August 9, 2001

Dr. John Bernard, Director
of Reactor Operations
Nuclear Reactor Laboratory
Massachusetts Institute of Technology
138 Albany Street
Cambridge, MA 02139

Dear Dr. Bernard:

I made arrangements with Mr. Ed Lau, for the administration of operator licensing examinations at the Massachusetts Institute of Technology reactor. The examination is scheduled for the week of September 3, 2001.

In order to meet this schedule, please furnish the material listed in Enclosure 1, "Reference Material for Reactor/Senior Reactor Operator Licensing Examinations" at least 30 days prior to the examination date to the following address:

(U.S. Postal Service)	(Overnight Delivery)
U.S. Nuclear Regulatory Commission	U.S. Nuclear Regulatory Commission
ATTN: Patrick Isaac	ATTN: Patrick Isaac
Mail Stop O-12 D-3	Mail Stop O-12 D-3
Washington, D.C. 20555	11555 Rockville Pike
	Rockville, MD 20852-2738

You are responsible for providing adequate space for proper conduct of the written examination. Enclosure 2, "Administration of Written Examinations," describes our process for conducting these examinations.

Enclosure 3 contains the Rules and Guidelines that will be in effect during the administration of the written examination. Please ensure that all applicants are aware of these rules.

Your review of the written examination will be conducted in accordance with the procedures specified in Enclosure 4, "Facility Review of Written Examinations."

Final, signed reactor operator and senior reactor operator license applications certifying that all training has been completed must be submitted at least 14 days before the first examination dates so that we will be able to review the training and experience of the candidates, process the medical certifications, and process the applications. If our review cannot be completed in time to make a determination of applicant eligibility, the candidate may not be permitted to sit for the examination. Therefore, it is recommended that license applications be provided as soon as possible to ensure an appropriate level of review.

This request is covered by Office of Management and Budget (OMB) Clearance Number 3150-0018, which expires April 30, 2003. The estimated average burden is 7.7 hours per response, including gathering, xeroxing and mailing the required material. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Records Branch, (T6-E6), U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; or by Internet electronic mail to <bjs1@nrc.gov>, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0018), Office of Management and Budget, Washington, D.C. 20503.

If you have any questions regarding the examination procedures and requirements, please contact me at 301-415-1019 , or Internet e-mail pxi@nrc.gov.

Sincerely,

/RA/

Patrick Isaac, Chief Examiner
Operational Experience and Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-020

Enclosures:
1. Reference Material for Reactor/Senior Reactor Operator Licensing Examinations
2. Administration of Written Examinations
3. Procedures for Administration of Written Examinations
4. Facility Review of Written Examinations

cc w/enclosures:
Mr. Ed Lau, Massachusetts Institute of Technology

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cc w/enclosures:
Mr. Ed Lau, Massachusetts Institute of Technology

DISTRIBUTION:
PUBLIC REXB r/f EBarnhill (O6-D17)

ACCESSION NO: ML012180244 **TEMPLATE #: NRR-079**

OFFICE	REXB:CE		IOLB:LA		REXB:SC	
NAME	PIsaac:rdr		EBarnhill		PMadden	
DATE	08/ 06 /2001		08/ 07 /2001		08/ 09 /2001	

C = COVER **E = COVER & ENCLOSURE** **N = NO COPY**
OFFICIAL RECORD COPY

REFERENCE MATERIAL FOR REACTOR/SENIOR REACTOR OPERATOR LICENSING EXAMINATIONS (NON-POWER)

1. Existing learning objectives, students handouts 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 applicants for initial RO and SRO licensing. The written material should include learning objectives if available and the details presented during lectures, rather than outlines. Training materials should be identified, bound, and indexed. 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 and applicable system.

   Complete and operationally useful descriptions of all safety-system interactions, secondary 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.

2. Complete Procedure Index (including temporary procedures).

3. All administrative procedures as applicable to reactor operation or safety.

4. All integrated plant procedures, normal or general operating procedures and procedures for experiments.

5. All emergency procedures, emergency instructions, abnormal or special procedures.

6. Standing orders or procedures changed by reactor supervision and important orders or changes that are safety related and may supersede the regular procedures.

7. Applicable procedures (procedures that are run frequently).

8. Fuel-handling and core-loading procedures and initial core-loading procedure, when appropriate.

9. Any annunciator/alarm procedures, as applicable.

10. Radiation protection manual, radiation control manual or procedures.

11. Emergency plan implementing procedures.

12. Safety Analysis Report, Technical Specifications and interpretations, if available.

13. System operating procedures, including experiments.

14. Piping and instrumentation diagrams, electrical single-line diagrams, or flow diagrams, as applicable.

15. Technical Data Book, and/or plant curve information as used by operators and facility precautions, limitations, and set points for the facility.

16. Questions and answers specific to the facility training program which may be used in the written or operating examinations (voluntary by facility licensee).

17. Additional material as requested by the examiners to develop examinations that meet the requirements of the Non-power Reactor Examiner Standards and Regulations.

The above reference material should be approved final issues and so marked. If a facility has not finalized some of the material, the Chief Examiner should 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.

ADMINISTRATION OF WRITTEN EXAMINATIONS

1. A single room must be provided for administration of the written examination. The location of this room and supporting restroom facilities should be such as to prevent contact with all other facility personnel during the written examination.

2. Minimum spacing is necessary to ensure examination integrity as determined by the Chief Examiner (i.e., one applicant per table, with a three-foot space between tables).

3. Acceptable arrangements should be made by the facility if the applicants are to have lunch, coffee or other refreshments. These arrangements shall comply with Item 1 above and must be reviewed by the examiner and/or proctor.

4. The facility licensee provides pads of 8 ½ by 11 inch lined paper in unopened packages for each applicant's use in completing the examination. The examiner distributes these pads to the applicants as needed.

5. Applicants may bring pens, pencils, calculators or slide rules into the examination room. Only black ink or dark pencils should be used for writing answers to questions.
6. No wall charts, models, and/or other training materials can be present in the examination room. No other equipment or reference material will be allowed unless provided by the examiner.

7. The facility staff is provided with a copy of the written examination and answer key after the last candidate has handed in his written examination. The facility staff will then have five (5) working days to provide formal written comments with supporting documentation regarding written examination questions and answers to the Chief Examiner.

PROCEDURES FOR THE ADMINISTRATION OF WRITTEN EXAMINATIONS

1. Verify candidate identity.

2. Pass out examinations and all handouts. Remind applicants not to review examination until instructed to do so.

READ THE FOLLOWING INSTRUCTIONS VERBATIM:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

READ THE FOLLOWING INSTRUCTIONS:

1. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contact with anyone outside the examination room to avoid even the appearance or possibility of cheating.

2. Use black ink or dark pencil only to facilitate legible reproductions.

3. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.

4. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

5. Before you turn in your examination, consecutively number each answer sheet.

6. The point value for each question is indicated in [brackets] after the question.

7. If the intent of a question is unclear, ask questions of the examiner only.

8. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

9. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

10. To pass the examination, you must achieve a grade of 70 percent or greater in each category.

11. There is a time limit of three (3) hours for completion of the examination.

12. When you have completed and turned in your examination, leave the examination area (DEFINE THE AREA). If you are observed in this area while the examination is still in progress, your license may be denied or revoked.

FACILITY REVIEW OF WRITTEN EXAMINATIONS

1. At the option of the Branch Chief, Operational Experience and Non-Power Reactors Branch, the facility may review the written examination up to two weeks prior to its administration. This review may take place at the facility or at an NRC office. The Chief Examiner will coordinate the details of the review with the facility. An NRC examiner will always be present during the review. The examination or written notes will NOT be retained by the facility.

   Whenever this option of examination review is utilized, the facility reviewers will sign the following statement prior to being allowed access to the examination.

   a. Pre-Examination Security Agreement

      I _____ acknowledge that I have acquired specialized knowledge concerning the examination scheduled for _____ at _____ as of the date of my signature below. I agree that I will not knowingly divulge any information concerning this examination to any unauthorized persons. I understand that I am not to participate in any instruction involving those applicants scheduled to be administered the above examination from this date until after the examination has been administered. I further understand that violation of the conditions of this agreement may result in the examinations being canceled and/or enforcement action against myself or the facility licensee by whom I am employed or represent.

      _____
      Signature/Date

      In addition, the facility staff reviewers will sign the following statement after the written examination has been administered.

   b. Post-Examination Security Agreement

      I _____ did not, to the best of my knowledge, divulge any information concerning the examinations administered during the week of _____ at _____ or any instruction to those applicants who were administered the examination from the date I entered into this security agreement until the completion of examination administration.

      _____
      Signature/Date

2. Regardless of whether the above examination review option is exercised, immediately following the administration of the written examination, the facility staff is provided a marked-up copy of the examination and the answer key. The copy of the written examination includes pen and ink changes made to questions during the examination administration.

   If the facility did not review the examination prior to its administration, they will have five (5) working days from the day of the written examination to submit formal comments. If the facility reviewed the examination prior to its administration, any additional comments must be given to an examiner prior to his/her leaving the facility. These comments will be addressed to the Chief Examiner by the Reactor Supervisor. Comments not submitted within the required time frame will be considered for inclusion in the grading process on a case-by-case basis. This may cause delays in grading the examinations.

3. The following format should be used for submittal of specific comments:

   a. Listing of NRC question, answer and reference

   b. Facility comment/recommendation

   c. Reference (to support facility comment)

NOTES: 1. No change to the examination will be made without submittal of a reference to support the facility comment. Any supporting documentation that was not previously supplied, should be provided.

2. Comments made without a concise facility recommendation will not be addressed.

4. A two-hour post examination review may be held at the discretion of the Chief Examiner. If this review is held, the facility staff should be informed that only written comments that are properly supported will be considered in the grading of the examination.