FRANKLIN & MARSHALL

Mail Control No. 138148 License No. 37-11185-04

March 3, 2006

MS 16
K-4

Steven Courtemanche
Commercial and R&D Branch
Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, PA 19406-1415

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Dear Mr Courtemanche:

I am writing in response to your letter of February 3, 2006, regarding our application for renewal of our radioactive materials license (license no. 37-11185-04). I will address your requests for additional information point by point.

1. The request to have items H through M in possession only status was a misprint. We wish to have all items on our license available for research and development use (as defined in 10 CFR 30.4). A corrected page 2 of our application is included with this letter.

2. Item 5. H now refers to a single Co-60 source that was purchased in 1976. Unfortunately we do not have any information on this source.
   Item 5.M refers to plated alpha standards.

They are:			
	Tracer Lab	serial # 31	model # 1A-10
	Eberline Instrument Corp	serial # P-279	
	Eberline Instrument Corp	serial # P-561	
	Eberline Instrument Corp	serial # P-1915	

   Items 5.I and 5.J refer to metallic foils of Er-168 in aluminum that were made at Stanford University in the 1980's and have been neutron-irradiated a number of times at the University of Missouri, Columbia, Research Reactor to produce Er-169 activity. The Tm-170 activity is an unavoidable byproduct of the neutron-irradiation.

3. We have made the required change from 10 CFR 20 to 10 CFR 30. A corrected page 2 of our application is included with this letter.

4. Dr Bashaw is to be authorized to use Tritium and I-125.

138148

NMSS/RGN1 MATERIALS-002

Department of Physics and Astronomy Franklin & Marshall College P.O. Box 3003 Lancaster, Pennsylvania USA 17604-3003
Telephone: 717.291.4136 Fax: 717.358.4474

5. Yes, Kathleen Triman, PhD., is to be removed from the license.

6. Only the individuals named in this license will use or supervise the use of radioactive materials covered by this license. Other faculty members who supervise the use of radioactive materials will use only generally-licensed material under 10 CFR 31.5 and material distributed by manufacturers under their exempt quantity licenses.

7. Students who use radioactive materials covered by this license will do so under the supervision of named individuals. Students may use generally-licensed material under 10 CFR 31.5 and material distributed by manufacturers under their exempt quantity licenses.

8. A. Cleaning personnel enter rooms where material covered in this license is used or stored only under the supervision of individuals named in this license. Rooms that they can enter unsupervised contain only material distributed by manufacturers under their exempt quantity licenses.

   B. Security personnel will receive HAZMAT training as required in 49 CFR 172.704 as pertinent to their duties while handling radioactive materials.

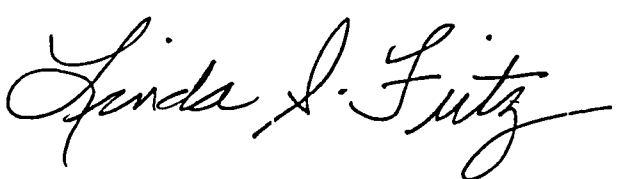
9. Comments regarding 10 CFR 33 have been noted. A corrected page 11 of our application is included with this letter.

10. Our meters are calibrated (in CPM) using a 10.9 micro-curie Cs-137 source. According to Carolyn J. Murat at EDO Artisan the calibrations are done in-house.

11. Comments regarding decay in storage have been noted. A corrected page 13 of our application is included with this letter.

12. The office of the Treasurer of the College is working on a new Trust Agreement which will be sent under separate cover.

Sincerely,



Linda S. Fritz, RSO
Professor of Physics

Contact information:
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linda.fritz@fandm.edu

APPLICATION ITEM #5 (LICENSE ITEMS #6, #7, AND #8): RADIOACTIVE MATERIAL

a. Element and mass number.	b. Chemical and/or physical form.	c. Maximum amount which will be possessed at any one time.
A. Any byproduct material with Atomic Nos. 3 through 83 inclusive with half-lives of less than 120 days.	A. Any.	A. 1 millicurie of each radionuclide; not more than 40 millicuries total.
B. Any byproduct material with Atomic Nos. 3 through 83 inclusive with half-lives greater than 120 days.	B. Any.	B. 20 microcuries of each radionuclide; not more than 200 microcuries total.
C. Hydrogen-3.	C. Any.	C. 10 millicuries.
D. Carbon-14.	D. Any.	D. 10 millicuries.
E. Phosphorus-32.	E. Any.	E. 2 millicuries.
F. Sulfur-35.	F. Any.	F. 10 millicuries.
G. Calcium-45.	G. Any.	G. 2 millicuries.
H. Cobalt-60	H. Sealed sources.	H. 10 millicuries.
I. Erbium-169.	I. Metallic foil.	I. 350 millicuries per source; not more than 700 millicuries total.
J. Thulium-170.	J. Metallic foil.	J. 2 millicuries.
K. Polonium-210.	K. Any.	K. 100 microcuries.
L. Plutonium-239.	L. Any.	L. 1 microcurie.
M. Plutonium-239	M. Plated sources	M. 10 nanocuries

In addition to the above possession limits, possession of unsealed byproduct material of half-life greater than 120 days shall be restricted in the following manner: If only one such isotope is possessed, the quantity possessed shall be less than or equal to 10,000 times the applicable quantity in Appendix C to 10 CFR 30. For a combination of such isotopes, R, defined as the sum of the ratios of the quantity of each isotope possessed to the applicable quantity in Appendix C to 10 CFR 30, divided by 10,000 shall be less than or equal to one.

ITEM #10: RADIATION PROTECTION PROGRAM

General statement: Franklin & Marshall College will operate its program of use of radioactive materials in accordance with all applicable regulations contained in 10 CFR Parts 19, 20, 30, and 70 and will do so, to the extent practicable, in such a fashion as to achieve occupational doses and doses to members of the general public that are as low as is reasonably achievable (ALARA).

10.2 RADIATION MONITORING INSTRUMENTS

We will use instruments that meet the radiation monitoring instrument specifications published in Appendix M to NUREG -- 1556, Vol.7 "Program-Specific Guidance About Academic, Research and Development, and Other Laboratory Licenses of Limited Scope", dated December 1999. We reserve the right to upgrade our survey instruments as necessary.

	TYPE	NUMBER	RADIATION	SENSITIVITY	WINDOW THICKNESS	USE
# 1	Dosimeter Corporation Model 3007 GM tube survey meter	3	alpha beta gamma	0-50 mR/hr	1 mg/cm^2	Survey
# 2	Nuclear Chicago GM tubes with The Nucleus Model 500/550 scalars	2	alpha beta gamma		2 mg/cm^2	Wipe tests

CALIBRATION OF INSTRUMENTS

The survey meters will be sent out one at a time for commercial calibrations annually to

EDO Artisan, Inc.
5 Eastmans Road
Parsippany, NJ 07054
(973) 887-7100,

or other accredited calibration services.

The wipe-test equipment will be calibrated annually using an approximate 2π geometry with a Cs-137 source from U.S. Nuclear specified as having 5.62×10^6 dpm as of October 12, 1962.

FILM BADGES

Although no badges are required pursuant to 10 CFR 20.1502 because of the small quantities of radioactive material generally used and the record of past film badge usage with no significant exposures recorded such that no person is

10.7 SURVEYS, WIPE-TESTS, AND LEAK-TESTS:
Because of the occasional nature of use of radioactive materials, general surveys of each area of use will be made after each such use. Specifically, for the Er-169/Tm-170 sources, each time a source is moved, the area or enclosure from which it came will be wipe-tested for contamination.

Leak tests of sealed sources will be performed by wipe-testing the outside of the source encapsulation or the inside of the container holding the source, as appropriate.

Such wipe-tests, as well as wipe-tests on arrival of radioactive materials, will be done by the RSO, the Assistant RSO, or their designee using approximately one square inch pieces of filter paper and instrument #2 of Item #10.2. Wipes will be counted for one minute. With background also counted for one minute, and a typical background rate of 40 cpm, the minimum detectable count rate at the 95% confidence level is 29 cpm $\left[MDCR = 2(1.645)\sqrt{\frac{R_b}{t_b} + \frac{R_b}{t_s}} = 4.65\sqrt{R_b}\right]$. For overall counter efficiencies of 1% (with the counter at 1 inch distance from the wipe), this then gives a minimum detectable activity of approximately 0.001 mCi.

ITEM #11: WASTE MANAGEMENT

Most, if not all, radioactive waste is generated in the Biology Department, which maintains a radioactive waste accumulation record and flow chart.

When possible, radioactive waste will be released into sanitary sewerage in accordance with 10 CFR 20.2003(a). The Biology building (Fackenthal Laboratories) plumbing empties into sewer lines whose flow rate is approximately 100,000 gallons per month.

When appropriate, radioactive material with a physical half-life of less than 90 days [to include S-35 with a half-life of 88 days] will be held in room P-19 for decay-in-storage before disposal in ordinary trash. Waste will be disposed of once a survey determines that the radiation dose from the waste cannot be distinguished from background. All radiation labels will be removed or obliterated.

Other radioactive waste will be held in storage in either room P-19, until it can be disposed of by:

Ecology Services, Inc.
10220 Old Columbia Road
Columbia, MD 21046
(800) 932-7299

or other licensed radioactive waste handlers.