* Wide Range Nuclear Instrument channels "B" and "D" are out of service for maintenance.
- \* Wide Range Nuclear Instrument channel "A" is in service with its associated audible indication in containment OPERABLE.
- \* Wide Range Nuclear Instrument channel "C" has just failed offscale HIGH.
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Which of the following actions should be implemented?

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- B** Initiate emergency boration to ensure an adequate shutdown margin is maintained.
- C** Establish continuous monitoring of the operable wide range channel.
- D** Immediately evacuate all personnel from CTMT.

## RO NRC Exam

# 82

The plant has experienced a Loss Of Instrument Air and efforts to re-establish it have been unsuccessful.

What effect would this event have on Pressurizer Level Control System?

- A** 2-CH-089, Letdown Header isolation valve fails open.
- B** Letdown Flow Control Valves fail to the Letdown Limiter minimum position.
- C** Charging Header Isolation Valves fail closed.
- D** Letdown Isolation Valves fail closed.

## RO NRC Exam

# 82

The plant has experienced a Loss Of Instrument Air and efforts to re-establish it have been unsuccessful.

What effect would this event have on Pressurizer Level Control System?

- A** 2-CH-089, Letdown Header isolation valve fails open.
- B** Letdown Flow Control Valves fail to the Letdown Limiter minimum position.
- C** Charging Header Isolation Valves fail closed.
- D** Letdown Isolation Valves fail closed.



## RO NRC Exam

# 84

Which of the following should be verified if the Containment Post-Incident Area Radiation Monitor, RM-8240, were to fail high (assume RM-8241 is operating normally)?

- A** Any pre-outage containment atmosphere cleanup operation involving 2-AC-4 and 2-AC-6 is automatically terminated.
- B** Any pre-outage containment atmosphere cleanup operation involving 2-AC-5 and 2-AC-7 is automatically terminated.
- C** Containment Hydrogen Purge using the Facility 1 valves ONLY is automatically terminated.
- D** Containment Hydrogen Purge using the Facility 1 OR Facility 2 valves is automatically terminated.

## RO NRC Exam

# 84

Which of the following should be verified if the Containment Post-Incident Area Radiation Monitor, RM-8240, were to fail high (assume RM-8241 is operating normally)?

- A** Any pre-outage containment atmosphere cleanup operation involving 2-AC-4 and 2-AC-6 is automatically terminated.
- B** Any pre-outage containment atmosphere cleanup operation involving 2-AC-5 and 2-AC-7 is automatically terminated.
- C** Containment Hydrogen Purge using the Facility 1 valves ONLY is automatically terminated.
- D** Containment Hydrogen Purge using the Facility 1 OR Facility 2 valves is automatically terminated.

## RO NRC Exam

# 86

A loss of Shutdown Cooling (SDC) has occurred due to a loss of all AC power. According to AOP 2572, Loss Of Shutdown Cooling, RWST gravity feed makeup to the RCS is time sensitive.

What is the BASIS for this Precaution?

- A** Diminishing DC battery capacities for valve and breaker operation.
- B** Diminishing Instrument Air system receiver capacity for valve operation.
- C** RCS heatup and possible pressurization preventing gravity feed.
- D** RCS heatup driving gasses out of solution and vapor binding SDC.

## RO NRC Exam

# 86

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What is the BASIS for this Precaution?

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- B** Diminishing Instrument Air system receiver capacity for valve operation.
- C** RCS heatup and possible pressurization preventing gravity feed.
- D** RCS heatup driving gasses out of solution and vapor binding SDC.

## RO NRC Exam

# 88

Which of the following is an indication that the Aerated Radwaste Discharge Valves have been OVERRIDDEN open?

- A** The "Hi Rad./Inst. Fail" annunciator is alarming and the Aerated Radwaste Discharge Final Filter delta P is reading 20 psig.
- B** The "Hi Rad./Inst. Fail" annunciator is alarming and the Aerated Radwaste Monitor Tank Pump is still running.
- C** A Radwaste Discharge is in progress and NO Circulating Water Pumps are operating.
- D** The Aerated Radwaste Flush Valves are open and the Sample Pump is still running.

## RO NRC Exam

# 88

Which of the following is an indication that the Aerated Radwaste Discharge Valves have been OVERRIDDEN open?

- A** The "Hi Rad./Inst. Fail" annunciator is alarming and the Aerated Radwaste Discharge Final Filter delta P is reading 20 psig.
- B** The "Hi Rad./Inst. Fail" annunciator is alarming and the Aerated Radwaste Monitor Tank Pump is still running.
- C** A Radwaste Discharge is in progress and NO Circulating Water Pumps are operating.
- D** The Aerated Radwaste Flush Valves are open and the Sample Pump is still running.

## RO NRC Exam

# 90

Which of the following is a potential consequence of running only one CEDM cooling fan during 100% power operation?

- A** Eventual dropped rod.
- B** RVLMS electronic components overheating.
- C** Reactor vessel head solenoid valve leakby.
- D** Reactor vessel upper head void formation.

## RO NRC Exam

# 90

Which of the following is a potential consequence of running only one CEDM cooling fan during 100% power operation?

- A** Eventual dropped rod.
- B** RVLMS electronic components overheating.
- C** Reactor vessel head solenoid valve leakby.
- D** Reactor vessel upper head void formation.



## RO NRC Exam

# 92

The plant is on Sump Recirculation following a large-break LOCA. All automatic actions occurred as a result of the SRAS, with the EXCEPTION of the automatic closure of 2-SI-659 and 2-SI-660. Both valves are still OPEN.

Which of the following statements describes the effect of these valves NOT being closed at this time?

- A** An unmonitored radioactive release path now exists, by way of the RWST vent, to the environment.
- B** There is a possibility of inadequate injection flow to the RCS from the remaining ECCS pumps.
- C** Pump "run out" could occur due to the change of HPSI pump suction.
- D** There is a possibility of inadequate flow for boron precipitation control when utilizing Facility I HPSI pump.

## RO NRC Exam

# 92

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- B** There is a possibility of inadequate injection flow to the RCS from the remaining ECCS pumps.
- C** Pump "run out" could occur due to the change of HPSI pump suction.
- D** There is a possibility of inadequate flow for boron precipitation control when utilizing Facility I HPSI pump.

## RO NRC Exam

# 94

A plant shutdown is in progress with power level presently at 50% and Tavg on program. The "A" condenser steam dump valve pressure controller (PIC-4216) in manual-closed due to a failed pressure transmitter. All other equipment and systems are aligned and operating normally.

Then, an uncomplicated Reactor/Turbine trip occurs.

What is the expected response of the Atmospheric Dump Valves (ADVs) and Steam Dump and Bypass Valves (SDBPVs) immediately following the trip?

- A** The ADVs and SDBPVs will quick-open and then close when Tave drops below the Quick Open setpoint.
- B** The ADVs will quick-open, and then close when Tave drops below the Quick Open setpoint; the SDBPVs will modulate to maintain 535 - 540 °F.
- C** All of the ADVs and SDBPVs will initially open on steam pressure and Tavg, respectively; the ADVs will then close as pressure drops below their setpoint and the SDBPVs will modulate to maintain 535 - 540 °F.
- D** The ADVs and the "A" SDBPV will initially open on steam pressure and the remaining SDBPVs will open on Tavg; the ADVs and SDBPVs will then close as pressure and temperature drops below their setpoints; the "A" SDBPVs will then modulate to maintain 532 - 533 °F.

## RO NRC Exam

# 94

A plant shutdown is in progress with power level presently at 50% and Tavg on program. The "A" condenser steam dump valve pressure controller (PIC-4216) in manual-closed due to a failed pressure transmitter. All other equipment and systems are aligned and operating normally.

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What is the expected response of the Atmospheric Dump Valves (ADV) and Steam Dump and Bypass Valves (SDBPVs) immediately following the trip?

- A** The ADVs and SDBPVs will quick-open and then close when Tave drops below the Quick Open setpoint.
- B** The ADVs will quick-open, and then close when Tave drops below the Quick Open setpoint; the SDBPVs will modulate to maintain 535 - 540 °F.
- C** All of the ADVs and SDBPVs will initially open on steam pressure and Tavg, respectively; the ADVs will then close as pressure drops below their setpoint and the SDBPVs will modulate to maintain 535 - 540 °F.
- D** The ADVs and the "A" SDBPV will initially open on steam pressure and the remaining SDBPVs will open on Tavg; the ADVs and SDBPVs will then close as pressure and temperature drops below their setpoints; the "A" SDBPVs will then modulate to maintain 532 - 533 °F.

## RO NRC Exam

# 96

The plant is at 100% power, when a leak to atmosphere develops in the Waste Gas Surge Tank. Before Maintenance personnel begin to repair the leak, the tank is purged with nitrogen.

What personnel safety hazard is driving the need to purge the tank?

- A** Substantial rise in the surface contamination on normally clean component surfaces.
- B** Potentially flammable, or possibly explosive, gas hazard in occupied spaces.
- C** The potential displacement of oxygen in normally open areas.
- D** The unexpected presence of a severe eye irritant in the general area.

## RO NRC Exam

# 96

The plant is at 100% power, when a leak to atmosphere develops in the Waste Gas Surge Tank. Before Maintenance personnel begin to repair the leak, the tank is purged with nitrogen.

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- B** Potentially flammable, or possibly explosive, gas hazard in occupied spaces.
- C** The potential displacement of oxygen in normally open areas.
- D** The unexpected presence of a severe eye irritant in the general area.

## RO NRC Exam

# 98

The Turbine Driven Auxiliary Feedwater Pump (TDAFP) has just inadvertently tripped on overspeed. It must be restarted due to a plant emergency. A PEO has been dispatched to the TDAFP to assist in resetting the overspeed trip.

Which of the following control board actions is mechanically/electrically required to RESET the TDAFP overspeed trip?

- A** Fully close the terry turbine auxiliary feed pump steam supply valve, SV-4188
- B** Close both steam supply valves, "TDAFP SPLY VLV, MS-201" and "TDAFP SPLY VLV, MS-202".
- C** Fully lower the TDAFP governor control switch, "SPD CNTL", to minimum.
- D** Cycle the TDAFP key lock control power switches from the normal facility to the alternate facility.

## RO NRC Exam

# 98

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- C** Fully lower the TDAFP governor control switch, "SPD CNTL", to minimum.
- D** Cycle the TDAFP key lock control power switches from the normal facility to the alternate facility.



## RO NRC Exam

### # 100

The plant is at 100% power when the following occurs:

- \* The #1 Feedwater Reg. Valve (FRV) Lockup Circuit fails in the actuate (locked) mode.
- \* "FEEDWATER REGULATING VALVE 1 LOCKED" annunciator is alarming.
- \* NONE of the FRV Lockup alarm lights are in alarm.

Subsequent I&C investigation reveals that the #1 FRV Lockup Circuit is ARMED, but further investigation is required to determine a cause.

What is the impact of this armed lockup signal on the #1 Feedwater Regulating Valve?

- A** The main feedwater regulating valve will NOT respond to automatic control signals on steam generator level changes, but can be operated remotely, in manual, from C05.
- B** The main feedwater regulating valve will NOT respond to position change signals from the control board controllers, but will respond to manual control at the valve.
- C** The main feedwater regulating valve will automatically throttle as necessary to maintain steam generator level, but the "ramp" signals on a main turbine trip will NOT function.
- D** The main feedwater regulating valve will NOT respond to remote or local-manual changes in position, but will trip closed on an MSI actuation or turbine trip.

## RO NRC Exam

### # 100

The plant is at 100% power when the following occurs:

- \* The #1 Feedwater Reg. Valve (FRV) Lockup Circuit fails in the actuate (locked) mode.
- \* "FEEDWATER REGULATING VALVE 1 LOCKED" annunciator is alarming.
- \* NONE of the FRV Lockup alarm lights are in alarm.

Subsequent I&C investigation reveals that the #1 FRV Lockup Circuit is ARMED, but further investigation is required to determine a cause.

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- A** The main feedwater regulating valve will NOT respond to automatic control signals on steam generator level changes, but can be operated remotely, in manual, from C05.
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- C** The main feedwater regulating valve will automatically throttle as necessary to maintain steam generator level, but the "ramp" signals on a main turbine trip will NOT function.
- D** The main feedwater regulating valve will NOT respond to remote or local-manual changes in position, but will trip closed on an MSI actuation or turbine trip.

U.S. Nuclear Regulatory Commission  
Site-Specific Written Examination Answer Sheet  
Millstone Unit Two Reactor Operator Examination

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Grade: \_\_\_\_\_

1) [A] [B] [C] [D]

2) [A] [B] [C] [D]

3) [A] [B] [C] [D]

4) [A] [B] [C] [D]

5) [A] [B] [C] [D]

6) [A] [B] [C] [D]

7) [A] [B] [C] [D]

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45) [A] [B] [C] [D]

46) [A] [B] [C] [D]

47) [A] [B] [C] [D]

48) [A] [B] [C] [D]

49) [A] [B] [C] [D]

50) [A] [B] [C] [D]

U.S. Nuclear Regulatory Commission  
Site-Specific Written Examination Answer Sheet  
Millstone Unit Two Reactor Operator Examination

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Grade: \_\_\_\_\_

1) [A] [B] [C] [D]

2) [A] [B] [C] [D]

3) [A] [B] [C] [D]

4) [A] [B] [C] [D]

5) [A] [B] [C] [D]

6) [A] [B] [C] [D]

7) [A] [B] [C] [D]

8) [A] [B] [C] [D]

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47) [A] [B] [C] [D]

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49) [A] [B] [C] [D]

50) [A] [B] [C] [D]

U.S. Nuclear Regulatory Commission  
Site-Specific Written Examination Answer Sheet  
Millstone Unit Two Reactor Operator Examination

Name: Answer Key

Date: 8/7/08

Grade: 100%

- 1) [A] ☒ [B] [C] [D]
- 2) [A] [B] ☒ [C] [D]
- 3) [A] [B] ☒ [C] [D]
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- 23) [A] [B] [C] ☒ [D]
- 24) [A] ☒ [B] [C] [D]
- 25) ☒ [A] [B] [C] [D]

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Key Generation.  
'D' is correct  
ans. JEB*

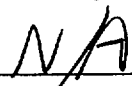
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- 50) [A] [B] ☒ [C] [D]

U.S. Nuclear Regulatory Commission  
Site-Specific Written Examination Answer Sheet  
Millstone Unit Two Reactor Operator Examination

- 51) [A] (B) [C] [D]  
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97) (A) [B] [C] [D]  
98) (A) [B] [C] [D]  
99) [A] (B) [C] [D]  
100) [A] (B) [C] [D]

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

  
\_\_\_\_\_  
Examinee's Signature

### **Attachment 3**

#### **RESOLUTION OF POST EXAMINATION COMMENT**

Question 79 of the SRO test.

Licensee comment: The question asks which Unit will take the lead and coordinate the emergency plan implementation for a personnel injury at Unit 3. The licensee noted that Unit 1 was specified in procedure COP-204, Response to Medical Emergencies (answer "A"); however, Emergency Plan Implementing Procedure, EPIP 4400A, which was revised to reflect the retirement of Unit 1, states that Unit 3 has the responsibility (answer "C"). The licensee requests that either answer "A" or "C" be accepted as correct.

NRC response: Agree with the licensee. Since both procedures were in effect at the time accept either answer "A" or "C" as correct.

**Attachment 4**

**Licensee Post-Examination Comment**





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**SEP 21 2000**

Docket No. 50-336  
B18228

Mr. Larry Briggs, Chief Examiner  
U.S Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
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Millstone Nuclear Power Station, Unit No. 2  
Analysis for August 2000 Initial License Examinations

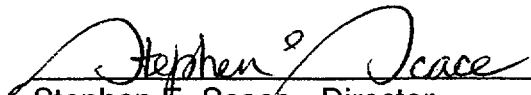
In accordance with NUREG-1021, ES-501 Paragraph C, Section 1.a, Northeast Nuclear Energy Company (NNECO) hereby provides the performance analysis for the Millstone Unit No. 2 Initial Operator License Examination administered in August 2000. Also included in this submittal is the additional information requested in a September 8, 2000, telephone conversation between Mr. L. Briggs, Chief Examiner - NRC Region I, and Mr. M. Baughman, Manager - Operator Training, Millstone, relating to NNECO's justification for multiple correct answers to Senior Reactor Operator (SRO) examination question number 79. The examination analysis is included as Attachment 1. Attachment 2 contains the justification for accepting multiple answers to question number 79 on the SRO examination.

There are no regulatory commitments contained within this letter.

If you have any questions regarding this submittal, please contact Mr. Michael D. Baughman at (860) 437-2647.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
Stephen E. Scace - Director  
Nuclear Oversight and Regulatory Affairs

cc: See next page

U.S. Nuclear Regulatory Commission  
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Attachments (2):    Millstone Unit 2 LOIT-2000 RO & SRO Exam Analysis  
                                 Justification for Accepting Multiple Answers to Question 79

cc:    H. J. Miller, Region I Administrator  
         J. I. Zimmerman, NRC Project Manager, Millstone Unit No. 2  
         S. R. Jones, Senior Resident Inspector, Millstone Unit No. 2

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Docket No. 50-336  
B18228

Attachment 2

Millstone Nuclear Power Station, Unit No. 2

Justification for Accepting Multiple Answers to Question 79

Comment on SRO Exam Question #79:

The original answer to question #79 on the SRO candidates exam ("A Unit One Shift Manager") was technically correct when the exam was developed. The reference used, *C OP-204* (Response to Medical Emergencies), is a valid station procedure that was in effect throughout the end of the LOIT program, including the time the exam was given.

However, after exam development began, the Emergency Plan Implementation Procedure, EPIP-4400A, which gives guidance on the control of non-unit specific events, was changed to reflect the retirement of Unit One. This change now makes Unit Three responsible for the classification of all non-emergency station events.

The problem was magnified by a potential ambiguity in the wording of the question. The question specifically asked who "...will take the lead and coordinate the Emergency Plan Implementation Plan requirements". If a candidate felt the question was asking about who deals with the *medical emergency* referenced in the stem of the question, then COP-204 is the controlling document and Unit One is the correct answer (choice A). This was the original intent of the question. [See attached Exam Analysis for details] Unfortunately, if a candidate believed the question was soliciting who is responsible for the *classification* of the event, then Unit Three is the correct answer (choice C).

In view of the procedure change to EPIP-4400A, and the ambiguity of the question, we feel that all four SRO Candidate exams should be regraded with full credit being given for either choice "A" or choice "C".