NRC FORM 374
(10-89)

U.S. NUCLEAR REGULATORY COMMISSION

CORRECTED COPY

MATERIALS LICENSE

Amendment No. 52

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Boston City Hospital	3. License number: In accordance with application dated February 28, 1991, 20-00275-08 is amended in its entirety to read as follows:
2. 818 Harrison Avenue Boston, Massachusetts 02118	4. Expiration date: August 31, 1997
	5. Docket or Reference No.: 030-01807

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material included in 10 CFR 35.100	A. Any radiopharmaceutical included in 10 CFR 35.100	A. As needed
B. Any byproduct material included in 10 CFR 35.200	B. Any radiopharmaceutical included in 10 CFR 35.200	B. As needed
C. Any byproduct material included in 10 CFR 35.300	C. Any radiopharmaceutical included in 10 CFR 35.300	C. As needed
D. Any byproduct material included in 10 CFR 35.400	D. Any brachytherapy source included in 10 CFR 35.400	D. 1600 millicuries
E. Any byproduct material included in 10 CFR 31.11	E. Prepackaged Kits	E. As needed
F. Chromium 51	F. Tagged platelets	F. 5 millicuries
G. Hydrogen 3	G. Any	G. 400 millicuries
H. Carbon 14	H. Any	H. 300 millicuries
I. Sodium 24	I. Any	I. 20 millicuries
J. Phosphorus 32	J. Any	J. 100 millicuries
K. Sulfur 35	K. Any	K. 60 millicuries
L. Chlorine 36	L. Any	L. 2 millicuries
M. Potassium 42	M. Any	M. 20 millicuries
N. Calcium 45	N. Any	N. 50 millicuries
O. Chromium 51	O. Any	O. 100 millicuries
P. Rubidium 86	P. Any	P. 50 millicuries
Q. Iodine 125	Q. Any	Q. 300 millicuries
R. Iodine 131	R. Any	R. 10 millicuries
S. Strontium 90	S. Sealed source (Physikalisch-Technische Werkstatten Model PTW-09)	S. 900 millicuries
T. Strontium 90	T. Sealed sources	T. As needed

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9. Authorized use

A. Any uptake, dilution and excretion procedure approved in 10 CFR 35.100.
B. Any imaging and localization procedure approved in 10 CFR 35.200.
C. Any radiopharmaceutical therapy procedure approved in 10 CFR 35.300.
D. Any brachytherapy procedure approved in 10 CFR 35.400.
E. In vitro studies.
F. through R. For research and development as defined in 10 CFR 30.4(q); Animal Studies
S. Non-human use. For calibrations and checking of instruments.
T. Treatment of superficial eye conditions in a compatible device registered pusuant to 10 CFR 30.32(g).

CONDITIONS

10. Location of use: 818 Harrison Avenue, 751 Albany Street, 774 Albany Street, 784 Albany Street, and 35 Northampton Street, Boston, Massachusetts.

11. Radiation Safety Officer: Haro Der Hagopian

12. Authorized User(s):	Material and Use(s):
Robert Levin, M.D.	35.100; 35.200; 35.300 In vitro studies
Victor Lee, M.D.	35.100; 35.200; 35.300 Subitems 6.F. through 6.R. for research and development; animal studies
Daniel Flynn, M.D.	35.400 Strontium 90
Alfred Tauber, M.D.	In vitro studies Subitems 6.F. through 6.R. for research and development; animal studies
Rita A. Blanchard, M.D.	Carbon 14 and Iodine 125 for research and development Chromium 51 for red cell survival
Richard N. Goldstein, Ph.D.	Subitems 6.F. through 6.R. for research and development; animal studies

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(12. Continued) CONDITIONS

Christian C. Haudenschild, M.D.	Hydrogen 3, Carbon 14, Iodine 125, and Sulfur 35 for research and development
Peter A. Rice, M.D.	Hydrogen 3, Carbon 14, Chromium 51, and Iodine 125 for research and development
Joseph J. Vitale, Sc.D., M.D.	Hydrogen 3, Chromium 51, and Iodine 125 for research and development
Michael F. Holick, Ph.D., M.D.	Subitems 6.F. through 6.R. for research and development; animal studies
Thomas L. Kemper, M.D.	Hydrogen 3 for research and development; animal studies
Yean-Kai Tsung, Ph.D.	Iodine 125 for research and development
Edward A. Alexander, M.D.	Hydrogen 3, Carbon 14, Phosphorus 32, Potassium 42, and Iodine 125 for research and development; animal studies
Paul M. Newburne, Ph.D., D.V.M.	Hydrogen 3 and Carbon 14 for research and development; animal studies
Norman Zamcheck, M.D.	Iodine 125 for research and development
Douglas T. Golenbock, M.D.	Hydrogen 3, Carbon 14, Sulfur 35, Phosphorous 32, and Iodine 125 for research and development; animal studies
Pamela S. Larson, Ph.D.	Hydrogen 3, Carbon 14, Sulfur 35, Phosphorous 32, and Iodine 125 for research and development

13. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material so that at no time is a quantity of radioactive material possessed in excess of a quantity which requires decommissioning funding in accordance with 10 CFR 30.35(d), 10 CFR 40.36(b), or 10 CFR 70.25(d).

14. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days and sulfur 35 for decay-in-storage before disposal in ordinary trash, provided:

    A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

    B. Before disposal as normal waste, radioactive waste shall be surveyed to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

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(14. Continued) CONDITIONS

C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

15. The licensee may transport licensed material in accordance with the provisions of 10 CFR 71, "Packaging and Transportation of Radioactive Material."

16. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed 3 years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

C. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen 3; or

(ii) they contain only a gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

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(16. Continued) CONDITIONS

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. The licensee shall conduct a physical inventory every three (3) months to account for all sources and/or devices received and possessed pursuant to 10 CFR 35.57, 10 CFR 35.400 and 10 CFR 35.500 and every six (6) months for all other sources and/or devices. Records of inventories shall be maintained for 5 years from the date of each inventory.

18. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders or detector cells by the licensee.

19. Experimental animals administered licensed materials or there products shall not be used for human consumption.

20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated February 28, 1991
B. Letter dated January 7, 1992
C. Letter dated March 6, 1992
D. Letter dated May 13, 1992
E. Letter dated June 3, 1992

For the U.S. Nuclear Regulatory Commission

Date SEP 17 1992

By Original Signed By:
David G. Mann
Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

SEP 17 1992

License No. 20-00275-08
Docket No. 030-01807
Control No. 114311

Boston City Hospital
ATTN: David Hardy
Assistant Director
of Operations
818 Harrison Avenue
Boston, Massachusetts 02118

Dear Mr. Hardy:

Please find enclosed the corrected copy amendment to your NRC Material License that you requested by telephone on September 10, 1992. We apologize for any inconvenience our error may have caused you.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5093, so that we can provide appropriate corrections and answers.

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By:
David G. Mann

David G. Mann
Nuclear Materials Safety Branch
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 52 (Corrected Copy)

DRSS:RI DM
Mann/cmm

09/17/92

OFFICIAL RECORD COPY - G:\WPS\MLTR\L2000275.08 - 09/17/92

ML 10

CONVERSATION RECORD

TIME: 11:20 AM | DATE: 9/10/92

TYPE: ☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☐ INCOMING ☒ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO.
Haro der Hagopian	Boston City Hospital	(617) 534-5220

SUBJECT: Need for a Corrected Copy

ROUTING	
NAME/SYMBOL	INT

SUMMARY

Mr Hagopian stated upon review of his renewed license, he noted that his request to add authorization for P-32 to Dr Alexanders was not processed. He believed that, during his discussion with the reviewer, Dr Alexanders work with with rubidium-86 would qualify him for P-32

I stated that I would inform the license reviewer.

The license reviewer agreed that he accidently omitted including P-32 authorization for Dr Alexander.

ACTION REQUIRED

Corrected copy of License

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
Steven Courtemanche	Steven Courtemanche	9/10/92

ACTION TAKEN

"OFFICIAL RECORD COPY" ML 10

SIGNATURE	TITLE	DATE