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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
King of Prussia, PA 19406

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

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
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Attachment 1

Millstone Nuclear Power Station, Unit No. 2

Millstone Unit 2 LOIT-2000 RO & SRO Exam Analysis

# Millstone Unit 2 LOIT-2000
# RO & SRO Exam Analysis

Note: the numbers to the left of each choice letter indicate the number of candidates that selected that answer. The correct answer is circled.

## #29 RO & SRO 7 missed / 5 correct

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?

2 **A** Only after subcooling has been restored to greater than 30 °F.

5 **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.

(5 **D**) Only after feed flow has restored at least one steam generator to greater than 70" of level.

**Analysis:**

The question is technically correct per EOP-2540D guidance. The concept evaluated was covered during the program, soliciting a lot of discussion between the students and instructors.
However, in light of the number of candidates who missed the question, the concept will be recovered in the post-exam review.

# Millstone Unit 2 LOIT-2000
# RO & SRO Exam Analysis

## #39 RO & SRO 7 missed / 5 correct

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?

6 **A** Safety Channel Power Indication on the NI drawers.

1 **B** Variable High Power Trip Setpoint.

**C** Wide Range Log Power Indication on RPS.

(5 **D**) Variable TM/LP Trip setpoint.

**Analysis:**

The question is technically correct per System Text RPS-01-C. Choice "A" may have been confused with Safety Channel Power Indication on *RPS*, which is affected by the calibration pot. To eliminate this potential confusion in the future, choice "A" will be changed to read; "Power Indication Meters on the Narrow Range NI drawers." [AI#2000-2967]
Also, this concept was adequately covered in both the RPS and NI system presentations given during the LOIT Program. However, in light of the number of candidates who missed the question, the concept will be recovered in the post-exam review.

# Millstone Unit 2 LOIT-2000
# RO & SRO Exam Analysis

## #47 RO & SRO 7 missed / 5 correct

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?

7 **A** "A", then "B", then "C".

(5 **B**) "A", then "C", then "B"

**C** "C", then "A", then "B"

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

## Analysis:

The question is technically correct per OP-2332B Discussion Section and the System Text. Several candidates stated that they did not study concepts they felt were Non-license level as much as the license level. They felt this concept was non-license level even though it had a K/A Importance rating of >3.0. The post-exam review will stress the importance of all operational plant concepts, regardless of the applicable job position of responsibility.
Also, the LOIT Program indoctrination discussion will be modified to ensure the knowledge expectations are well understood. [AI#2000-2967]

# Millstone Unit 2 LOIT-2000
# RO & SRO Exam Analysis

## #56 RO & SRO 7 missed / 5 correct

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?

5 **A** RCS pressure will stabilize at some lower pressure with less spray flow.

6 **B** RCS pressure will remain relatively constant at the desired pressure while the spray valves throttle closed.

1 **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.

**Analysis:**

The question is technically correct per the system text. Although the specific failure mechanism was not directly covered in the text or system presentation, the knowledge required to successfully answer the question was discussed in the classroom and demonstrated on the simulator. However, to ensure greater emphasis on the concept, the simulator lesson plan will be modified to demonstrate the effects of a lost backup heater on forcing pressurizer spray flow. [AI#2000-2967]
Also, in light of the number of candidates who missed the question, the concept will be recovered in the post-exam review.

# Millstone Unit 2 LOIT-2000
# RO & SRO Exam Analysis

## #91 RO 6 missed / 2 correct

A plant startup is in progress.

Which of the following describes when the INTERLOCK is reset to allow opening of the second stage reheat supply to the Moisture Separators?

1 **A** When the turbine is reset

(2 **B**) At >10% turbine load

5 **C** At >20% turbine load

**D** At >20% reactor power

## Analysis:

The question is technically correct per the system text and was covered in the classroom discussion for the system. However, in light of the number of candidates who missed the question, the concept will be recovered in the post-exam review.

## #93 RO 6 missed / 2 correct

The plant is in Mode 3 with a heatup in progress. The following conditions exist:

* Tavg = 420 degrees
* Pressurizer pressure = 1500 psia
* 'B' and 'D' RCPs running
* Bus 24E is aligned to Bus 24D

Then, the 'A' RBCCW Pump trips on overload and the overload alarm is received.

Which of the following actions should be performed within the next two minutes?

3 **A** Secure the 'B' and 'D' RCPs until 24E can be realigned to 24C.

**B** Secure Charging until RBCCW flow can be reestablished to the letdown heat exchanger.

3 **C** Attempt to restart the 'A' RBCCW Pump at least once before proceeding with other system realignments.

2 **D** Realign 24E to 24C and start the 'B' RBCCW Pump on the 'A' RBCCW header.

**Analysis:**

The question is technically correct per the system text, administrative guidelines on pump restart and AOP-2564, Loss of RBCCW. The time constraint of "two minutes" may have confused candidates as the correct answer can not be completed in two minutes. The question was actually soliciting which action should be taken in the next two minutes. Based on this possible point of confusion, the question will be modified to state, "which of the following actions must be started in the next two minutes."
[AI#2000-2967]
Also, in light of the number of candidates who missed the question, the concept will be recovered in the post-exam review.

# Millstone Unit 2 LOIT-2000
# RO & SRO Exam Analysis

## #79 SRO 2 missed/2 correct
## (change to 0 missed/ 4 correct)

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?

2 **A** Unit One Shift Manager

**B** Unit Two Shift Manager

2 **C** Unit Three Shift Manager

**D** Station Duty Officer

## Analysis:

The original answer to the question ("**A** Unit One Shift Manager") was technically correct when the exam was developed. The reference used, *C OP-204* (Response to Medical Emergencies), is still a valid station procedure. However, shortly before the exam was given, 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 procedure change now makes choice "**C** Unit Three Shift Manager" an additional correct answer. All four SRO Candidate exams should be regraded based on this recent procedure change. Any candidate that chose either choice "**A**" or choice "**C**" will receive full credit for this question.
In light of the potential for confusion caused by the procedure change, the concept will be reviewed in the post-exam review.

# Millstone Unit 2 LOIT-2000
# RO & SRO Exam Analysis

## #83 SRO 2 missed / 2 correct

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)?

1 **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.

1 **C** Fuel cladding may exceed 2200 °F in the event of a LOCA.

2 **D** Invalidate the accident and transient analysis by operating outside the assumed initial conditions.

**Analysis:**

The question is technically correct per the Technical Specifications basis for violation of DNB margin. Although Technical Specifications basis concepts are covered in a self-study format in the Initial License Program, the candidates are made aware of the knowledge expectations for those concepts and their importance.
However, in light of the number of candidates who missed the question, the concept will be recovered in the post-exam review.

## #97 SRO 4 missed / 0 correct

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?

1 **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.

3 **D** When the average of the core exit thermocouple temperatures are greater than 200°F.

## Analysis:

The question is technically correct per the definition of Modes in the Technical Specifications and was adequately discussed in the Loss of Shutdown Cooling, AOP-2572, presentation.
However, in light of the number of candidates who missed the question, the concept will be recovered in the post-exam review.

## #99 SRO 2 missed / 2 correct

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.

2 **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

(2 **D**) The cooldown rate is limited to 30°F/hour.

**Analysis:**

The question is technically correct per AOP-2572 and Technical Specifications and was covered in the AOP-2572 presentation.
However, in light of the number of candidates who missed the question, the concept will be recovered in the post-exam review.

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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**".