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APPENDIX A

NOTICE OF VIOLATION

Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Docket No. 30-00763
License No. 20-01537-02

As a result of the inspection conducted on July 27-28, 1982, and in accordance with the NRC Enforcement Policy (10 CFR 2, Appendix C), the following violations were identified.

A. 10 CFR 20.103(b)(2) requires that whenever the intake of radioactive material by any individual exceeds that which would result from inhalation of such material for forty hours at the uniform concentrations specified in 10 CFR 20, Appendix B, Table I, Column 1, the licensee make such evaluations and take such actions as are necessary to assure against recurrence. 10 CFR 20.103(b)(2) further requires that the licensee maintain records of such occurrences, evaluations, and actions taken in a clear and readily identifiable form suitable for summary review and evaluation.

Contrary to the above, an individual working in the restricted area during the fourth calendar quarter of 1981, was exposed to at least 180 MPC hours of iodine-125, about 4.7 times the limit specified in 10 CFR 20, Appendix B, Table I, Column 1, and this exposure was not fully evaluated, nor was appropriate action (and documentation of such action) taken to prevent a recurrence.

This is a Severity Level IV violation (Supplement IV).

B. 10 CFR 20.201(b) requires that each licensee make such surveys as may be necessary to comply with all sections of Part 20. As defined in 10 CFR 20.201(a), "survey" means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions.

Contrary to the above, as of July 28, 1982, inadequate surveys were made to determine that individuals who handled millicurie quantities of iodine-125 and individuals working in a restricted area where 0.5 to 1 curie of tritium was used were not exposed to airborne concentrations exceeding the limits specified in 10 CFR 20.103. Specifically, no calculations or evaluations, including thyroid monitoring, were conducted on individuals who handled 54 millicuries, 20 millicuries, and 54 millicuries of iodine-125 during iodinations on August 4, 1982, April 30, 1982, and March 25, 1982, respectively. In addition, no calculations or physical measurements of airborne radioactivity or bioassays of all individuals working in the

restricted area were performed during or following liver profusion studies in Laboratory 56-219 using 1, 0.5, 0.5 and 1 curie of tritiated water in an unenclosed system on or about November 4, 1981, January 22, 1982, February 2, 1982, and July 19, 1982, respectively.

This is a Severity Level IV violation (Supplement IV).

C. Condition 17 of License No. 20-01537-02 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in an application dated December 13, 1972, letters dated February 12, 1974, May 17, 1974, December 12, 1974, August 15, 1974, December 11, 1975, August 27, 1976, July 27, 1977, and September 27, 1977; an application dated July 29, 1978, and letters dated February 16, 1979, and November 12, 1981.

Enclosed with the application dated December 13, 1972, is a document entitled "M.I.T. Required Procedures for Radiation Protection", 2nd printing, dated April 1971.

1. Sections II D(8) and III G(4) of these "Procedures" requires that personnel wear assigned film badges during periods of possible exposure.

   Contrary to the above, on July 28, 1982, personnel in Laboratory 56-244 were not wearing their assigned film badges during periods of possible exposure.

2. Section III G(1) of these "Procedures" requires that each laboratory be provided with an appropriate survey meter unless otherwise authorized by the Radiation Protection Committee.

   Contrary to the above, on July 28, 1982, the survey meter required by authorization 20-T-7 for Laboratory 56-224 was not available, nor was an equivalent survey meter requested from the Radiation Protection Office.

3. Section III G(2) of these "Procedures" requires that surveys be performed with an appropriate radiation detection instrument to establish that radiation exposure and contamination spread are adequately controlled during and immediately following use of radioactive materials.

   Contrary to the above, on July 28, 1982, surveys in Laboratory 56-224 were not performed following the use of radioacitve materials. Specifically, the inspector measured radiation levels of 1.5 millirem per hour in an area where phosphorus-32 had been used.

4. Section II D(10) of these "Procedures" requires that a daily survey be adequate to ensure that external radiation and contamination levels are within permissible limits.

Contrary to the above, as of July 28, 1982, a radiation survey performed on July 25, 1982, in Laboratory 56-244 was inadequate in that it did not identify a radiation exposure of about 5 millirem per hour found by the inspector on July 29, 1982, located on the base of a ring stand where radioactive materials had been used.

5. Section II D(4) of these "procedures" requires that an adequate inventory be maintained in order to assure that each project does not exceed its radioactive material possession limit.

Contrary to the above, as of July 28, 1982, the 20 millicurie possession limit for phosphorus-32 under authorization 20-BK-1 in Laboratory E18-506 had been exceeded several times.

These are Severity Level IV violations (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, Massachusetts Institute of Technology is hereby required to submit to this office within thirty days of the date of this Notice, a written statement or explanation in reply, including: (1) the corrective steps which have been taken and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved. Where good cause is shown, consideration will be given to extending this response time.