

February 18, 1988

Docket No. 50-288

Dr. Paul Bragdon, President
Reed College
Portland, Oregon 97202

Dear Dr. Bragdon:

Subject: Reactor Operator and Senior Reactor Operator Licensing Examinations

In a telephone conversation between Mr. Michael Pollock, Acting Director, Reed Reactor Facility and Mr. Thomas R. Meadows, arrangements were made for the administration of Operator Licensing Examinations at the Reed Reactor Facility.

The written examinations are scheduled for May 17, 1988. The operating examinations are scheduled from May 18 through May 20, 1988.

In order for us to meet the above schedule, it will be necessary for the facility to furnish the approved reference material listed in Enclosure 1, "Reference Material Requirements for Reactor/Senior Reactor Operator Licensing Examinations," by March 18, 1988. Any delay in receiving properly bound and indexed reference material will result in a delay in administering the examinations. Our examinations are scheduled far in advance with considerable planning to utilize our present limited examiner manpower and to meet the examination dates requested by the various facilities. Therefore, missing the March 18, 1988 deadline, even by a few days, likely will result in a long delay because it may not be possible to reschedule examinations at other facilities. Mr. Pollock has been advised of our reference material sets that are required, and the examiner's names and addresses were each set is to be mailed.

The facility management is responsible for providing adequate space and facilities in order to properly conduct the written examinations. Enclosure 2, "Requirements for Administration of Written Examinations," describes our requirements for conducting these examinations. Mr. Pollock has also been informed of these requirements. Enclosure 2, also contains the Rules and Guidance that will be in effect during the administration of the written examination. The facility management is responsible for ensuring that all candidates are aware of these rules.

The facility staff review of the written examination will be conducted in accordance with requirements specified in Enclosure 3, "Requirements for Facility Review of Written Examinations." Mr. Pollock has been informed of these requirements.

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Dr. Paul Bragdon

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This request for information was approved by the Office of Management and Budget under Clearance Number 3150-0101, which expires May 31, 1989. Comments on burden and duplication may be directed to the Office of Management and Budget, Reports Management Room 3208, New Executive Office Building, Washington, D.C. 20503.

Thank you for your consideration in this matter. If you have any questions regarding the examination procedures and requirements, please contact Mr. Thomas R. Meadows at (415) 943-3867 or Mr. John Elin at (415) 943-3728, in Region V.

Sincerely,

ISI S. Richards

For Robert J. Pate, Chief
Reactor Safety Branch

Enclosures:

- 1. Reference Material Requirements for Reactor/Senior Reactor Operator Licensing Examinations
- 2. Requirements for Administration of Written Examinations
- 3. Requirements for Facility Review of Written Examination

cc w/enclosures (1), (2) and (3):
R. Cross, RV (2 copies)
M. Pollack, Reed College

cc w/o enclosures (1), (2) and (3):
R. Pate, RV
J. Elin, RV
H. Berkow, HQ PBSS
M. Cillis, RV

RV/jk

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MEADOWS *sm*
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ELIN *je*
2/18/88

PATE *RP*
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ENCLOSURE 1

REFERENCE MATERIAL REQUIREMENTS FOR REACTOR/SENIOR REACTOR OPERATOR LICENSING EXAMINATIONS

1. Existing learning objectives and lesson plans (including training manuals, plant orientation manual, system descriptions, reactor theory, thermodynamics, etc.)

Training materials should include all substantive written material used for preparing candidates for initial RO and SRO licensing. The written material should be inclusive of learning objectives and the details presented during lecture, rather than outlines. Training materials should be identified by plant and unit, bound, and indexed. Failure to provide complete properly bound and indexed plant reference material will result in cancelling or rescheduling of the examinations. Training materials which include the following should be provided:

- . System descriptions including descriptions of all operationally relevant flow paths, components, controls and instrumentation. System training material should draw parallels to the actual procedures used for operating the applicable system.
- . Complete and operationally useful descriptions of all safety-system interactions and, where available, BOP system interactions under emergency and abnormal conditions, including consequences of anticipated operator error, maintenance error, and equipment failure.
- . Training material used to clarify and strengthen understanding of emergency operating procedures.
- . Comprehensive theory material that includes fundamentals in the area of theory of reactor operation, thermodynamics, heat transfer and fluid flow, as well as specific application to actual in-plant components. For example, mechanical theory material on pumps should include pump theory as well as descriptions of how these principles actually apply to major plant pumps and the systems in which they are installed (i.e., Reactor Coolant Pumps, all ECCS pumps, Recirculation pumps, Feedwater pumps and Emergency Feedwater pumps). Reactor Theory material should include descriptions that draw explicit ties between the fundamentals and the actual operating limits followed in the plant (i.e., reactor theory material should contain explanations how principles relate to the actual curves used by operators to verify shutdown margin or calculate an ECP).

2. Procedure Index (alphabetical by subject)

3. All administrative procedures (as applicable to reactor operation or safety)
4. All integrated plant procedures (normal or general operating procedures)
5. Emergency procedures (emergency instructions, abnormal or special procedures)
6. Standing orders (important orders that are safety related and may supersede the regular procedures)
7. Fuel-handling and core-loading procedures, (initial core-loading procedure, when appropriate)
8. Annunciator procedures (alarm procedures, including set points)
9. Radiation protection manual (radiation control manual or procedures)
10. Emergency plan implementing procedures
11. Technical Specifications
12. System operating procedures
13. Piping and instrumentation diagrams, electrical single-line diagrams, or flow diagrams
14. Technical Data Book, and/or plant curve information as used by operators and facility precautions, limitations, and set points (PLS) for the facility,
15. Questions and answers that the licensee has prepared (voluntary by licensee)
16. Additional material required by the examiners to develop examinations that meet the requirements of these standards and the regulations.

The above reference material should be approved, final issues and should be so marked. If a plant has not finalized some of the material, the chief examiner shall verify with the facility that the most complete, up-to-date material is available and that agreement has been reached with the licensee for limiting changes before the administration of the examination. All procedures and reference material should be bound with appropriate indexes or tables of contents so that they can be used efficiently.

ENCLOSURE 2

REQUIREMENTS FOR ADMINISTRATION OF WRITTEN EXAMINATIONS

Operating Licensing Branch requirements are:

1. A single room shall be provided for completing the written examination. The location of this room and supporting restroom facilities shall be such as to prevent contact with all other facility and/or contractor personnel during the duration of the written examination. If necessary, the facility should make arrangements for the use of a suitable room at a local school, motel, or other building. Obtaining this room is the responsibility of the licensee.
2. Minimum spacing is required to ensure examination integrity as determined by the chief examiner. Minimum spacing should be one candidate per table, with a 3-ft space between tables. No wall charts, models, and/or other training materials shall be present in the examination room.
3. Suitable arrangements shall be made by the facility if the candidates are to have lunch, coffee, or other refreshments. These arrangements shall comply with Item 1 above. These arrangements shall be reviewed by the examiner and/or proctor.
4. The facility shall arrange to have knowledgeable personnel available to review examination questions and answer key. The facility will be given a copy of the exams and answer keys after the last candidate has turned in his completed examination. The facility staff will have until the end of the first exam week to provide comments and supporting documentation. They should provide these comments and supporting documentation in writing to the Chief Examiner before he leaves the site, and also forward them to the Operating Licensing Section Chief in Region V. The current two-hour post-exam review by the facility staff may also be conducted at the option of the Chief Examiner.
5. The licensee shall provide pads of 8-1/2 by 11-in. lined paper in unopened packages for each candidate's use in completing the examination. The examiner shall distribute these pads to the candidates. All reference material needed to complete the examination shall be furnished by the examiner. Candidates can bring pens, pencils, calculators or slide rules into the examination room, and no other equipment or reference material shall be allowed.
6. Only black ink or dark pencils should be used for writing answers to questions.

ENCLOSURE 3

REQUIREMENTS FOR FACILITY REVIEW OF WRITTEN EXAMINATION

1. There shall be no review of the written examination by the facility staff before or during the administration of the examination. Following the administration of the written examination, the facility staff shall be provided a marked-up copy of the examination and the answer key.
2. The facility will have five (5) working days from the day of the written examination is given to provide formal comment submittal. The submittal will be made to the responsible Regional Office by the highest level of corporate management for plant operations, e.g., Vice President for Nuclear Operations. A copy of the submittal will be forwarded to the chief examiner, as appropriate. Comments not submitted within five (5) working days will be considered for inclusion in the grading process on a case by case basis by the Regional Office section leader. Should the comment submittal deadline not be met, a long delay for finalization of the examination results may occur.
3. The following format should be adhered to for submittal of specific comments:
 - a. Listing of NRC Question, answer and reference.
 - b. Facility comment and requested resolution.
 - c. Supporting documentation.

- NOTES:
1. No change to the examination will be made without submittal of complete, current, and approved reference material.
 2. Comments made without a concise facility recommendation will not be addressed.