Drexel
UNIVERSITY

Office of Research and Graduate Studies

March 22, 2005

K-4
MS-16

37-07438-15
03012998

Stephen Courtemanche
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

re: Mail Control No. 136063

Dear Mr. Courtemanche:

The following reply is in response to your letter requesting additional information in support of Philadelphia Health and Education Corporation's license renewal application. The numbering in this response corresponds to your letter.

1. *Please confirm that you do not possess more than 50 microcuries of Iodine-129.*

   Drexel University College of Medicine does not possess any Iodine-129.

2. *Item 5.ii.c requests that your license be written in a manner so that you administratively control the "R-value" of this line item so that it does not exceed a value of 100. Current licensing policy does not permit this approach.*

   Since current NRC's licensing policy prohibits this approach, we rescind our request for isotopes with half-lives in excess of 120 days. If we need any long-lived isotopes not already specifically licensed, we will request an amendment to our license to add them.

3. *Please provide copies of the most current leak test records for these sources and documentation from the recipient(s) indicating that the sealed sources are now in their possession.*

   These sources were placed in storage prior to disposal in 2001. Since leak tests are not required for sealed sources in storage and the retention requirement for leak test records is 3 years, these records were purged and are no longer available. See attached waste manifest and receipt document.

4. *[Y]ou must show (1) that licensed facilities that are in use or that are not in use but are contaminated will only require the smaller financial mechanism and (2) your possession limits must be lowered so that the "R-value" does not exceed 10,000.*

136063

3201 Arch Street, Suite 100 • Philadelphia, PA 19104-2875 • TEL 215.895.5849 • FAX 215.895.0864 • EMAIL research@drexel.edu • URL www.research.drexel.edu

Regarding part 1, we offer two arguments to show that any existing contamination that may exist will only require the smaller financial mechanism. First, Table 1 below shows the sum of authorizations granted by the Radiation Safety Committee.

Table 1: Total Assigned Possession Limits

Isotope	Possession limits issued by Radiation Safety Committee* (mCi)	R-Value
Ca-45	15.8	1580
H-3	375	375
C-14	93	930
Cl-36	0.1	10
I-129	0	0
Sum of the Ratios		2895

*Includes authorized uses for all active and inactive (still at institution, but no longer using radioactive materials) authorized users.

The "R-value" for activity usage permitted by the Radiation Safety Committee at the institution is well below 10,000. The **actual** activity possessed would have been even less than this.

Table 2 lists areas with fixed or removable contamination exceeding 1000 dpm/100 cm^2 and the theoretical dose to the screening group in the first year of occupancy. Contamination data is based on the contamination surveys of all areas where radioactive materials are used conducted in the 4^{th} calendar quarter of 2004 by the Radiation Safety Office. Dose modeling is based on DandD software (v2.1.0) using default building occupancy values.

Table 2: Contamination Present

Isotope	Contamination Threshold (dpm/100 cm^2)	Theoretical Dose from Contamination at Threshold (millirem/year)	Number of Areas Surveyed Exceeding Threshold
Ca-45	1000	0.00989	none
H-3	1000	0.00022	none
C-14	1000	0.00741	none
Cl-36	1000	0.0566	none
I-129	1000	0.769	none
Total Dose		0.843	

Table 2 shows that current contamination levels at the facility would not require decontamination to meet release requirements; therefore, no additional financial assurance is necessary.

Part 2 is resolved by our response to question 2.

5. *The first table on page 6 of your application describes the frequency at which surveys will be performed but does not describe what isotopes fall into which group. Please provide a list of example isotopes that comprise each group as you have done in the second table on page 6.*

The first table on page 6 describes the frequency at which surveys will be performed based on activity and risk group. The second table provides criteria used to define the risk groups and sample isotopes. Therefore, the information you are seeking was provided in the original renewal application.

6. *Your application contains a delegation of authority on page 8. The delegation of authority is supposed to be a stand alone document within the application signed by a senior management representative. Appendix J of NUREG 1556 Volume 11 contains a model Delegation of Authority that is acceptable to the NRC.*

Because this is a renewal application and the appointed radiation safety officer and the authority granted to same have not changed, we felt that a simple reaffirmation of this was sufficient. Nonetheless, we will submit a stand alone delegation of authority.

7. *[Y]ou state that refresher training will be offered as needed and at least annually. Confirm that refresher training will be attended by personnel requiring the training on, at least, an annual basis.*

We confirm that personnel requiring instructions will receive refresher training on at least an annual basis.

8. *Please provide a description of the minimum qualifications for instructors who provide radiation safety training.*

All instructors will be employees of Drexel University Radiation Safety Office at a level of Radiation Safety Technologist or higher. From the job description:

> One year of experience in radiation safety at an academic or medical facility is preferred; however experience in a research laboratory or clinical department where sources of radiation are used will be considered. An Associates Degree in health physics or Bachelor of Science degree in physics, biology, chemistry, or other science is required. Seven years experience at an academic/medical facility may substitute for the degree requirement. Certification in nuclear medicine, radiation therapy, or radiography technology will be considered in substitution for the degree requirement. The Radiation Safety Technologist must be knowledgeable in the use of a variety of radiation detection equipment that includes hand held survey meters and analytical equipment. The incumbent must have or quickly develop a working knowledge of radiation protection regulations, standards and practices at academic/medical facilities.

9. *Under Item 10.6 you state, in part, that each source will be individually tested if the activity on the swab exceeds 0.05 microcuries. Please confirm that the limit should be 0.005 microcuries.*

Confirmed.

If you have any further questions please contact Mr. Kent Lambert, Radiation Safety Officer, at 215-762-8768 or kent.lambert@drexel.edu. If I can be of assistance, please do not hesitate to contact me.

Sincerely,

Leonard M. Stephenson, Ph.D.
Vice Provost for Research
Dean of Graduate Studies

cc: S. Murthy, Ph.D.
K. Lambert, M.S., CHP

Bionomics, Inc.

P.O. Box 817 — Kingston, TN 37763 — (865) 376-0053

August 15, 2001

MCP/Hahnemann University
Kent Lambert, Assistant RSO
Radiation Safety
Mail Stop 106
245 North 15th Street
Philadelphia, PA 19102-1192

Dear Mr. Lambert:

This is to certify that the radioactive material picked up at your facility on May 8, 2001 on manifest number 50801-C has been disposed of at the Barnwell Waste Management Facility (operated by Chem Nuclear Systems, Inc.) at Barnwell, South Carolina.

Please reference the following table for detailed disposal information.

50801-C	MCP-1	BIO-01-56	0.19	0601-10920	7/25/01
		BIO-01-58	0.68	0601-10920	7/25/01
		Total ft3 Buried	0.87		

If you have any questions please feel free to contact me at (865) 376-0053.

Sincerely,

Michelle Ardary
Administrative Assistant

APPROVED BY OMB: NO. [illegible] EXPIRES: [illegible]

Estimated burden per response to comply with this information collection request: 1.17 hours. This uniform manifest is required by NRC to meet reporting requirements of Federal and State Agencies for the [illegible] transportation and disposal of low-level waste. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project ([illegible]), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NRC FORM 540 (6-1996)

U. S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 865-376-0193

ORGANIZATION: Biodasist

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO. If "Yes," provide Manifest Number

EPA MANIFEST NUMBER: N/A

5. SHIPPER – NAME AND FACILITY: NRP / Hahnemann [illegible] Broad & Vine, Philadelphia PA 19102

SHIPPER I.D. NUMBER:

COLLECTOR / PROCESSOR / GENERATOR TYPE (Specify): H

USER PERMIT NUMBER:

SHIPMENT NUMBER:

CONTACT: Kent Lambert

TELEPHONE NUMBER (Include Area Code): (215) 762-8763

6. CARRIER – Name and Address: TMG Transport, 619 W. Rockwood St., Rockwood TN 37854

EPA I.D. NUMBER: TN[illegible]003111

SHIPPING DATE: 5/8/01

CONTACT: Gary Kinnick

TELEPHONE NUMBER (Include Area Code): [illegible]-6927

SIGNATURE – Authorized carrier acknowledging waste receipt: [signature]

DATE: 5/8/01

7. NRC FORM 540 AND 540A PAGE 1 OF 1 PAGE(S)

NRC FORM 541 AND 541A 1 PAGE(S)

NRC FORM 542 AND 542A 6 PAGE(S)

ADDITIONAL INFORMATION 6 PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 50801-C

9. CONSIGNEE – Name and Facility Address: Perma-Fix, 1940 NW 67th Pl., Gainesville FL 32653

CONTACT: [illegible]

TELEPHONE NUMBER (Include Area Code): (352) 37[illegible]

SIGNATURE – Authorized consignee acknowledging waste receipt:

DATE:

10. CERTIFICATION

This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicable requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: [signature]

TITLE: Sr. Tech. [illegible]

DATE: 5/8/01

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY IN SI UNITS	17. LLWSCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive Material, N.O.S.	Yellow II	0.2	Solid/Liquid	Cs137, Ra226, [illegible],	[illegible]9.520111 [illegible]	N/A	0.019 m³	MCP-1
7, UN2982				Sr90, Ni63				

FOR CONSIGNEE USE ONLY

NRC FORM 540 (6-1996)

SHIPPER COPY

APPROVED BY OMB: NO. 3150-0166 EXPIRES: [illegible]

Estimated burden per response to comply with this information collection request: [illegible] hours. The uniform manifest is required by NRC to meet reporting requirements of Federal and State Agencies for the safe transportation and disposal of low-level waste. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0166), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NRC FORM 541 U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

Number of Packages	Net Waste Volume (m^3)	Net Waste Weight (kg)	Special Nuclear Material (grams) U-233	U-235	Pu	Total
1	0.019	9.1	Ø	Ø	Ø	Ø

Activity (MBq) All Nuclides	Tritium	C-14	Tc-99	I-129	Source (kg)
1369.52911	Ø	Ø	Ø	Ø	Ø

2. MANIFEST NUMBER: 50801-C

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME: [illegible]

SHIPPER ID NUMBER:

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. Container Identification Number / Generator ID Number(s)	6. Container Description (See Note 1)	7. Volume (m^3)	8. Waste and Container Weight (kg)	9. Surface Radiation Level (mSv/h)	10. Surface Contamination (MBq/100 cm^2) Alpha	Beta-Gamma	11. Waste Descriptor (See Note 2)	12. Approximate Waste Volume(s) in Container	13. Sorbent/Solidification/Stabilization Media (See Note 3)	14. Chemical Form / Chelating Agent	Weight % Chelating Agent (if > 0.1%)	15. Individual Radionuclides and Activity (MBq) and Container Total; or Container Total Activity and Radionuclide Percent	16. Waste Classification
MCD-1	4	0.019	9.1	0.12	5.54e-7	1.67e-5	36	.0159	100	OXIDES / NP	NP	Cs137 = 17.426186 Ra226 = 1.33810524 Ba133 = 3.56828 Sr90 = 389.1845 Ni63 = 957.48452 Total = 1369.520111	C

Note 1: Container Description Codes. For containers requiring disposal in approved structural overpacks, the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Poly
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethylene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in item 6, or additional page

Note 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid (except oil)
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
99. Other. Describe in item 11, or additional page

Note 3: For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "-S." For all solidification media, the vendor (manufacturer) and brand name must also be identified in item 13. Code 100-NONE REQUIRED.

Sorption [illegible]

Solidification 80. Cement; 81. Concrete (encapsulation); 82. Bitumen; 83. Vinyl Chloride; 84. Vinyl Ester Styrene; 99. Other. Describe in item 13, or additional page; 100. None Required

NRC FORM 541 [illegible]

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Office of Research and Graduate Studies

To: Kent Lambert, M.S., CHP

From: Leonard M. Stephenson, Ph.D.
Vice Provost for Research and Dean of Graduate Studies

Date: March 22, 2005

Subject: Delegation of Authority for Radiation Safety Officer

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At the renewal of the NRC license granted to the Philadelphia Health and Education Corporation, the reaffirmation of the authority delegated to you as the institution's Radiation Safety Officer is appropriate. As Radiation Safety Officer, you continue to be responsible for managing the radiation safety program; identifying radiation safety problems; initiating, recommending, or providing corrective actions; verifying implementation of corrective actions; and ensuring compliance with regulations for the use of sources of ionizing radiation. You are responsible for the safe use of sources of ionizing radiation and the requisite authority necessary to meet these responsibilities has been delegated to you, including the authority to immediately stop any operations involving the use of sources of ionizing radiation in which health and safety may be compromised or may result in non-compliance with NRC regulations.

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