

MAY 5 1988

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Docket No: 50-170

Defense Nuclear Agency
Armed Forces Radiobiology Research Institute
ATTN: Colonel George Irving, III, MC, USAF
Director
Bethesda, Maryland 20014

Gentlemen:

SUBJECT: SENIOR REACTOR OPERATOR LICENSING EXAMINATION

In a telephone conversation between Mr. K. Hodgdon, Operator Training Manager, and Mr. B. Norris, Examiner, arrangements were made for the administration of the examination at the Region I office in King of Prussia, Pennsylvania.

The written examination is scheduled for July 21, 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 May 21, 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 to meet the examination dates requested by the various facilities. Mr. Hodgdon has been advised of the reference material requirements, and the examiners names and addresses.

Enclosure 2 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 senior reactor operator license application should be submitted at least 30 days before the examination date 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 application is not received at least two weeks before the examination date, it is likely that a postponement will be necessary.

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 Examination".

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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 3208, New Executives 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 me at (215) 337-5211.

Sincerely,

PETER W. ESELGROTH

Peter W. Eselgroth, Chief
PWR Section

Enclosures:

1. Reference Material Requirements for Reactor/Senior Reactor Operator Licensing Examinations
2. NRC Rules and Guidelines for Licensee Examinations
3. Facility Review Requirements

cc w/enclosures:

W. L. Moore, Reactor Facility Director
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
State of Maryland (2)

bcc w/encl:

Region I Docket Room (with concurrences)
Management Assistant, DRMA (w/o encl)
Robert J. Bores, DRSS
T. Elsasser, Chief, RPS3C, DRP
J. Linville, Chief, RPS2A, DRP
E. Kelly, SRI (Limerick), DRP
L. Scholl, Project Inspector, DRP

RI:DRS
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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 may result in canceling and rescheduling of the examination. Training materials which include the following should be provided.

- o 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.
 - o 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.
 - o Training material used to clarify and strengthen understanding of emergency operating procedures.
 - o 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 system in which type are installed (i.e. ECCS pumps, 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).
2. Procedure Index (alphabetical by subject)
 3. All Administrative Procedures (as applicable to reactor operator or safety)
 4. All integrate 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 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 omitting 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

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 paper provided for answers.
7. Print your name or initials in the upper right-hand corner of the first page or each page 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 answer 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 ANSWER 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 aides - figures, tables, etc.
 - (3) Answer pages including figures which are 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 3

REQUIREMENTS FOR FACILITY REVIEW OF WRITTEN EXAMINATIONS

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 to provide formal comment submittal. The submittal will be made to the responsible Region 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) days will be considered for inclusion in the grading process on a 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.
 - 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.