

JUL 26 1988

Docket No. 50-123

The Curators of the University  
of Missouri - Rolla  
ATTN: Dr. Don Warner, Dean  
School of Mines and  
Metallurgy  
Rolla, MO 65401

Dear Dr. Warner:

SUBJECT: OPERATOR AND SENIOR OPERATOR LICENSING EXAMINATIONS

In a telephone conversation between Mr. M. Straka, Reactor Supervisor, and Mr. Jack Keeton, arrangements were made for the administration of examinations at the University of Missouri Nuclear Reactor Facility.

The written and oral examinations are scheduled for the week of November 14, 1988.

In order for us to meet this schedule, it will be necessary for the facility management to furnish the approved reference material listed in Enclosure 1 "Reference Material Requirements for Reactor/Senior Reactor Operator Licensing Examinations" at least 60 days prior to the examination date. Any delay in receiving properly bound and indexed reference material will result in a delay in administering the examination. Our examinations are scheduled far in advance with considerable planning to best utilize our limited examiner manpower and to meet the examination dates requested by the various facilities. Therefore, missing the deadline, even by a few days, will likely result in a long delay since it may not be possible to reschedule examinations at other facilities. Mr. Straka has been advised of our reference material requirements, the number of reference material sets that are required, and the examiners' names and addresses where each set is to be mailed.

The facility management is responsible for providing adequate space and accommodations in order to properly conduct the written examination. Enclosure 2, "Administration of Reactor/Senior Reactor Operator Licensing Written Examinations," describes our requirements for conducting these examinations. Mr. Straka has also been informed of these requirements.

8808020248 880726  
PDR ADOCK 05000123  
PDC

TE-42  
11

JUL 26 1988

Dr. Don Warner

2

Enclosure 3 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 the candidate is aware of these Rules.

The reactor operator license application should normally be submitted at least 60 days prior to the first examination dates so that we will be able to review the training and experience of the candidates, process the medical certifications, and prepare final examiner assignments after candidate eligibility has been determined. If the applications are not received at least 30 days prior to the examination dates, it is likely that a postponement will be necessary.

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.

The facility staff review of the written examination will be conducted in accordance with requirements specified in Enclosure 4, "Requirements for Facility Review of Written Examination." Mr. Straka has been informed of these requirements.

Thank you for your consideration in this matter. If you have any questions regarding the examination procedures and requirements, please contact Mrs. Beth Hare or Mr. J. Keeton at (312) 790-5791 or 790-5545, respectively.

Sincerely,

ORIGINAL SIGNED BY GEOFFREY C. WRIGHT

Geoffrey C. Wright, Chief  
Operations Branch

Enclosures:

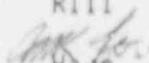
1. Reference Material Requirements  
for Reactor/Senior Reactor Operator  
Licensing Examinations
2. Requirements for Administration  
of Written Examinations
3. NRC Rules and Guidelines For  
License Examinations
4. Facility Review Requirements

See Attached Distribution

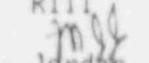
RIII

  
Keeton/mp  
07/22/88

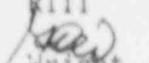
RIII

  
Hare  
07/22/88

RIII

  
Jordan  
07/25/88

RIII

  
Wright  
07/25/88

JUL 26 1989

Dr. L. Warner

3

cc w/enclosures:  
DCD/DCB (RIDS)  
Licensing Fee Management Branch  
M. Straka, Reactor Supervisor

cc w/o enclosures:  
J. N. Hannon, OLB  
L. R. Greger, DRSS

ENCLOSURE 1

Reference Material Requirements for Reactor/Senior Reactor  
Operator Licensing Examinations

1. Failure to provide complete, properly bound and indexed plant reference material will result in canceling and rescheduling of the examinations.
2. Training material should include all substantive written material used for preparing candidates for initial RO and SRO licensing.
3. The written material should include learning objectives and the details presented during lectures, rather than outlines.
4. Training material and procedures should be identified by plant and unit along with appropriate indexes or table of contents.
5. The reference material and procedures should be approved, final issues, and should be so marked.
6. If the facility is in the process of revising some of the material, the material received by the Commission will be used for the examination. Any material under revision, upon receipt of this letter, must be finalized when the required material is submitted.
7. The following training materials shall be provided:
  - a. System descriptions.  
System descriptions should include descriptions of all operationally relevant flow paths, components, controls, and instrumentation.
  - b. Existing system learning objectives and lesson plans.  
System training material should draw parallels to the actual procedures used for operating the applicable system.
  - c. Complete and operationally useful descriptions of all safety-system interactions.
  - d. Where available, Balance-of-Plant system interactions under emergency and abnormal conditions, including consequences of anticipated operator error, maintenance error, and equipment failure.
  - e. Comprehensive theory material that includes fundamentals in the area of theory of reactor operations, heat transfer and fluid flow, and specific application to actual in-plant components.

- ° Thermodynamics learning objectives and lesson plans.

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 systems in which they are installed i.e., Reactor Coolant pumps, all ECCS pumps, Recirculation pumps, Feedwater pumps, and Emergency Feedwater pumps.

- ° Reactor theory learning objectives and lesson plans.

For example, Reactor Theory material should include descriptions that draw explicit ties between the fundamentals and actual operating limits followed in the plant i.e., reactor theory material should contain explanations of how principles relate to the actual curves used by operators to verify shutdown margin or calculate an ECP.

- f. Training manuals.
- g. Plant orientation manual.
- h. Training material and learning objectives used to clarify and strengthen understanding of emergency operating procedures.
- i. Procedure index (alphabetical by subject).
- j. All applicable reactor operating and safety administrative procedures.
- k. A table of contents for all facility administrative procedures.
- l. All integrated plant operating procedures (normal and general operating procedures).
- m. Emergency procedures (emergency instructions, abnormal or special procedures).
- n. Standing orders (important orders that are safety-related and may supersede the regular procedure).
- o. Fuel handling and core loading procedures (initial core loading procedures, when appropriate).
- p. Annunciator procedures (alarm procedures, including set points).
- q. Radiation protection manual (radiation control manual or procedure).
- r. Emergency plan implementing procedures.

- s. Technical specifications.
  - t. System operating procedures.
  - u. Piping diagrams or flow charts.
  - v. Instrumentation diagrams or flow charts.
  - w. Electrical diagrams or flow charts.
  - x. Technical data book and/or plant curve information as used by operators.
  - y. Facility precautions, limitations and set points.
  - z. Questions and answers and simulator scenarios specific to the facility training program which may be used in the written examination or operating test, respectively (voluntary by the facility).
  - aa. ECCS system Surveillance procedures required by Technical Specifications.
8. Additional material required by the examiners to develop examinations that meet the requirements of these standards and the regulations.

## ENCLOSURE 2

### Requirements for Administration of Written Examinations

Operator 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 3 foot spacing between tables. No wall charts, models, and/or other training materials shall be present in the examination room.
3. Suitable arrangements are to be made by the facility if the candidates are to have lunch, coffee, etc. These arrangements shall comply with Item 1 above. These arrangements will be reviewed by the examiner and/or proctor.
4. The facility staff shall be provided a copy of the written examination and answer key after the last candidate has completed and handed in his written examination. The facility staff shall then have five working days to provide formal written comments with supporting documentation on the examination and answer key to the chief examiner or to the regional office section chief.
5. The facility licensee will provide pads of 8-1/2 x 11" lined paper in unopened packages for each candidate's use in completing the examination. The examiner will distribute these pads to the candidates. All reference material needed to complete the examination will 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 will be allowed.
6. Only black ink or dark pencils should be used for writing answers to questions.

ENCLOSURE 3

NRC Rules and Guidelines for License Examinations

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.
2. Restroom trips are to be limited and only one candidate at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.
3. Use black ink or dark pencil only to facilitate legible reproductions.
4. Print your name in the blank provided on the cover sheet of the examination.
5. Fill in the date on the cover sheet of the examination (if necessary).
6. Use only the paper provided for answers.
7. Print your name in the upper right-hand corner of the first page of each section of the answer sheet.
8. Consecutively number each answer sheet, write "End of Category " as appropriate, start each category on a new page, write on only one side of the paper, and write "Last Page" on the last answer sheet.
9. Number each answer as to category and number, for example, 1.4, 6.3.
10. Skip at least three lines between each answer.
11. Separate answer sheets from pad and place finished answer sheets face down on your desk or table.
12. Use abbreviations only if they are commonly used in facility literature.
13. The point value for each question is indicated in parentheses after the question and can be used as a guide for the depth of answer required.
14. Show all calculations, methods, or assumptions used to obtain an answer to mathematical problems whether indicated in the question or not.
15. Partial credit may be given. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWERS BLANK.
16. If parts of the examination are not clear as to intent, ask questions of the examiner only.

17. You must sign the statement on the cover sheet that indicates that the work is your own and you have not received or been given assistance in completing the examination. This must be done after the examination has been completed.
18. When you complete your examination, you shall:
  - a. Assemble your examination as follows:
    - (1) Exam questions on top.
    - (2) Exam aids - figures, tables, etc.
    - (3) Answer pages including figures which are a part of the answer.
  - b. Turn in your copy of the examination and all pages used to answer the examination questions.
  - c. Turn in all scrap paper and the balance of the paper that you did not use for answering the questions.
  - d. Leave the examination area, as defined by the examiner. If after leaving, you are found in this area while the examination is still in progress, your license may be denied or revoked.

ENCLOSURE 4

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 chief. 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
  - 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.