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41-0709

SEP 26 2 14 PM '88

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PROGRAM IN RADIOLOGICAL SCIENCES  
DEPARTMENT OF NUCLEAR ENGINEERING  
AND WHITAKER COLLEGE

E25-330  
45 Carleton Street  
Cambridge, MA 02139  
(617) 253-7017

September 21, 1988

Dr. Fae Montcalm  
Isotope Distribution Office  
Oak Ridge National Laboratory  
Post Office Box 2008  
Oak Ridge, TN 37831-6015

REPOSITORY Oak Ridge Operations  
Records Holding Area  
COLLECTION Documents 1944-94  
BOX No. B-144-17 Bldg. 2714-H  
FOLDER N/A

Dear Dr. Montcalm:

I apologize for not replying sooner to your notice on the expiration of the loans of the Californium-252 sources. I have delayed replying to you because we are deciding whether we should continue to loan the sources or return them.

Californium-252, an abundant source of neutron due to its spontaneous fission reactions, is being currently used in our boron neutron capture therapy project. Animal brain tumor, treated with a boron drug called sodium mercaptoundecahydro-dodecaborate, is exposed to neutron sources. Due to the blood brain barrier, the drug is only uptaken by tumor tissue but not normal brain tissue. The boron, upon absorbing neutrons, produces alpha and lithium particles with high energy which in turn kills the tumor cells. At this moment, we are investigating the subcellular distribution of boron in tumor cells, using alpha track etch autoradiography. Having the californium-252 sources is, therefore, an essential need for us in this project.

Although the sources in the past have been loaned to us without any fee, I am now aware that there may be a fee on the loans if we decide to keep the sources. I would appreciate it if you would send me a quote of the charges.

I thank you for your attention.

**ACKNOWLEDGEMENT**

Sincerely yours,

In reply refer to: ORNL 41-0709

*Gordon L. Brownell*

Gordon L. Brownell  
Professor, Nuclear Engineering  
and Whitaker College

SEP 30 1988

OAK RIDGE NATIONAL LABORATORY  
ISOTOPE DISTRIBUTION OFFICE  
P. O. BOX 2008  
OAK RIDGE, TENNESSEE 37831-6015  
Phone: (615) 574-6984  
FAX: (615) 574-6986 TELEX: 854464 (ORNLIDG)

1081387

July 2, 1988

Ms. Fae Montcalm  
Reports and Data Assistant  
Isotope Distribution Office  
Box 2008  
Oak Ridge, TN 37831

Dear Ms. Montcalm

Subject: Californium-252 Loan

In reply to your letter, reference 41-0737, dated June 3, 1988, Dr. Nicholas G. Demas should receive the quarterly decay letter. He will also be the one to decide if a new source loan is established.

I am enclosing copies of correspondence that has been written on campus in connection with this matter.

Sincerely,



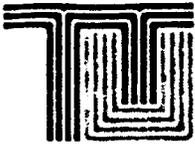
F.R. Toline  
Professor Emeritus  
Tennessee Technological University

cc: Mr. W.A. Goodwin  
Dr. Nicholas Demas  
Mr. Henry Shelby  
Mr. James Cobb

JUL 6 1 20 PM '88

1081388

TENNESSEE TECH  
UNIVERSITY



Tennessee Technological University  
Campus Development and Facilities Planning  
Box 5026 . Cookeville, TN 38505 . 615-372-3220

June 29, 1988

Mr. F.R. Toline, Professor  
Emeritus Faculty  
Route 13, Box 165  
Cookeville, Tennessee 38501

Mr. Toline,

Attached for your information is a letter from ORNL that was routed to our office. I am also sending a copy to Dr. Demas. If there are other persons on campus who should receive this information, please let me know.

If this source is no longer needed and should be returned, any assistance which you could provide would be helpful.

Sincerely,

Jim Cobb,  
Engineer

xc: Henry L. Shelby

JUL 6 1 20 PM '88

1081389

July 2, 1988

Mr. Jim Cobb, Engineer  
Tennessee Tech Campus Development  
Box 5026  
Cookeville, TN 38505

Mr. Cobb,

In the past Dr. Dale Ensor has used the Californium-252 for experiments. He should receive a copy of the new arrangement for accounting. The chairman of the Hazardous Waste Committee should also receive a copy.

We have returned one Californium-252 source which had decayed to the point where it was no longer useful to the University. The transfer of sources to and from Oak Ridge National Laboratory could be much simpler. I will be available for any needed assistance.

Sincerely,

F.R. Toline  
Professor Emeritus

cc: Henry L. Shelby  
Dr. N. Demas  
W.A. Goodwin

JUL 6 1 20 PM '88

1081390

cc. KLC3 memo

UNIVERSITY OF CALIFORNIA, IRVINE

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF CHEMISTRY

IRVINE, CALIFORNIA 92717

August 21st, 1988

Isotope Distribution Laboratory,  
Oak Ridge National Laboratory,  
P.O. Box 2008,  
Oak Ridge, Tennessee 37831-6015

Attention Ms Fae Montcalm.

Re: Loan Number 41-0679, source ULS122

Dear Ms Montcalm:

The DOE program which has enabled us over the last 10 years to use a small Californium source in our teaching program has been of great value. In that period we have taught every year a laboratory course in Radioisotope Techniques. Approximately 45 students each year have enrolled, so that over 400 students have been through the course. In spite of the fact that we operate a small research nuclear reactor ( 250 kilowatt TRIGA ) at UCI, we have found it very instructive for students to use the smaller neutron source in preliminary experiments in learning about the properties of neutrons and in learning the rudiments of neutron activation analysis. They are later able to expand on this knowledge and use the reactor in a detailed analytical experiment.

The source has been invaluable as an adjunct to the course, and we would have to reorganize to do without it. We are most disturbed to learn that the "free" loan program for such small educational sources may cease. With present difficult State budgets, there are insufficient funds to purchase or pay lease substantial lease fees for such a source. We have always been willing to pay shipping costs. It is to be hoped that DOE will recognize, as it once did, the educational and training value that these sources represent to colleges and universities and fund the modest program in such a way that it can continue as before.

If the program is to continue, we would be most interested in trading our 5 year old source for a "new" one so that better neutron yields can be observed by students in our course. I look forward to hearing from you.

*G. E. Miller*

George E. Miller  
Senior Lecturer in Chemistry and  
Reactor Supervisor  
(Tel 714-856-6649)

GEM/mm

ACKNOWLEDGEMENT

In reply refer to:         

Aug 24 1 52 PM '88

AUG 25 1988

OAK RIDGE NATIONAL LABORATORY  
ISOTOPE DISTRIBUTION OFFICE  
P.O. BOX 2008  
OAK RIDGE, TENNESSEE 37831-6015

1081391

File 41-0704

Southwest Radiation Calibration Center  
Engineering Experiment Station  
Mechanical Engineering Department  
Fayetteville, AR 72701  
(501) 575-3440



UNIVERSITY OF ARKANSAS . College of Engineering

**ACKNOWLEDGEMENT**

October 11, 1988

In reply refer to: ORNL 41-0704

OCT 19 1988

Ms. Fae Montcalm  
Isotope Distribution Office  
Oak Ridge National Laboratory  
P.O. Box 2008  
Oak Ridge, TN 37831-6015

OAK RIDGE NATIONAL LABORATORY  
ISOTOPE DISTRIBUTION OFFICE  
P. O. BOX 2008  
OAK RIDGE, TENNESSEE 37831-6008  
Phone: (615) 574-6084  
FAX: (615) 574-6086 TELETYPE: 504464 (ORNL100)

OCT 17 9 01 AM '88

Dear Ms. Montcalm,

I have just been informed of the fees which the Department of Energy is considering implementing for the Californium-252 loan program. Apparently, with the sources required by the University of Arkansas for our program, the total cost will approach \$5,000. This letter is a brief explanation of our program and a plea for relief of fee cost.

In cooperation with the National Institute of Standards and Technology (formerly NBS), the University of Arkansas is developing the Southwest Radiation Calibration Center to serve as a regional center for calibration of radiation survey instruments. Research, education, and service are all goals of the Calibration Center. Our research in neutron measurements is well known in the radiation dosimetry community, particularly with the Health Physics Society and the Neutron Standards Group at NIST (NBS). Funds that are available for the laboratory are tightly allocated for equipment.

Of the californium sources which we use, all but three were originally arranged through NIST. A copy of your list is included here for reference. The loan contract with NIST has been a two-year renewable agreement and is due to expire Dec. 6, 1988. Perhaps the paperwork burden would be reduced if the contract were directly between the Department of Energy and the University of Arkansas. We will be happy to do whatever is necessary to assist with the changeover.

Although our research is in cooperation with NIST, I'm not sure why the original agreement was through NIST, rather than directly with the Department of Energy. Apparently, this loan route, which was a minor aspect then, is now of paramount concern. As I understand the situation, direct loan contracts were extended until 1999, free of the new fee structure. But, the subcontract through NIST was not considered since it did not have the visibility as a university program. I wish to plead that our program be considered under the extension program. We do have some sources larger than typical "university size", but these sources have been and are used for high-level neutron irradiation

1081392

F. Montcalm, ORNL  
October 11, 1988  
Page 2

*File 44-0704*

research, as documented in the loan contract progress reports. We are absolutely non-profit and continually face a monumental struggle to cover expenses. I fully realize that DOE must also somehow limit expenses. However, these sources are already onsite and do not have to be moved - no direct costs will be incurred by DOE.

This is one university program that is producing results; please help us to continue.

Sincerely,



Leon West, Ph.D., P.E.  
Director

LW/jg

Enclosure

cc: Elmer Eisenhower, NIST

1081393

File 44-0104

DECAY ADJUSTMENT LIST

09/30/1988

Isotope Order No.	Your P. O. No.	Source No.	Qty Last Period	Adjusted Quantity
41-0735	76SR00754	ULS128	0.438 UGM	0.416 UGM
41-0735	76SR00754	ULS57	0.076 UGM	0.071 UGM
41-0691	76SR00754	SR311	887.000 UGM	831.000 UGM
41-0704	76SR10015*	SR135	9.420 ug	8.820 ug
41-0704	76SR10015*	SR189Z	68.000 ug	63.600 ug
41-0704	76SR10015*	SR228Z	16.900 ug	15.830 ug
41-0704	76SR10015*	SR-241Z	17.800 ug	16.700 ug
41-0704	76SR10015*	SR271Z	341.000 ug	320.000 ug
41-0704	76SR10015*	SR274Z	349.000 ug	327.000 ug
41-0704	76SR10015*	SR292Z	85.700 ug	80.300 ug
41-0704	76SR10015*	SR3009	4057.000 ug	3798.000 ug
41-0704	76SR10015*	SR3011	11782.000 ug	11029.000 ug
41-0704	76SR10015*	SR3012	891.000 ug	834.000 ug
41-0704	76SR10015*	SR303Z	2.250 ug	2.100 ug

\*THIS CONTRACT IS CURRENTLY WITH THE NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY AND WILL EXPIRE ON DECEMBER 06, 1988. ARRANGEMENTS NEED TO BE MADE TO TRANSFER THE LOAN TO THE UNIVERSITY OF ARKANSAS WITH THE OAK RIDGE NATIONAL LABORATORY PER OUR TELECON OF OCTOBER 7, 1988.

1081394



*The*  
**University of Oklahoma**

**RADIATION SAFETY OFFICE**  
905 Asp. Room  
Norman, Oklahoma 73019  
(405) 325-1015

June 20, 1988

Fae Montcalm  
Isotope Distribution Office  
Oak Ridge National Laboratory  
P.O. Box 2008  
Oak Ridge, TN 37831

Dear Fae Montcalm:

REF: 41-0675

In reference to the above numbered correspondence, SUBJECT: Cf-252 loan, this is to advise you that Dr. Charles W. Terrell is no longer with the University of Oklahoma and after this summer Dr. Jensen will also be gone.

The Cf-252 sources are carried under the University's NRC Broad License (35-07477-05) and are maintained by the Radiation Safety Office. They are used as neutron sources for the Radioisotope Methodology Course as well as for low level NAA experiments. We would like to keep the sources for future use. I noted you indicate there are loan fees involved. I am not aware of any paid in the past and would appreciate information concerning such in the future as they may affect our decision to retain the sources.

Future correspondence concerning these sources should be directed to me at the above address. Thank you for your assistance.

Sincerely,

Paul Skierkowski, Ph.D.  
Radiation Safety Officer

PS/cs

**ACKNOWLEDGEMENT**

In reply refer to OURL \_\_\_\_\_

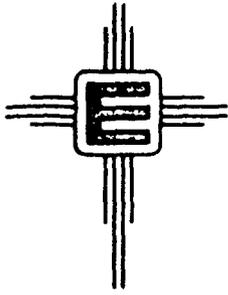
JUN 29 1988

OAK RIDGE NATIONAL LABORATORY  
ISOTOPE DISTRIBUTION OFFICE  
P.O. BOX 2008  
OAK RIDGE, TENNESSEE 37831-6015  
Phone: (615) 574-0504  
FAX: (615) 574-0585 TELE: 854-064 (ORNL100)

88 JUN 29 9 52 AM '88

1081395

41-0720



EASTERN NEW MEXICO UNIVERSITY

Portales 88130

Graduate School and Research

February 12, 1988

John E. Bigelow  
Transuranium Materials Coordinator  
Chemical Technology Division  
Oak Ridge National Laboratory  
PO Box X  
Oak Ridge, TN 37831

Dear Mr. Bigelow:

Thank you for your notice on the Californium-252 Workshop.

More than 15 years ago, I believe, Dr. Warren Neill obtained a Cf-252 source for our department. He retired several years ago. No one here now uses neutron activation, and we are sure the source is quite "cold." We want to get rid of it and could not find out how. We would appreciate it if you can help.

Sincerely,

Andy S. W. Sae, Ph.D.  
Professor of Chemistry  
Phone (505) 562-2147

AS:bg

88 Nov 30  
ULS-16 10 ng =  $2.3 \times 10^{-10}$  n/s

(2/11/88)

1081396

DRM

UNIVERSITY OF KENTUCKY  
LEXINGTON, KENTUCKY 40536-0084

Q 89-011

ALBERT B. CHANDLER  
MEDICAL CENTER  
DEPARTMENT OF RADIATION MEDICINE

SEP 20 9 14 AM '88

YOSH MARUYAMA, M.D.  
PROFESSOR/CHAIRMAN  
(606) 233-6486

September 13, 1988

Mr. R.C. Cline  
Isotope Distribution Office  
Oak Ridge National Laboratory  
P.O. Box X  
Oak Ridge, TN 37831

Dear Mr. Cline:

This will request twelve (12) additional 33-microgram Cf-252 sealed-source tubes, to add to our loan to the University of Kentucky for trials of evaluation of Cf-252 for cancer therapy.

These will be used for cancer therapy trials and for experimental studies of Cf-252, and for evaluation of its potential role for boron-neutron capture therapy (BNCT). Our Loan Contract No. is DE-AC09-76SR00761.

Thank you for your consideration in this request.

Sincerely yours,

  
Yosh Maruyama, M.D.  
Professor and Chair

YM/db

cc: Ronald D. Simpson, USDOE  
Leonard Wilson, UK Safety Officer  
Jacek Wierzbicki, UK Medical Physics  
James Y. McDonald, UKRF Executive Director

## ACKNOWLEDGEMENT

In reply refer to: ORNL Q 89-011

SEP 20 1988

OAK RIDGE NATIONAL LABORATORY  
ISOTOPE DISTRIBUTION OFFICE  
P. O. BOX 2409  
OAK RIDGE, TENNESSEE 37831-6015  
Phone: (615) 574-6984  
FAX: (615) 574-6586 TELTEL: 854-1664 (GRN168)

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