

## MATERIALS LICENSE

Amendment No. 09

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, 36, 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.

## OFFICIAL RECORD COPY

## Licensee

1. Wesleyan University

2. Lawn Avenue  
Middletown, Connecticut 06457-0175In accordance with the letter dated  
July 16, 1996,3. License Number 06-00483-10 is amended in  
its entirety to read as follows:

4. Expiration Date December 31, 2004

5. Docket or  
Reference No. 030-201086. Byproduct, Source, and/or  
Special Nuclear Material7. Chemical and/or Physical  
Form8. Maximum Amount that Licensee  
May Possess at Any One Time  
Under This License

A. Hydrogen 3

A. Any

A. 500 millicuries

B. Carbon 14

B. Any

B. 12 millicuries

C. Calcium 45

C. Any

C. 1 millicurie

D. Iron 59

D. Any

D. 5 millicuries

E. Iodine 125

E. Any

E. 5 millicuries

F. Phosphorus 32

F. Any

F. 30 millicuries

G. Phosphorus 33

G. Any

G. 30 millicuries

H. Sulfur 35

H. Any

H. 30 millicuries

## 9. Authorized use

A. through H. Research and development as defined in 10 CFR 30.4.

## CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at Wesleyan University, Hall-Atwater Laboratories and Shanklin Laboratory, Lawn Avenue, Middletown, Connecticut.

11. A. Licensed material shall be used by, or under the supervision of, Spencer Berry, Philip Bolton, William Firshein, Laura Grabel, Anthony Infante, John Kirn, Lewis N. Lukens, Janice Naegele, Donald A. Oliver, Irina Russu, Anne Baranger, Michael A. McAlear or Michael Weir.

B. Hydrogen 3 and Carbon 14 may also be used by Jason Wolfe, Allan Berlind, or Rex Pratt.

C. The Radiation Safety Officer for this license is William Firshein.

12. The licensee shall not use licensed material in or on human beings except as provided otherwise by specific condition of this license.

13. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

06-00483-10

Docket or Reference Number

030-20108

Amendment No. 09

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. Waste to be disposed of in this manner shall be held for decay a minimum of ten half-lives.
  - B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
  - C. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
15. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letters dated November 11, 1992 and May 5, 1994, and September 20, 1994.
16. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
17. 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 January 10, 1983
  - B. Letter dated January 24, 1983
  - C. Letter dated January 12, 1987
  - D. Letter dated June 12, 1989
  - E. Letter dated November 16, 1990
  - F. Letter dated August 14, 1992
  - G. Letter dated November 11, 1992
  - H. Letter dated May 5, 1994
  - I. Letter dated September 20, 1994
  - J. Letter dated September 26, 1994

For the U.S. Nuclear Regulatory Commission

Original Signed By:

Richard Gibson

Date SEP 26 1996

By

Nuclear Materials Safety Branch

Region I

King of Prussia, Pennsylvania 19406

SEP 26 1996

William Firshein, Ph.D.  
Department of Molecular Biology  
and Biochemistry  
Wesleyan University  
Hall-Atwater-Shanklin Laboratories  
Middletown, CT 06459-0175

Dear Dr. Firshein:

This refers to your license amendment request. Enclosed with this letter is the amended license. Please note that as part of this amendment, in accordance with 10 CFR 30.36, effective February 15, 1996, the expiration date of your license has been extended by a period of five years. Your new expiration date is stated in Item 4 of the license.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

**Original Signed By:**

Richard Gibson, Jr.  
Division of Nuclear Materials Safety

License No. 06-00483-10  
Docket No. 030-20108  
Control No. 123458


Enclosure:  
Amendment No. 09

DOCUMENT NAME: R:\WPS\MLTR\L0600483.10

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI				
NAME	RGibson/rxg						
DATE	07/23/96	07/	/96	07/	/96	07/	/96

OFFICIAL RECORD COPY **ML 10**

<b>TELEPHONE CONVERSATION RECORD</b>		<b>Date:</b> July 23, 1996	<b>Time:</b> 9:00 am
<b>Mail Control No.:</b> 123458		<b>License No. :</b> 06-00483-10	<b>Docket No.:</b> 030-20108
<b>Person Called:</b> William Firshein, RSO		<b>Organization:</b> Wesleyan U.	<b>Telephone Number:</b> 203-685-2432
<b>Person Calling:</b> Richard Gibson Jr.			
<b>Subject:</b> Licensing action/amendment, letter dated July 16, 1996			
<b>Summary:</b> 1. I asked Mr. Firshein for the amount of radioactive material that Dr. McAlear used or will use in an experiment. He stated that Dr. McAlear will be using 50 microcuries to 100 microcuries in an experiment.			
<b>Action Required/Taken:</b> amend license			
<b>Signature:</b> Richard Gibson, Jr. 		<b>Date:</b> July 23, 1996	

WESLEYAN UNIVERSITY  
Middletown, Connecticut 06459-0175  
Hall-Atwater-Shanklin Laboratories  
Telephone (203) 685-2432 FAX (203) 685-2141

Department of Molecular Biology and Biochemistry

July 16 1996

030-20108

Nuclear Regulatory Commission  
Region 1  
Nuclear Material Section B.475  
Allendale Road  
King of Prussia, Pennsylvania 19406

Re: 06-00483-10

Dear Sir:

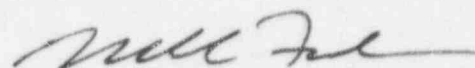
We would like to amend the above license to include two new users of radioactive isotopes who were appointed recently as Assistant Professors, Drs. Anne Baranger and Michael A. McAlear. Their previous experience and training with a variety of radioactive isotopes is enclosed with this request.

Dr. Baranger is qualified to use all isotopes listed in our license although she has special expertise with  $^{32}\text{P}$  and  $^{35}\text{S}$ .

Dr. McAlear is also qualified to use all isotopes in our license with special expertise in  $^3\text{H}$ ,  $^{32}\text{P}$ ,  $^{35}\text{S}$ , and  $^{14}\text{C}$ .

Thank you for your help. Two copies of this request and supporting documents are enclosed. If you need further information, please do not hesitate to contact me.

Sincerely,



William Firshein  
Radiation Safety Officer

cc: Don Albert, Assistant Radiation Safety Officer

OFFICIAL RECORD COPY

ML 10

123458

JUL 19 1996

### Radiation Experience - Anne Baranger

I was trained for the use of radioactive substances in a 2 hour training session at Yale University and through the periodic visits of radiation safety officers to our research group over a 2.5 year period. I regularly used two radioisotopes during this 2.5 years:  $^{32}\text{P}$  and  $^{35}\text{S}$ . I have also received radiation safety training here at Wesleyan University in accordance with their radiation protection program.

$^{32}\text{P}$ : I used  $^{32}\text{P}$  in experiments that included labeling of DNA, protein-DNA electrophoretic mobility shift gels, and sequencing gels. I used approximately 50  $\mu\text{Ci}$  of  $^{32}\text{P}$  in an experiment. The experiments were performed with labeled  $\alpha$ - $^{32}\text{P}$ -ATP, GTP, UTP, CTP, TTP and  $\gamma$ -ATP. All work with  $^{32}\text{P}$  was performed behind a Plexiglas shield and samples were transported in Plexiglas boxes. The work area was monitored with a Geiger counter after each experiment. In addition, the entire room in which  $^{32}\text{P}$  was used was monitored with a Geiger counter once a week and by a wipe test once a month. The shipping containers and outside of the containers of label were checked with a Geiger counter and by a wipe test upon being received and were stored in a locked freezer. Liquid waste was disposed of in plastic containers and solid waste in Plexiglas boxes until they were picked up by radiation safety officers.

$^{35}\text{S}$ : I used  $^{35}\text{S}$  in sequencing gels. I used approximately 50  $\mu\text{Ci}$  of  $^{35}\text{S}$  in an experiment. The experiments were performed with labeled  $\alpha$ - $^{35}\text{S}$ -ATP. The work with  $^{35}\text{S}$  was not shielded. Similar safety and disposal measures were used with  $^{35}\text{S}$  and the  $^{35}\text{S}$  waste was stored separately from that of  $^{32}\text{P}$ .

Anne Baranger

7/9/96



# WESLEYAN

U N I V E R S I T Y

MICHAEL A. MCALEAR  
Dept. of Molecular Biology and Biochemistry  
Hall-Atwater Labs, Rm 228  
237 Church Street  
Middletown, Connecticut 06459-0175



July 9, 1996

Don Albert  
Wesleyan University

Dear Don:

This letter is in regards to my experience and training in working with radioactive materials. I have worked in a laboratory setting with isotopes of  $^3\text{H}$ ,  $^{32}\text{P}$ ,  $^{35}\text{S}$ ,  $^{14}\text{C}$  for 10 years, and I have been through radiation safety courses and programs at McGill and Harvard Universities, as well as at the University of California at San Diego. I am familiar with both the hazards of working with these materials, and with the accepted safe handling practices. If you need further information about my experience, please let me know.

Sincerely,

A handwritten signature in cursive script, appearing to read "Michael A. McAlear".

Michael A. McAlear

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM  
AND  
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)  
INFORMATION FROM LTS  
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PROGRAM CODE: 03620  
STATUS CODE: 0  
FEE CATEGORY: EX 3M  
EXP. DATE: 20041231  
FEE COMMENTS: 170.11(A)(4)  
DECOM FIN ASSUR REQD: N  
.....

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED  
APPLICANT/LICENSEE: WESLEYAN UNIVERSITY  
RECEIVED DATE: 960719  
DOCKET NO: 3020108  
CONTROL NO.: 123458  
LICENSE NO.: 06-00483-10  
ACTION TYPE: AMENDMENT

2. FEE ATTACHED  
AMOUNT: -----  
CHECK NO.: -----

3. COMMENTS

SIGNED M. A. Perkins  
DATE 7/20/96

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED)

1. FEE CATEGORY AND AMOUNT: EX 3M 170.11(A)(4)

2. CORRECT FEE PAID\* APPLICATION MAY BE PROCESSED FOR:  
AMENDMENT -----  
RENEWAL -----  
LICENSE -----

3. OTHER -----  
-----

SIGNED -----  
DATE -----

8/5/96
Aug 2 = 60
BB
8/5/96

1996 JUL 26 AM 10:44

**FEE EXEMPT** ✓