

ENCLOSURE 1

EXAMINATION REPORT - 50-297/OL-88-01

Facility Licensee: North Carolina State University
Raleigh, NC 27695-7909

Facility Name: North Carolina State University

Facility Docket No.: 50-297

Written examinations and operating tests were administered at North Carolina State University near Raleigh, North Carolina.

Chief Examiner: William M. Dean 2/23/88
William M. Dean Date Signed

Approved by: William M. Dean 2/23/88
for Kenneth E. Brockman, Chief Operator Date Signed
Licensing Section 2

Summary:

Examinations on February 2-3, 1988.

Operating and written tests were administered to two Reactor Operator (RO) and one Senior Reactor Operator (SRO) candidates; one of two RO's passed the written examination; one of two ROs passed the operating examination. The SRO passed both examinations.

Based on the results described above, the SRO passed, while neither RO passed.

REPORT DETAILS

1. Facility Employees Contacted:

*G. D. Miller, Associate Director
*S. M. Grady, Chief Reactor Operator
T. C. Bray, Reactor Operations Manager

*Attended Exit Meeting

2. Examiners:

*W. M. Dean
R. S. Baldwin
M. E. Ernstes

*Chief Examiner

3. Examination Review Meeting

At the conclusion of the written examinations, the examiners provided S. M. Grady, Chief Reactor Operator, with a copy of the written examination and answer key for review. The NRC Resolutions to facility comments are listed below.

a. SRO Exam (Applicable RO questions are in parentheses)

(1) Question I.06 (G.05)

Agree with the facility comment. Points will not be deducted for including "2. (Beta)" as an additional answer to part (a).

(2) Question I.13 (G.08)

Facility comment acknowledged. Since it is possible to have airborne spills in areas other than hoods, the answer key will be changed to have "close hood door" in parentheses to indicate optional information not required for full credit. The candidate must include information analogous to the answer key to receive full credit, as these are Immediate actions contained within the Department of Nuclear Engineering, Laboratory Safety Manual.

(3) Question J.05 (B.05)

Agree with the facility comment. The recommended answer will be considered as an alternate correct response.

(4) Question J.11 (a) (C.08 (a))

Facility comment acknowledged. Since possible confusion could have resulted from misleading information in the question, this part of the question will be deleted from the exam.

(5) Question K.04

Agree with the facility comment. Since insufficient information was provided in the question, part (3) will be deleted.

(6) Question K.05 (b) (C.02 (b))

Agree with the facility comment. The answer key will be changed to remove EE.

(7) Question K.05 (c) (C.02 (c))

Agree with the facility comment. The answer key will be changed to remove "/MW".

(8) Question K.15

Agree with the facility comment. The answer key will be modified as recommended.

(9) Question L.10

Agree with the facility comment. The answer key will be modified as recommended.

(10) Question L.12 (C.09)

Disagree with the facility comment. Technical Specifications give the limit as 3% delta K/K, therefore an answer of -3000 pcm could not be a complete answer since this would not deal with experiments involving positive reactivity.

b. RO Exam

(1) Question A.10 (a & b)

Agree with the facility comment. Since the fast fission factor is fixed after the fuel is fabricated and it is difficult to calculate, this question will be deleted from the exam.

(2) Question A.11

Disagree with the facility comment. This question specifically asks for the functions of installed sources and in no way elicits answers concerning regenerative sources. The recommended facility answer is equivalent to parts (a) and (c) of the answer key. No change to the answer key is justified.

(3) Question B.03

Agree with the facility comment. The answer key will be changed to also read ALERT.

(4) Question B.07

Agree with the facility comment. The recommended answer will be considered as an alternate correct response.

(5) Question C.04

Agree with the facility comment. The recommended answer will be considered as an alternate correct response.

The typographical error in answer (c) will be corrected to read 1.20 MW

(6) Question D.02

Disagree with the facility comment. "Drive Inhibits" are considered to be "automatic protective signals". It is within the scope of the operator's knowledge to be able to distinguish when an automatic function should or should not take place as is in the case of the Channel Inoperative Inhibit. It is also recommended that the facility revise their reference material to reflect the same terminology throughout, so all operators are able to communicate using common terms. No change to the answer key is justified.

(7) Question D.03

Facility comment acknowledged. The facility's recommended answer is equivalent to the answer key. No change will be made to the answer key.

(8) Question D.09

Disagree with the facility comment. In order for an operator to discern if a control system is functioning properly, he should know what factors cause the controller to actuate. It is within the scope of an operator's knowledge to be able to describe how a controller works in simple terms. No change to the answer key is necessitated.

(9) Question E.01 (b)

Facility comment acknowledged. Since possible confusion could have resulted from misleading information in the question, this part of the question will be deleted from the exam.

(10) Question F.01 (c)

Disagree with the facility comment. The PULSTAR procedure for ECP calculations specifically states that Power Defect is considered, however, it neglects to state that it is taken to be zero. The facility is encouraged to revise its reference material to reflect this. No change to the answer key is necessitated.

(11) Question F.06

Facility comment acknowledged. The facility's recommended answer (1) will be accepted as an additional alternate answer. However, the facility's recommended answer (2) is equivalent to the answer key.

(12) Question F.07

Facility comment acknowledged. The facility's recommended answer is equivalent to the answer key. No change will be made to the answer key.

4. Exit Meeting

At the conclusion of the site visit the examiners met with representatives of the plant staff to discuss the results of the examination.

There were two generic weaknesses noted during the oral examination. The areas of below normal performance were: Use of procedures and RO familiarity with the Emergency plan.

The cooperation given to the examiners and the effort to ensure an atmosphere in the control room conducive to oral examinations was also noted and appreciated.

The licensee did not identify as proprietary any of the material provided to or reviewed by the examiners.