

U. S. NUCLEAR REGULATORY COMMISSION REGION I  
OPERATOR LICENSING EXAMINATION REPORT

EXAMINATION REPORT NO. 50-20/84-03

FACILITY DOCKET NO. 50-20

FACILITY LICENSE NO. R-37

LICENSEE: Massachusetts Institute of Technology  
138 Albany Street  
Cambridge, MA 02139

FACILITY: MIT

EXAMINATION DATES: August 7-8, 1984

CHIEF EXAMINER: Original Signed By  
Noel F. Dudley 11/12/84  
Reactor Engineer Examiner Date

APPROVED BY: Original Signed By Edward G. Granman 11/16/84  
& Noel Dudley for 11/12/84  
Chief, Project Section 1D Date

SUMMARY: Five RO and SRO candidates were examined and all were issued licenses. All candidates displayed a strong grasp of reactor operations during the operating examination.

8411270318 841120  
PDR ADOCK 05000020  
G PDR

OFFICIAL RECORD COPY

11/5/84DUDLEY - 0003.0.0  
11/08/84

REPORT DETAILS

TYPE OF EXAMS: Initial  Replacement  Requalification

## EXAM RESULTS:

|                | RO<br>Pass/Fail | SRO<br>Pass/Fail | Inst. Cert<br>Pass/Fail | Fuel Handler<br>Pass/Fail |
|----------------|-----------------|------------------|-------------------------|---------------------------|
| Written Exam   | 2/0             | 3/0              | /                       | /                         |
| Oral Exam      | 2/0             | 3/0              | /                       | /                         |
| Simulator Exam | /               | /                | /                       | /                         |
| Overall        | 2/0             | 3/0              | /                       | /                         |

1. CHIEF EXAMINER AT SITE: Dr. Gordon Robinson

2. PERSONS EXAMINED

J. Lang SRO  
 L. Tripp SRO  
 M. Anderson SRO  
 S. Tucker RO  
 J. Koonmen RO

1. Summary of generic strengths or deficiencies noted on oral exams:

No weaknesses were noted. All candidates displayed a very strong understanding of the plant and operational procedures.

2. Summary of generic strengths or deficiencies noted from grading of written exams:

SRO candidates were weak in the area of immediate actions for abnormal procedures.

3. Comments on availability of, and candidate familiarization with plant reference material in the control room:

All candidates located and used available reference material confidently.

4. Comments on availability of, and candidate familiarization with design, procedure, and T. S. changes, and with LERs and recent significant events.

None

5. Comments on interface effectiveness with plant training staff and plant operations staff during exam period.

Facility staff was very cooperative.

6. Improvements noted in training programs as a result of prior operator licensing examinations/suggestions, etc:

None

7. Personnel Present at Exit Interview:

NRC Personnel

None

NRC Contractor Personnel

G. Robinson

Facility Personnel

J. Bernard

8. Summary of NRC Comments made at exit interview:

All candidates were clear passes on the operating examination.

9. CHANGES MADE TO WRITTEN EXAM DURING EXAMINATION REVIEW:

| <u>Question No.</u> | <u>Change</u>                              | <u>Reason</u>  |
|---------------------|--|--|
| A.2.C               | Change "(up to 80)" to<br>"(up to 55 sec)" | Corrects value for half<br>life of delayed neutron<br>precursors.                              |
| B.1.E               | Add "e. one path for ECCS"                 | Incorporates an<br>additional function of<br>the light water clean<br>up system in the answer. |

|       |   |   |
|-------|---|---|
| B.2.A | Add "H <sub>2</sub> "   | Incorporates an additional gas to the answer to provide completeness. |
| B.3   | Change "CAF" to "140 gpm"   | Includes facility provided flow rate.                                 |
| D.1.b | Change to explain uncompensated ion chamber.  | Facility uses uncompensated ion chamber vise compensated ion chamber. |
| D.2   | Change "CAF" to "Primary piping between Hx outlets and inlet to core tank"                                      | Includes facility provided answer.                                    |
| E.2   | Change "CAF" to "No separate alarm - will alarm when scram occurs"  | Includes facility provided answer.                                    |
| H.7   | Change ".75" to "0.975"   | Corrects Math.  |
| H.8   | Add "plus axial effects due to peaking of axial flux"   | Includes consideration of effects on flux as well as power.           |
| J.5.a | Change to "No change; too far away from core to see".   | Corrects answer to reflect plant configuration.                       |
| K.1.a | Add "Radiation levels due to Na-24 in coolant".   | Recognizes additional hazard due to radiation.                        |
| K.1.b | Add "Radiation exposure due to Na-24[0.6]"  | Recognizes additional hazard due to radiation.                        |
| K.4.a | Reduce value to 0.5   | Provides appropriate weighting to a multiple choice question.         |
| K.4.b | Question Delete   | Proper answer was not provided as a choice in the question.           |
| K.6   | Change "CAF" to "Safety and operating limits; Shut down margin; Routine or non-routine Startup; Worth of Fuel". | Includes facility provided answers.                                   |

L.2.d

Change "circulated" to  
"available".

More grammatically  
describes electricity.

## Attachments:

1. Written Examination(s) and Answer Key(s) (SRO/RO)
2. Facility Comments on Written Examinations made after Exam Reveiw