Universidad de Puerto Rico, Recinto de Ciencias Médicas
University of Puerto Rico, Medical Sciences Campus

Oficina del Rector
Chancellor's Office

July 18, 2019

Br. 1

52-01946-07
03013584

Licensing Assistance Team
Division of Nuclear Material Safety
U.S. Nuclear Regulatory Commission, Region I
2100, Renaissance Boulevard, Suite 100
King of Prussia, PA 19406-2713

UNIVERSITY OF PUERTO RICO, MEDICAL SCIENCES CAMPUS - LICENSE NUMBER 52-01946-07 DOCKET NO. 030-13584 - REQUEST FOR REMOVAL OF LOCATIONS AND SEALED SOURCES OF THE MATERIALS LICENSE

We are requesting from the Nuclear Regulatory Commission (NRC) to remove the following locations from the University of Puerto Rico Medical Sciences Campus (UPR-MSC) material license number 52-01946-07 since handling of radioactive materials at these sites has ceased:

1. The Nuclear Medicine Laboratory of the UPR-MSC located at 1st Floor Dr. Federico Trilla Hospital in Carolina, 65 Infanteria Carolina PR. This facility was authorized for the following use: any uptake, dilution and excretion study permitted by 10 CFR 35.100 and any imaging and localization study permitted by 10 CFR 35.200. All radioactive sealed sources were temporarily transferred to the Radiation Safety Office (Office 103) located at the Comprehensive Cancer Center Building, Puerto Rico Medical Center, Río Piedras, Puerto Rico until the nuclear medicine department is relocated. **(Attachment # 1, Copies of "Inventory of Sealed Sources Transferred and Received Acknowledgement").** Once plans for the relocation of the nuclear medicine department have been finalized, we will submit an amendment requesting to add the new location to the Medical Sciences Campus material license.

2. The Institute of Neurobiology, laboratory 106, located at Boulevard del Valle 201 in San Juan. This facility was authorized for the following: Use of P^{32} for basic research projects. There is currently no radioactive materials, waste nor sealed sources at this location.

A decommissioning process was performed in both locations: The Nuclear Medicine Laboratory of the UPR-MSC was decommissioned on June 2019 and Laboratory 106 of the Institute of Neurobiology on August 2016. The reports submitted include a surface contamination and ambient survey that certify there is no radioactive contamination or detectable radiation levels of concern in these two locations. The results of the surface contamination surveys were under the trigger levels (<2000 dpm). Also an ambient survey was performed resulting under acceptable limits (< 0.2 mR/hr). Enclosed are the diagrams of the areas surveyed and the swipe test results of both locations.

All surface contamination samples at the Nuclear Medicine Laboratory Dr. Federico Trilla Hospital in Carolina were measured on a Capintec Wipe Test Counter, Captus 3000, S/N: 901704 and the ambient survey was done with a Geiger Muller instrument Model: 14C, No. 88144, Probe No.: PR 170191 **(Attachment # 2, "Facility Diagram of Surveyed Areas" and Attachment # 3 "Surface Contamination and Ambient Rate Survey Results").** Also all the surface contamination samples of the Neurobiology Institute Laboratory 106 at San Juan were measured in a Liquid Scintillation Counter 6000 IC, SN: 7070616 and the ambient

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613718

survey was done with a Geiger Muller instrument Model: 14C, No. 88144, Probe No.: PR 170191. **(Attachment # 4, "Facility Diagram of Surveyed Areas" and Attachment # 5 "Surface Contamination and Ambient Rate Survey Results").**

We are also requesting the removal of the following radioactive materials from our license:

1. All the Ra-226 sealed sources and Am-241 sources of smoke detectors from our material license, since they were transferred to **Bionomics Inc.,** license number R-73021-E25 on December 5, 2018 **(Attachment #6, "Copy of the Manifest No. 1218UPR and Attachment #7, "Certification of Sealed Sources Inventory Transferred to Bionomics").**

    a. (L) Radium -226 sealed source: Victoreen Model 540-B, S/N: 271, 2 mg
    b. (L) Radium-226 Nuclear Chicago Model; 5901, S/n 107, Act. 4.5 mCi
    c. (M) Radium 226 Model Nr 60275, Act 10 mCi
    d. (M) Radium 226 Siemens Universal S/N: E25-P4-005, Act.: 10 r/min
    e. (N) Americium-241 sealed sources in smoke detectors

2. The Am-241 liquid crystal ampoules, they were removed on August 28, 2017 by Veolia ES Technical Solutions **(Attachment # 8, "Copy of the Manifest No. 001029486VES",** that was submitted to the NRC previously).

    a. (N) Americium-241 liquid crystal ampoules

3. The Cs-137 cement contamination in the waste bunker. The contaminated cement was removed and transferred to Bionomics Inc., license number R-73021-E25 for proper disposal on April 4, 2019 **(Attachment #9, "Copy of the Manifest No. 0419UPRB").**

    a. (O) Cesium-137 contamination in waste bunker

We confirm that the above sealed sources and contaminated cement in waste bunker were transferred to **Bionomics Inc.** license number R-73021-E25 for proper disposal process. All the documents are presented for your evaluation and approval. We request that these facilities be removed from our license and that these sites be released for unrestricted use. We also request the removal of the referred radioactive materials and sealed sources from our license.

If you have any questions regarding this amendment, do not hesitate to contact Mr. Jossian J. Pagán Lisboa, RSO, at (787) 758-2525, extension 1687 or 1688. Thank you very much for your assistance in this matter.

Sincerely,

Segundo Rodríguez Quilichini, MD, FACS, FASCRS
Chancellor

Attachment # 1: Certification of Sealed Sources Inventory Transferred to Radiation Safety Office located at Cancer Comprehensive Center and Acknowledgement

Sealed Source Inventory Transferred to Radiation Safety Office (RSO) located at Cancer Comprehensive Center

Facility Information:
Physical Address:

Nuclear Medicine laboratory
Dr. Federico Trilla Hospital
1rst Floor
Ave. 65 Infantería
Carolina, PR
License Number: 52-01946-07
Docket Number: 030-13584

Contact information:

Ailín Conde González
Certified Nuclear Medicine Technologist
Email: ailinconde@hotmail.com
Wok Phone No.: (787) 757-1800, ext. 422

Transferred to:
Physical Address:

Radiation Safety Office # 103
Cancer Comprehensive Center building,
1 rst Floor
Puerto Rico Medical Center
Río Piedras, Puerto Rico
License Number: 52-01946-07
Docket Number: 030-13584

Contact information:

Jossian J. Pagán Lisboa, RSO
University of Puerto Rico
Medical Sciences Campus
Work Phone No.: (787) 758-2525, ext 1687 or 1688
Email: jossian.pagan@upr.edu

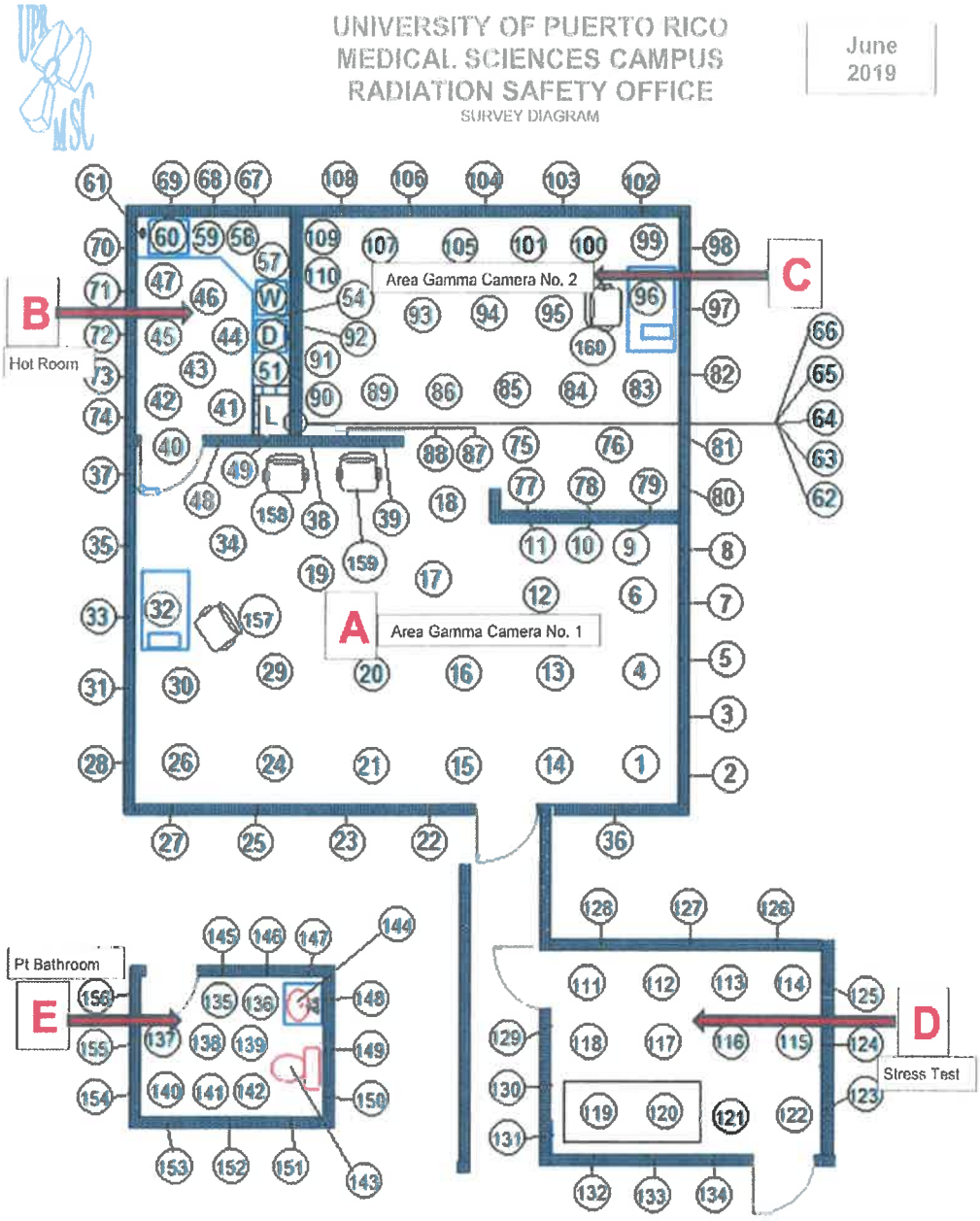
ISOTOPE	SERIAL NUM.	ACTIVITY	REFERENCE DATE	MANUFACTURE	DESCRIPTION
Co-57	1907-18-16	5.545 mCi	Jan/01/2017	Eckert & Ziegler, Isotope Product	Reference sealed source vial
Ba-137	1461-23-17	259.4 uCi	Dec/01/2010	Eckert & Ziegler, Isotope Product	Reference sealed source vial
Cs-137	584-77-25	256.1 uCi	May/01/1999	Isotope Product Laboratories	Reference sealed source vial
Cs-137	1510-38-8	103.5 nCi	Feb/01/2012	Eckert & Ziegler, Isotope Product	Rod sealed source
Co-57	1934-163	10 mCi	March/01/2017	Eckert & Ziegler, Isotope Product	Flood Source

I hereby certify that the above sealed sources were transferred to the Radiation Safety Office No.103 of the University of Puerto Rico Medical Sciences Campus (license material 52-01946-07) located at the Cancer Comprehensive Center building, on June 20, 2019. They were received by Mr. Jossian J. Pagán Lisboa, RSO and will remain stored temporarily at the Radiation Safety Office No.103 until the Nuclear Medicine Laboratory is relocated at the Dr. Federico Trilla Hospital.

Jossian J. Pagán Lisboa, RSO
MSC-UPR

June 20 2019
Date

Attachment # 2: Survey Diagram of Nuclear Medicine Laboratory of the UPR-MSC at 1 rst Floor Dr. Federico Trilla Hospital in Carolina, 65 Infanteria Carolina PR



UPR, MSC, Carolina Regional Hospital
1 rst Floor
Dr. Federico Trilla Hospital in Carolina

Attachment # 3: Surface Contamination and Ambient Rate Survey Results of Nuclear Medicine Laboratory of the UPR-MSC at 1 rst Floor Dr. Federico Trilla Hospital in Carolina, 65 Infanteria Carolina PR

SURFACE CONTAMINATION AND AMBIENT RATE SURVEY RESULTS

Location	Date Survey Done	BKG (cpm)	Sample Counting Time (minutes)	Total Activity (dpm)	Trigger Level (dpm)	BKG Ambient Rate (mR/hr)	Ambient Rate (mR/hr)
A. Area Gamma Camera No. 1							
A1 Floor	6/26/2019	245	1	-36.92308	2000	0.1	0.02
A2 Wall	6/26/2019	245	1	-7.692307	2000	0.1	0.02
A3 Wall	6/26/2019	245	1	-7.692307	2000	0.1	0.02
A4 Floor	6/26/2019	245	1	-3.186933	2000	0.1	0.02
A5 Wall	6/26/2019	245	1	-23.07692	2000	0.1	0.02
A6 Floor	6/26/2019	245	1	1.540461	2000	0.1	0.02
A7 Wall	6/26/2019	245	1	-6.153846	2000	0.1	0.02
A8 Wall	6/26/2019	245	1	-18.46154	2000	0.1	0.02
A9 Wall	6/26/2019	245	1	-3.076923	2000	0.1	0.02
A10 Wall	6/26/2019	245	1	-3.321321	2000	0.1	0.02
A11 Wall	6/26/2019	245	1	-3.257892	2000	0.1	0.02
A12 Floor	6/26/2019	245	1	-1.538462	2000	0.1	0.02
A13 Floor	6/26/2019	245	1	-1.682061	2000	0.1	0.02
A14 Floor	6/26/2019	245	1	-23.07692	2000	0.1	0.02
A15 Floor	6/26/2019	245	1	35.38462	2000	0.1	0.02
A16 Floor	6/26/2019	245	1	-13.84615	2000	0.1	0.02
A17 Floor	6/26/2019	245	1	-7.692307	2000	0.1	0.02
A18 Floor	6/26/2019	245	1	-23.07692	2000	0.1	0.02
A19 Floor	6/26/2019	245	1	-1.538462	2000	0.1	0.02
A20 Floor	6/26/2019	245	1	-12.30769	2000	0.1	0.02
A21 Floor	6/26/2019	245	1	-23.07692	2000	0.1	0.02
A22 Wall	6/26/2019	245	1	-40	2000	0.1	0.02
A23 Wall	6/26/2019	245	1	40	2000	0.1	0.02
A24 Floor	6/26/2019	245	1	-3.196923	2000	0.1	0.02
A25 Wall	6/26/2019	245	1	-29.23077	2000	0.1	0.02
A26 Floor	6/26/2019	245	1	-10.76923	2000	0.1	0.02
A27 Wall	6/26/2019	245	1	-33.84615	2000	0.1	0.02
A28 Wall	6/26/2019	245	1	-1.538462	2000	0.1	0.02
A29 Floor	6/26/2019	245	1	-46.15385	2000	0.1	0.02
A30 Floor	6/26/2019	245	1	20	2000	0.1	0.02
A31 Wall	6/26/2019	245	1	-12.30769	2000	0.1	0.02
A32 Work Station #1	6/26/2019	245	1	12.30769	2000	0.1	0.02
A33 Wall	6/26/2019	245	1	-20	2000	0.1	0.02
A34 Floor	6/26/2019	245	1	-29.23077	2000	0.1	0.02
A35 Wall	6/26/2019	245	1	-4.615385	2000	0.1	0.02
A36 Wall	6/26/2019	245	1	-38.46154	2000	0.1	0.02
A37 Wall	6/26/2019	245	1	1.514682	2000	0.1	0.02
A38 Wall	6/26/2019	245	1	24.61539	2000	0.1	0.02
A39 Wall	6/26/2019	245	1	36.92308	2000	0.1	0.02
A158 Injection Seat	6/26/2019	245	1	-44.61541	2000	0.1	0.02
A159 Injection Seat	6/26/2019	245	1	-55.38459	2000	0.1	0.02

B. Area Hot Room							
B40 Floor	6/26/2019	245	1	38.46154	2000	0.1	0.02
B41 Floor	6/26/2019	245	1	21.53846	2000	0.1	0.02
B42 Floor	6/26/2019	245	1	32.30769	2000	0.1	0.02
B43 Floor	6/26/2019	245	1	-15.38461	2000	0.1	0.02
B44 Floor	6/26/2019	245	1	41.53849	2000	0.1	0.02
B45 Floor	6/26/2019	245	1	-10	2000	0.1	0.02
B46 Floor	6/26/2019	245	1	-12.30769	2000	0.1	0.02
B47 Floor	6/26/2019	245	1	35.38462	2000	0.1	0.02
B48 Wall	6/26/2019	245	1	21.53846	2000	0.1	0.02
B49 Wall	6/26/2019	245	1	-21.53846	2000	0.1	0.02
L50 Lead Nest	6/26/2019	245	1	-15	2000	0.1	0.02
B51 Counter top	6/26/2019	245	1	0	2000	0.1	0.02
D52 Dose Calibrator	6/26/2019	245	1	-16.92308	2000	0.1	0.02
D53 Dose Calibrator	6/26/2019	245	1	-7.692307	2000	0.1	0.02
B54 Counter Top	6/26/2019	245	1	-3.076923	2000	0.1	0.02
W55 Well Counter	6/26/2019	245	1	-10.76923	2000	0.1	0.02
W56 Well Counter	6/26/2019	245	1	-7.692307	2000	0.1	0.02
B57 Counter Top	6/26/2019	245	1	-4.615385	2000	0.1	0.02
B58 Counter Top	6/26/2019	245	1	-18.46154	2000	0.1	0.02
B59 Counter Top	6/26/2019	245	1	-23.07692	2000	0.1	0.02
B60 Sink	6/26/2019	245	1	-21.53846	2000	0.1	0.02
B61 Counter Top	6/26/2019	245	1	-12.30769	2000	0.1	0.02
B62 Wall	6/26/2019	245	1	-21.53846	2000	0.1	0.02
B63 Wall	6/26/2019	245	1	-6.153846	2000	0.1	0.02
B64 Wall	6/26/2019	245	1	-16.92308	2000	0.1	0.02
B65 Wall	6/26/2019	245	1	-2.538362	2000	0.1	0.02
B66 Wall	6/26/2019	245	1	-21.53846	2000	0.1	0.02
B67 Wall	6/26/2019	245	1	-32.30769	2000	0.1	0.02
B68 Wall	6/26/2019	245	1	-4.615385	2000	0.1	0.02
B69 Wall	6/26/2019	245	1	-21.53846	2000	0.1	0.02
B70 Wall	6/26/2019	245	1	-67.69231	2000	0.1	0.02
B71 Wall	6/26/2019	245	1	-41.53849	2000	0.1	0.02
B72 Wall	6/26/2019	245	1	-46.15385	2000	0.1	0.02
B73 Wall	6/26/2019	245	1	-4.625486	2000	0.1	0.02
B74 Wall	6/26/2019	245	1	-6.153846	2000	0.1	0.02
C. Area Gamma Camera No. 2							
C75 Floor	6/26/2019	245	1	-44.61541	2000	0.1	0.02
C76 Floor	6/26/2019	245	1	-27.69231	2000	0.1	0.02
C77 Wall	6/26/2019	245	1	-13.84615	2000	0.1	0.02
C78 Wall	6/26/2019	245	1	-3.076923	2000	0.1	0.02
C79 Wall	6/26/2019	245	1	-7.692307	2000	0.1	0.02
C80 Wall	6/26/2019	245	1	-12.30769	2000	0.1	0.02
C81 Wall	6/26/2019	245	1	-52.30769	2000	0.1	0.02
C82 Wall	6/26/2019	245	1	-7.692307	2000	0.1	0.02
C83 Floor	6/26/2019	245	1	-26.15385	2000	0.1	0.02

C84 Floor	6/26/2019	245	1	0	2000	0.1	0.02
C85 Floor	6/26/2019	245	1	-15.38461	2000	0.1	0.02
C86 Floor	6/26/2019	245	1	-64.61539	2000	0.1	0.02
C87 Wall	6/26/2019	245	1	4.615385	2000	0.1	0.02
C88 Wall	6/26/2019	245	1	26.15385	2000	0.1	0.02
C89 Floor	6/26/2019	245	1	-6.153846	2000	0.1	0.02
C90 Wall	6/26/2019	245	1	-32.30769	2000	0.1	0.02
C91 Wall	6/26/2019	245	1	9.230769	2000	0.1	0.02
C92 Wall	6/26/2019	245	1	-35.38462	2000	0.1	0.02
C93 Floor	6/26/2019	245	1	-20	2000	0.1	0.02
C94 Floor	6/26/2019	245	1	-55.38459	2000	0.1	0.02
C95 Floor	6/26/2019	245	1	0	2000	0.1	0.02
C96 Work Station # 2	6/26/2019	245	1	-38.46154	2000	0.1	0.02
C97 Wall	6/26/2019	245	1	-29.23077	2000	0.1	0.02
C98 Wall	6/26/2019	245	1	-16.92308	2000	0.1	0.02
C99 Floor	6/26/2019	245	1	-70.76923	2000	0.1	0.02
C100 Floor	6/26/2019	245	1	-20	2000	0.1	0.02
C101 Floor	6/26/2019	245	1	-49.23077	2000	0.1	0.02
C102 Wall	6/26/2019	245	1	35.38462	2000	0.1	0.02
C103 Wall	6/26/2019	245	1	-18.46154	2000	0.1	0.02
C104 Wall	6/26/2019	245	1	-26.15385	2000	0.1	0.02
C105 Floor	6/26/2019	245	1	-41.53849	2000	0.1	0.02
C106 Wall	6/26/2019	245	1	-44.61541	2000	0.1	0.02
C107 Floor	6/26/2019	245	1	-21.53846	2000	0.1	0.02
C108 Wall	6/26/2019	245	1	-24.61539	2000	0.1	0.02
C109 Wall	6/26/2019	245	1	-9.230769	2000	0.1	0.02
C110 Wall	6/26/2019	245	1	-21.53846	2000	0.1	0.02
D. Stress Test Room							
D111 Floor	6/26/2019	245	1	0	2000	0.1	0.02
D112 Floor	6/26/2019	245	1	-25	2000	0.1	0.02
D113 Floor	6/26/2019	245	1	6.153846	2000	0.1	0.02
D114 Floor	6/26/2019	245	1	-30.76923	2000	0.1	0.02
D115 Floor	6/26/2019	245	1	-30.76923	2000	0.1	0.02
D116 Floor	6/26/2019	245	1	-30.76923	2000	0.1	0.02
D117 Floor	6/26/2019	245	1	-27.69231	2000	0.1	0.02
D118 Floor	6/26/2019	245	1	-33.84615	2000	0.1	0.02
D119 Treadmill	6/26/2019	245	1	-49.23077	2000	0.1	0.02
D120 Treadmill	6/26/2019	245	1	-18.46154	2000	0.1	0.02
D121 Floor	6/26/2019	245	1	3.076923	2000	0.1	0.02
D122 Floor	6/26/2019	245	1	-55.38459	2000	0.1	0.02
D123 Wall	6/26/2019	245	1	-12.30769	2000	0.1	0.02
D124 Wall	6/26/2019	245	1	-32	2000	0.1	0.02
D125 Wall	6/26/2019	245	1	-29.23077	2000	0.1	0.02
D126 Wall	6/26/2019	245	1	-15.38461	2000	0.1	0.02
D127 Wall	6/26/2019	245	1	-13.84615	2000	0.1	0.02
D128 Wall	6/26/2019	245	1	38.46154	2000	0.1	0.02

D129 Wall	6/26/2019	245	1	-15.38461	2000	0.1	0.02
D130 Wall	6/26/2019	245	1	-16.92308	2000	0.1	0.02
D131 Wall	6/26/2019	245	1	-67.69231	2000	0.1	0.02
D132 Wall	6/26/2019	245	1	-30.76923	2000	0.1	0.02
D133 Wall	6/26/2019	245	1	-63.07692	2000	0.1	0.02
D134 Wall	6/26/2019	245	1	-70.76923	2000	0.1	0.02
E. Patient Bathroom							
E135 Floor	6/26/2019	245	1	-33.84615	2000	0.1	0.02
E136 Floor	6/26/2019	245	1	-18.46154	2000	0.1	0.02
E137 Floor	6/26/2019	245	1	-20	2000	0.1	0.02
E138 Floor	6/26/2019	245	1	-23.07692	2000	0.1	0.02
E139 Floor	6/26/2019	245	1	35.38462	2000	0.1	0.02
E140 Floor	6/26/2019	245	1	-32.30769	2000	0.1	0.02
E141 Floor	6/26/2019	245	1	60	2000	0.1	0.02
E142 Floor	6/26/2019	245	1	33.84615	2000	0.1	0.02
E143 Toilet	6/26/2019	245	1	23.07692	2000	0.1	0.02
E144 Sink	6/26/2019	245	1	-26.15385	2000	0.1	0.02
E145 Wall	6/26/2019	245	1	55.38459	2000	0.1	0.02
E146 Wall	6/26/2019	245	1	-70.76923	2000	0.1	0.02
E147 Wall	6/26/2019	245	1	-70.76923	2000	0.1	0.02
E148 Wall	6/26/2019	245	1	-44.61541	2000	0.1	0.02
E149 Wall	6/26/2019	245	1	-33.84615	2000	0.1	0.02
E150 Wall	6/26/2019	245	1	18.46154	2000	0.1	0.02
E151 Wall	6/26/2019	245	1	21.53846	2000	0.1	0.02
E152 Wall	6/26/2019	245	1	55.38459	2000	0.1	0.02
E153 Wall	6/26/2019	245	1	0	2000	0.1	0.02
E154 Wall	6/26/2019	245	1	-46.15385	2000	0.1	0.02
E155 Wall	6/26/2019	245	1	23.07692	2000	0.1	0.02
E156 Wall	6/26/2019	245	1	-1.538462	2000	0.1	0.02

Instrument's used for survey:

1. **Wipe Test Counter:** CAPINTEC, Captus 3000, S/N: 901704
2. **Geiger Muller:** Ludlum, Model 14 C, S/N: 88144, Probe: Model 44-9, S/N: PR 170191

Performed by: Rafael Martínez Cotto — June 26, 2019
Date

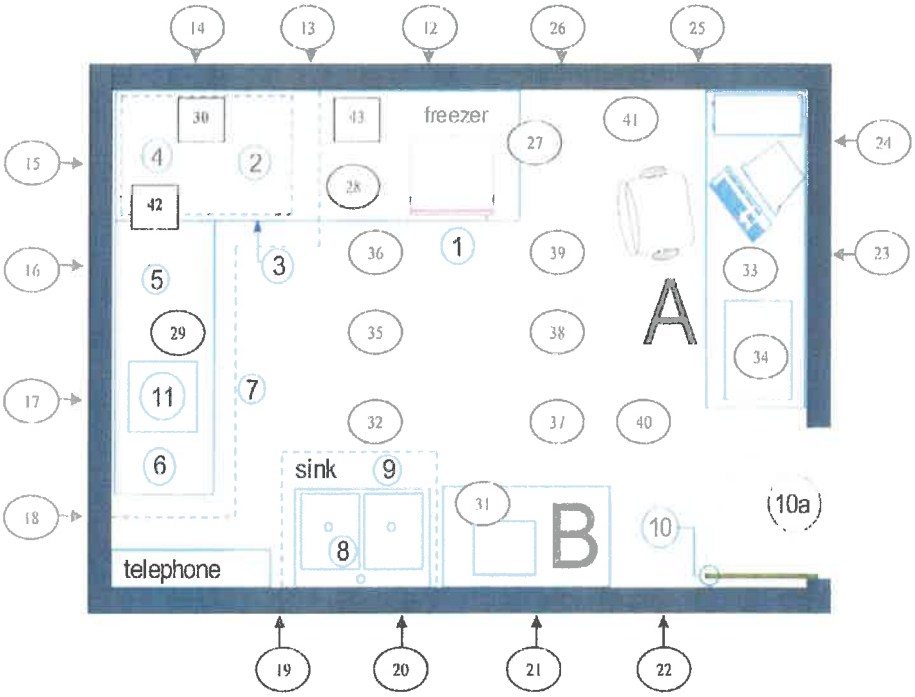
Jossian J. Pagán Lisboa — June 26, 2019
Radiation Safety Officer — Date

Attachment # 4: Survey Diagram of Laboratory 106 at the Institute of Neurobiology of the UPR-MSC located at Boulevard del Valle 201 in San Juan

UNIVERSITY OF PUERTO RICO
MEDICAL SCIENCES CAMPUS
RADIATION SAFETY OFFICE

2016

DECOMMISSION SURVEY



Laboratory 106 Neurobiology Institute, San Juan
Isotope used:
Phosphorous 32 (^{32}P)

SECURITY – RELATED INFORMATION – WITHHOLD UNDER 10 CFR 2.390

Attachment # 5: Surface Contamination and Ambient Rate Survey Results of Laboratory 106 at the Institute of Neurobiology of the UPR-MSC located at Boulevard del Valle 201 in San Juan

DECOMMISSION SURVEY

Neurobiology Institute
Laboratory 106
^{32}P

Wipes survey

Location		Date Survey Done	BKG (cpm)	Sample Counting Time (sec)	Total Activity (dpm)	Trigger Level (dpm)	BKG Ambient Rate (mR/hr)	Ambient Rate (mR/hr)
A. Laboratory 106								
1	Freezer	08/29/2016	210	60	2.0	2000	0.2	0.04
2	Counter	08/29/2016	210	60	5.0	2000	0.2	0.02
3	Wastes	08/29/2016	210	60	4.0	2000	0.2	0.02
4	Counter	08/29/2016	210	60	4.0	2000	0.2	0.02
5	Counter	08/29/2016	210	60	8.0	2000	0.2	0.02
6	Counter	08/29/2016	210	60	13.0	2000	0.2	0.02
7	Floor	08/29/2016	210	60	6.0	2000	0.2	0.02
8	Sink	08/29/2016	210	60	3.0	2000	0.2	0.02
9	Floor	08/29/2016	210	60	6.0	2000	0.2	0.02
10	Door	08/29/2016	210	60	7.0	2000	0.2	0.02
10a	Floor	08/29/2016	210	60	2.0	2000	0.2	0.02
11	"L" Block	08/29/2016	210	60	3.0	2000	0.2	0.02
12	Wall	08/29/2016	210	60	5.0	2000	0.2	0.02
13	Wall	08/29/2016	210	60	5.0	2000	0.2	0.02
14	Wall	08/29/2016	210	60	4.0	2000	0.2	0.02
15	Wall	08/29/2016	210	60	3.0	2000	0.2	0.02
16	Wall	08/29/2016	210	60	5.0	2000	0.2	0.02
17	Wall	08/29/2016	210	60	8.0	2000	0.2	0.02
18	Wall	08/29/2016	210	60	5.0	2000	0.2	0.02
19	Wall	08/29/2016	210	60	7.0	2000	0.2	0.02
20	Wall	08/29/2016	210	60	10.0	2000	0.2	0.02
21	Wall	08/29/2016	210	60	6.0	2000	0.2	0.02
22	Wall	08/29/2016	210	60	6.0	2000	0.2	0.02
23	Wall	08/29/2016	210	60	7.0	2000	0.2	0.02
24	Wall	08/29/2016	210	60	5.0	2000	0.2	0.02
25	Wall	08/29/2016	210	60	7.0	2000	0.2	0.02
26	Wall	08/29/2016	210	60	11.0	2000	0.2	0.02
27	Counter	08/29/2016	210	60	7.0	2000	0.2	0.02
28	Counter	08/29/2016	210	60	8.0	2000	0.2	0.02
29	Counter	08/29/2016	210	60	9.0	2000	0.2	0.02
30	Device	08/29/2016	210	60	4.0	2000	0.2	0.02
31	Counter	08/29/2016	210	60	6.0	2000	0.2	0.02
32	Floor	08/29/2016	210	60	5.0	2000	0.2	0.02
33	Counter	08/29/2016	210	60	2.0	2000	0.2	0.02

34	Device	08/29/2016	210	60	3.0	2000	0.2	0.02
35	Floor	08/29/2016	210	60	9.0	2000	0.2	0.02
36	Floor	08/29/2016	210	60	4.0	2000	0.2	0.02
37	Floor	08/29/2016	210	60	7.0	2000	0.2	0.02
38	Floor	08/29/2016	210	60	8.0	2000	0.2	0.02
39	Floor	08/29/2016	210	60	6.0	2000	0.2	0.02
40	Floor	08/29/2016	210	60	9.0	2000	0.2	0.02
41	Floor	08/29/2016	210	60	7.0	2000	0.2	0.02
42	Device	08/29/2016	210	60	3.0	2000	0.2	0.02
43	Device	08/29/2016	210	60	9.0	2000	0.2	0.02

Instruments: LSC 6000 IC SN: 7070616
GM: Model: 14C, No. 88144 Probe No.: PR 170191

Date: August, 2016
By: Rafael Martínez, Tech

Radiation Safety Officer

August 29, 2016
Date

Attachment # 6: Copy of Manifest No. 1218UPR, Disposal of Sealed Sources

a. **Radium -226 sealed source: Victoreen Model 540-B, S/N: 271, 2 mg**
b. **Radium-226 Nuclear Chicago Model; 5901, S/n 107, Act. 4.5 mCi**
c. **Radium 226 Model Nr 60275, Act 10 mCi**
d. **Radium 226 Siemens Universal S/N: E25-P4-005, Act.: 10 r/min**
e. **Americium-241 sealed sources in smoke detectors**

Bionomics

P.O. Box 817 – Kingston, TN 37763 – (865) 220-8501

December 20, 2018

Jossian Pagan

University of Puerto Rico
Comprehensive Cancer Center at the Medical Center Area
San Juan, PR, 00927

Jossian,

As required by 10 CFR Part 20 (Appendix G), this letter is notification that Bionomics, Inc. has received the shipment recently picked up at your facility on **December 5, 2018.**

Attached you will find a copy of your NRC Form 540, the only change from the original is in Item No.9 "signature" which identifies that Bionomics, Inc. Is acknowledging receipt of waste from your facility.

Please keep this with your original, as well as future disposal certifications.

If you have any questions please feel free to contact me at (865) 220-8501.

Sincerely,

Jerry Noll
QA Manager

Cc: File BIO-12-18

FORM 540 — Bionomics, Inc.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): (800) 424-9300

ORGANIZATION: CHEMTREC / CNN825454

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [ ] YES [X] 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 ====> N/A

EPA MANIFEST NUMBER: N/A

5. SHIPPER - NAME AND FACILITY
Bionomics, Inc. for University of Puerto Rico
Comprehensive Cancer Center at the Medical Center Area
San Juan, PR 00927

USER PERMIT NUMBER:

SHIPMENT NUMBER: 1218UPR

CONTACT: Jocelyn Pagan

TELEPHONE NUMBER (Include Area Code): (787) 766-3067

6. CARRIER - Name and Address
Bionomics, Inc.
1550 Bear Creek Road
Oak Ridge, TN 37830

Truck #:

Trailer #:

CONTACT: John McCormick

SIGNATURE - Authorized carrier acknowledging waste receipt: [signature]

SHIPMENT ID NUMBER: 1218UPR

COLLECTOR

PROCESSOR

GENERATOR TYPE (Specify): X A

EPA I.D. NUMBER: TND982116493

SHIPPING DATE: 12/05/2018

TELEPHONE NUMBER (Include Area Code): 865-220-8501

DATE: 12/05/18

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — NONE PAGE(S)
ADDITIONAL INFORMATION — NONE PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 1218UPR

9. CONSIGNEE - Name and Facility Address
Bionomics, Inc.
Operated By Bionomics, Inc.
1550 Bear Creek Road
Oak Ridge, TN 37830

CONTACT: John McCormick

TELEPHONE NUMBER (Include Area Code): (865) 220-8501

SIGNATURE - Authorized consignee acknowledging waste receipt: [signature]

DATE: 12/20/18

10. CERTIFICATION

This is to certify that the above-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 in proper condition for transportation and disposal in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: [signature] — TITLE: Tech — DATE: 12/05/18

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 MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
UN2915, RADIOACTIVE MATERIAL, TYPE A PACKAGE, 7 SEALED SOURCES 1 - 30 GAL METAL DRUM	Yellow II	0.9	SOLID/OXIDES	AM-241 ; C-14 ; CO-57 ; GE-68 ; NI-63 ; RA-226 ; Ra/Be	~~4956.574444~~ 1613.374144	~~(44.010112)~~ (49.010112)	NA	4.01 ft³ 110.00 lb	UPR-07 (18-002091)

FOR CONSIGNEE USE ONLY

- ___ Record Waste Description Inadequate
- ___ Contamination or Leakage Detected
- ___ Unexpected Exposure Rates Detected
- ___ Labels, Markings, etc. Inadequate
- ___ Container Integrity Inadequate
- ___ Other
- ___ No Violations Detected on this Shipment

BFo-12-18

20. TERMS AND CONDITIONS

A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material is [ ] not [X] a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with all appropriate and required shipping notice and/or certification as required by 40 CFR 263.

B. TITLE: Upon acceptance at the disposal site by EnergySolutions, Inc. and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representations herein shall thereupon transfer from Generator and be vested in EnergySolutions, Inc.

C. WASTE MATERIAL: Generator represents and warrants that all data set forth in the UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST are true and correct in all respects and in accordance with all applicable governmental laws, rules, and regulations and Environs of Utah, Inc.'s facility license.

D. INDEMNIFICATION: Generator agrees to indemnify EnergySolutions, Inc., its officers, employees, and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data submitted on the UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST or if this shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 541 — Bionomics, Inc.

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/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	m³ 0.1136; ft³ 4.0100	kg 36.29; lbs 0.04	NP	NP	NP	NP

ACTIVITY (MBq/mCi) (LLD UNITS IN uCi/sec)	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE
MBq	1813.374144 *850.574144	NP	0.370000	NP	NP	NP
mCi	49.010112 44.6101*2	NP	0.010000	NP	NP	NP

2. MANIFEST NUMBER: 1218UPR

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME: Bionomics Inc. for University of Puerto Rico

SHIPMENT ID NUMBER: 1218UPR

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

5. CONTAINER IDENTIFICATION NUMBER (B - Innerpack Container)	6. CONTAINER DESCRIPTION (See Note 1 & 1A)	7. VOLUME m³ ft³	8. WASTE AND CONTAINER WEIGHT kg lbs	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm² dpm/100 cm² ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m³ ft³	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION (AS - Class A Stable, AU - Class A Unstable, B - Class B, C - Class C)
18-00268* (UPR 07) Origin PR University of Puerto Rico Comprehensive Cancer Center at the Medical Center Area San Juan, PR 00927	4	0.1136; 4.0100	49.89; 0.06	0.24	< 0.0000334; < 20	< 0.0000167; < 1000	11; 38	0.1136; 4.0100	100	SOLID OXIDES / NP	NP	[illegible]	2.755778	0.003701	0.000100	>CU
												C-14	275.577810	0.370000	0.010000	
												CO-57	0.275578	0.000370	0.000010	
												GE-68	0.055116	0.000074	0.000002	
												NI-63	137788.947572	*85.000000	5.000000	
												[illegible]	1091288.125639	1455.200000	39.600000	
												[illegible]	121445.370010	162.800000	4.400000	
												[illegible]	1359801.056672	*813.374144	49.010112	
												Sub Total	1813.374144 634672	[illegible]	[illegible]	
Package Total		1											1359801.056672 1229355.694672	1813.374144 [illegible]	49.010112 [illegible]	
Shipment Total		0.1136; 4.0100	49.89; 0.06											[illegible] 1813.374144	[illegible] 49.010112	

NOTE 1: Container Description Codes. For containers/waste 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 Pail
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 Dimensioned
10 Gas Cylinder
11 Bulk, Unpackaged Waste
12 Unpackaged Components
13 High Integrity Container
19 Other. Describe in Item 5 or add a continuation page

NOTE 1A: Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Conveyance
B Intermodal
C End-dump
D Roll-off
E Sewer

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 Carbon Ion-exchange Media
31 Anion Ion-exchange Media
32 Mixed Bed Ion-exchange Media
33 Contaminated Equipment
34 Organic Liquid (except oil)
35 Greenwaste or Leaves
36 Sealed Source/Device
37 Paint or Plating
38 Evaporator Bottom/Sludge/Concentrate
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 add a continuation page

NOTE 2A: Specific Waste Descriptors (Choose all applicable codes.)

G Galvanized
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

NOTE 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "S" and the media vendor and brand name must also be identified in Item 12. Code 100=None Required.

Solidification

90. Cement
91. Concrete (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 12, or add a continuation page
*100. None Required

Form 541 (10-96) — * - Indicates Cross Contamination

Attachment # 7: Certification of Sealed Sources Inventory Transferred to Bionomics

University of Puerto Rico
Medical Sciences Campus
PO Box 365067, San Juan PR 00936-5067
Material License Number: 52-01946-07 Docket No.: 030-13584
SEALED SOURCES NOT IN USE AND STORED FOR DISPOSAL (Rev Nov 13, 2018)

Container Number	Item	Radionuclide	Original Reference Date	Model	Serial #	Original Activity	Decay Act	Contact Dose Rate mR/hr	Physical Form (plastic, metal, gel, liquid)	Device Dimensions	Manufacture	Process carried out	Net dpm of Source	Background dpm	Removable Contact (µCi)	Ambient Dose Rate mR/hr
	B-2	Co-57	May/01/2009	NES-8400	2372-095	10 mCi	0.0 mCi	0	Calibration Good Source		Tetsert & Ziegler Isotope Products	(X) Leak test (X) Inv	< 420	71	<0.005	[illegible]
	C-3						5 mCi	40	Sealed plastic source inside a metal can	2" long & 4" diameter	Siemens Universal Dosimeter	(X) Leak test (X) Inv	< 420	71	<0.005	40
	D-4		June/26/1965		5207	4.5 mCi	4.4 mCi	30	Metal instrument	Approx. 1" x 1.5"	Nuclear Chicago	(X) Leak test (X) Inv	< 420	71	<0.005	30
	E-5	Ni-63		140 NN	N 185	5 mCi	5 mCi	0.07	Metal instrument		Velco Instrument Co.Inc.	(X) Leak test (X) Inv	< 420	71	<0.005	0.07
	F-6				Vm 271	2 mCi	0.7 mCi	80	Lead container	Lead Shield 4 1/2" long & 3 1/2" diameter	Victoreen Instrument	(X) Leak test (X) Inv	< 420	71	<0.005	80
	[illegible]	[illegible]					0.000001 mCi	11	Lead container	Lead Shield 4 1/2" long & 3 1/2" diameter	Lead container contaminated with Cs137	(X) Leak test (X) Inv	< 420	71	<0.005	11
	G-0					70 mCi	10 mCi	6	Inside a solid lead shield	Lead shield 4" long & 3" diameter		(X) Leak test (X) Inv	< 420	71	<0.005	6
	H-10	Co-57	May/01/09		2597 [illegible]	5 mCi	0.0 mCi	0.002	Calibration Good Source		Amersham	(X) Leak test (X) Inv	< 420	71	<0.005	0.002
	I-11	Ga-Ga-68	Nov/18/2010	GS-2A	10[illegible]	0.27 mCi	[illegible] mCi	9.0	Thin metallic cylinder covered with lead shields. Calibration Source covered in lead shields.		Siemens Medical Solutions	(X) Leak test (X) Inv	< 420	71	<0.005	9.0
	J-12	Ga/Ga 68	Nov/18/2010	[illegible]	[illegible]	0.27 mCi	11/12/2018 6.01x10^-4 mCi	9.0	Thin metallic cylinder covered with lead shields. Calibration Source covered in lead shields.		Siemens Medical Solutions	(X) Leak test (X) Inv	< 420	61	<0.005	9.0

SEALED SOURCES NOT IN USE AND STORED FOR DISPOSAL (Rev Nov 13, 2018)

Container Number	Item Number	Radionuclide	Original Reference Date	Model	Serial #	Original Activity	Decay Act	Contact Dose Rate mR/hr	Physical Form (plastic, metal, gel, liquid)	Devise Dimensions	Manufacture
J	13	Co 57			CT200-2 / G8 2004			0.01	Plastic reference disk source	Quarter size	Baird Atomic
J	14	C-14	Feb/8/1971		14 BD			0.6	Metal reference disk source	Quarter size	Baird Atomic
K	22	H3	Feb/09/1984	Lot # 182312		150 mCi/mmole 25 mCi/Unit	12/05/2018 3.5 mCi		Solid Crystal Ampule	Crystal Ampule	Sodium Boronydride H3
K	23	H3	Feb/09/1984	Lot # 182312		150 mCi/mmole 25 mCi/Unit	12/05/2018 3.5 mCi		Solid Crystal Ampule	Crystal Ampule	Sodium Borohydride H3
K	24	H3	Feb/09/1984	Lot # 182312		150 mCi/mmole 25 mCi/Unit	12/05/2018 3.5 mCi		Solid Crystal Ampule	Crystal Ampule	Sodium Boronydride H3
K	25	H3	Feb/09/1984	Lot # 182312		150 mCi/mmole 25 mCi/Unit	12/05/2018 3.5 mCi		Solid Crystal Ampule	Crystal Ampule	Sodium Boronydride H3

Am-241, SEALED SPURCES FROM 152 SMOKE DETECTORS RADIOACTIVE MATERIAL NOT IN USE FOR DISPOSAL (Rev Nov 13, 2018)

Container Number	Item #	Isotopes	Ref. Date	Model	Serial #	Activity	Decay Act	Contact Dose Rate mR/hr	Physical Form (plastic, metal, gel, liquid)	Comments
F	6	Am-241				<0.1 0.0001 uCi		0.03	Metal Sealed Sources	152 Smoke detectors

Uranyl Nitrate Inventory (Rev Nov 13, 2018)

Container Number	Item Number	Radionuclide	Original Reference Date	Model	Serial #	Original Activity	Decay Act	Contact Dose Rate mR/hr	Physical Form (plastic, metal, gel, liquid)	Devise Dimensions	Manufacture	Comments
		Uranyl Nitrate Solution			SLBH5388V	500 ml		0.19 mR/hr	Liquid in a plastic container		Sigma-Aldrich	Material was solidified

Transferred Information:

Date transferred to License Number: R-73021-E25, December 5, 2018

Radioactive material transferred to Bionomics Inc. P.O. Box 817 Kingston, Tennessee 37763, License Number: R-73021-E25, Expiration Date: May31, 2025, File No.: R-73021
Radiation Safety Officer of Bionomics Inc.: John McCormick

Certify that the above radioactive sealed sources and waste (Uranyl Nitrate Soln.) were received by: _____ 12-5-18

John McCormick
Bionomics Inc. RSO

Date

Attachment # 8: Copy of the Manifest No. 001029486VES, (Disposal of Americium-241 liquid crystal ampoules)

PRD000691071 8-28-17

Please print or type. (Form designed for use on elite (12 pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	[illegible]	3	(877) 810-8087	001029486 VES

5. Generator's Name and Mailing Address: UPR-RECINTO DE CIENCIAS MEDICAS, EDIF. DR. GUILLERMO ARCONA, CNTC. PROTECCION RADIOLOGICA, RIO PIEDRAS, PR 00939

Generator's Site Address (if different than mailing address): SAME

Generator's Phone: 787 [illegible]

6. Transporter 1 Company Name: ALAN TRUCKING INC — U.S. EPA ID No.

7. Transporter 2 Company Name: VEOLIA ES TECHNICAL SOLUTIONS — U.S. EPA ID No.

8. Designated Facility Name and Site Address: PERMA-FIX OF FLORIDA, INC., 1940 NW 67TH PLACE, GAINESVILLE, FL 32653 — U.S. EPA ID No. FLD980711[illegible]

Facility's Phone: 352 373-6066

9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN1993, WASTE FLAMMABLE LIQUIDS, n.o.s., (XYLENE, TOLUENE), 3 (7), II, RQ (D001), LIMITED QUANTITY RADIOACTIVE MATERIAL	2	D M	550	P	F003 F005
X	2. UN1993, WASTE FLAMMABLE LIQUIDS, n.o.s., (XYLENE, TOLUENE), 3 (7), II, RQ (D001), LIMITED QUANTITY RADIOACTIVE MATERIAL	1	D M	275	P	F003 F005
X	3. UN1993, WASTE FLAMMABLE LIQUIDS, n.o.s., (XYLENE, TOLUENE), 3 (7), II, RQ (D001), LIMITED QUANTITY RADIOACTIVE MATERIAL	2	D M	550	P	F003 F005
X	4. UN1993, WASTE FLAMMABLE LIQUIDS, n.o.s., (XYLENE, TOLUENE), 3 (7), II, RQ (D001), LIMITED QUANTITY RADIOACTIVE MATERIAL	1	D M	275	P	F003 F005

14. Special Handling Instructions and Additional Information: ER Service Contracted by VEOLIA 1) NON-EXEMPT SCINTILLATION VIALS APPROAVL 11928. 2) NON-EXEMPT SCINTILLATION VIALS APPROAVL 11928. 3) NON-EXEMPT SCINTILLATION VIALS APPROAVL 11928. 4) NON-EXEMPT SCINTILLATION VIALS APPROAVL 11928

trailer no cmcu-457168-3

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true. (Second Sample) One time generator

Generator's/Offeror's Printed/Typed Name: Jossian I. Rivera-Soto — Signature: [signature] — Month 08 Day 28 Year 17

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Luis Torres — Signature: L Torres — Month 08 Day 28 Year 17

Transporter 2 Printed/Typed Name: Eduardo E. Aldoy — Signature: Eduardo E. [signature] — Month 08 Day 28 Year 17

18. Discrepancy

18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems): 1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Tom McCarty — Signature: T McC — Month 10 Day 5 Year 17

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

PRD000691071

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number PRD000691071	22. Page 2 of 5	23. Manifest Tracking Number 001029486VES

24. Generator's Name: UNIV. RECINTO DE CIENCIAS MEDICAS

25. Transporter 3 Company Name: LAS TRUCKING INC. U.S. EPA ID Number: PRD980559473

26. Transporter 4 Company Name: CROWLEY PUERTO RICO SERVICES U.S. EPA ID Number: PRD980556180

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	Type	29. Total Quantity	30. Unit Wt/Vol	31. Waste Codes		
X	5. UN1924, WASTE FLAMMABLE LIQUIDS, CORROSIVE, n.o.s. (METHANOL, ACETIC ACID), 3 (8), II, LIMITED QUANTITY RADIOACTIVE MATERIAL	1	DM	40	P	F003 D001	D002	
X	6. UN1993, WASTE FLAMMABLE LIQUIDS, n.o.s., (ETHANOL, METHANOL), 3 (7), II, LIMITED QUANTITY RADIOACTIVE MATERIAL	1	DM	75	P	F003 U220	D001	
X	7. UN1479, WASTE OXIDIZING SOLID, n.o.s., (URANYL NITRATE), 5.1(7), LIMITED QUANTITY RADIOACTIVE MATERIAL	1	DF	25	P	D001		

32. Special Handling Instructions and Additional Information: BS12041 ... 416. net weight.

5) APPROVAL BS12040 6) APPROVAL BS12039 7) APPROVAL

GENERATOR

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: Eliezer Lopez Signature: Month 08 Day 31 Year 17

34. Transporter 4 Acknowledgment of Receipt of Materials

Printed/Typed Name: Eric Rosario Signature: Month 9 Day 5 Year 17

TRANSPORTER

35. Discrepancy

DESIGNATED FACILITY

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

5 | 6. | 7

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page	23. Manifest Tracking Number

24. Generator's Name

25. Transporter _____ Company Name — U.S. EPA ID Number

26. Transporter _____ Company Name — U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

33. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

34. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

GENERATOR

TRANSPORTER

DESIGNATED FACILITY

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

APPROVED BY OMB: NO. 3150-0164
EXPIRES: 12/31/2016

Estimated burden per response to comply with this information collection request: 45 minutes. This 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. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0164), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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
(01-2014)

U.S. NUCLEAR REGULATORY COMMISSION
UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 877-818-0087

ORGANIZATION: Veolia ES Technical Solutions, LLC

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☐ YES ☑ NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 9

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☑ YES ☐ NO
If "Yes," provide Manifest Number: EPA MANIFEST NUMBER: 001025-85VES

5. SHIPPER - NAME AND FACILITY
UPR-Recinto De Ciencias Medica
Edif. Dr. Guillermo Arbona
Ofic. Proteccion Radiologica
Rio Piedras, PR 00925

SHIPPER ID NUMBER: PRD000691107

☐ COLLECTOR ☐ PROCESSOR ☑ GENERATOR TYPE (Specify) A

USER PERMIT NUMBER: 11926,RS12040 SHIPMENT NUMBER: RS12039,RS12041

CONTACT: Jaselan J. Pagan Lisboa TELEPHONE NUMBER (Include Area Code): 787-765-3062

6. CARRIER - Name and Address

Transporter #1	Transporter #2	EPA ID Number
Vitar Trucking	Veolia ES Technical Solutions	#1 PRD000939678 #2 PRD987381746
RD 189, KM 3.5	RD 189 KM 3.3	Ship Date: 9-29-17
Caguas, PR 00725	Gurabo, PR 00778	Telephone #1 787-743-6486 #2 787-744-0070
Contact Dispatch	Contact: Dispatch	

SIGNATURE - Authorized carrier acknowledges waste receipt
#1 Luis Torres Date 09-29-17 #2 Date

7. NRC FORM 540 AND 540A — PAGE 1 OF 2 PAGE(S)
NRC FORM 541 AND 541A — 3 PAGE(S)
NRC FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 001025-85VES

9. CONSIGNEE - Name and Facility Address
Perma-Fix of Florida, Inc.
1940 NW 67th Place
Gainesville, FL 11973

CONTACT: Raymond White
TELEPHONE NUMBER (Include Area Code): 352-373-6056

SIGNATURE - Authorized consignee acknowledges waste receipt: Joel Mobley DATE: 10-5-17

10. CERTIFICATION
This is to certify that the above-named materials are acceptable for disposal, 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 and the Commission.
On behalf of the UPR Medical Sciences Campus

AUTHORIZED SIGNATURE: [signature] TITLE: Director DATE: [illegible]

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 (MBq)	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
UN1993,Waste Flammable Liquids,N.O.S.(Ethanol,methanol),3(7),II,Limited Quantity Radioactive Material	NA RS12039	NA	Liquid Organic	Am-241 C-14 Co-57 Co-60 Cs-134 Cs-137 H-3 Ni-63 Ra-226 Sr-90 Th-230 U-NAT	1.3708E+02	NA	75 LBS; 4.09 FT3	NE-28563080 01-001-01-0
UN2924,Waste Flammable Liquids,Corrosive,N.O.S.(Methanol,acetic acid),3(8,7),II, Limited Quantity Radioactive Material	NA RS12040	NA	Liquid Organic	H-3	3.7014E+00	NA	40 LBS; 0.68 FT3	NE-28563080 01-002-01-0
UN1993,Waste Flammable Liquids,N.O.S.(Xylene,Toluene),3(7),II,RQ(D001),Limited Quantity Radioactive Material	NA RS11928	NA	Liquid Organic	H-3	1.9103E+02	NA	275 LBS; 11.4 FT3	NE-28563080 01-004-01-0
UN1479,Waste Oxidizing Solid,N.O.S.(Uranyl Nitrate),5.1(7), II,Limited Quantity Radioactive Material	NA RS12041	NA	Solid Inorganic	U-NAT	4.9210E+01	NA	35 LBS; 1.91 FT3	NE-28563080 01-011-01-0
UN1993,Waste Flammable Liquids,N.O.S.(Xylene,Toluene),3(7),II,RQ(D001),Limited Quantity Radioactive Material	NA RS11928	NA	Liquid Organic	H-3	2.9298E+02	NA	275 LBS; 11.4 FT3	NE-28563080 01-014-01-0
UN1993,Waste Flammable Liquids,N.O.S.(Xylene,Toluene),3(7),II,RQ(D001),Limited Quantity Radioactive Material	NA RS11928	NA	Liquid Organic	H-3	1.5270E+02	NA	275 LBS; 11.4 FT3	NE-28563080 01-015-01-0

FOR CONSIGNEE USE ONLY

6. CARRIER - Name and Address		EPA ID Number
Transporter #3	Transporter #4	#3 PRD000939678
Vitar Trucking	Crowley Puerto Rico Services	#4 PRD090559360
RD 189, KM 3.5	P.O. Box 9023921	Ship Date:
Caguas, PR 00725	San Juan, PR 00902	Telephone #3 787-743-6486 #4 787-729-1000
Contact Dispatch	Contact: Dispatch	

SIGNATURE - Authorized carrier acknowledges waste receipt
#3 Date #4 Date

6. CARRIER - Name and Address		EPA ID Number
Transporter #5		#5 NJD071579776
SJ Transportation Company		Ship Date: 10-2-17
US Route 40		Telephone
Woodstown, NJ 08098		#5 856-769-2741
Contact Dispatch		

SIGNATURE - Authorized carrier acknowledges waste receipt
[signature] Date 10-2-17 Date

NRC FORM 540 (1-2014)

APPROVED BY OMB: NO. 3150-0166
EXPIRES: 12/31/2016

Estimated burden per response to comply with this information collection request: 3.3 hours. This 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. Send comments regarding burden estimate to the FOIA, Privacy, and Information Collections Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0166), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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
(01-2014)

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/ DISPOSAL CONTAINERS	NET WASTE VOLUME (m³)	NET WASTE WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	Total
9	2.1260	816.4662	NP	NP	NP	NP

ACTIVITY (MBq) ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)
1.1429E+03	1.0898E+03	3.6110E+00	NP	NP	1.5947E+00

2. MANIFEST NUMBER 001029486VES

3. PAGE 1 OF 3 PAGE(S)

4. SHIPPER NAME UPR-Recinto De Ciencias Medica

SHIPPER I.D. NUMBER PRD000691107

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 (m³)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL ☑ (uSv/hr) (mSv/hr)	10. SURFACE CONTAMINATION (MBq/100 cm²) ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m³)	13. SORBENT, SOLIDIFICATION, STABILIZATION, MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT		16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
NE-2855C0C001-001-01 -OPRD000691107	4	0.1158	34.0194	<5.0000E+00	<3.6740E-05	<3.6740E-05	34.35	0.0259	100 100	Organic/NP	NP	Am-241	1.4600E-03	NA
												C-14	8.5100E-01	
												Co-57	7.4000E-03	
												Co-60	5.5500E-03	
												Cs-134	1.8500E-02	
												Cs-137	6.6500E-03	
												H-3	1.3615E+02	
												Ni-63	9.2500E-04	
												Ra-226	2.0350E-03	
												Sr-90	1.4800E-03	
												Th-230	2.2200E-03 (3.0000E-12 kg)	
												U-NAT	3.7000E-02 (7.2400E-04 kg)	
												Total	1.3709E+02	
NE-2855C0C001-002-01 -OPRD000691107	4	0.0193	18.1437	<5.0000E+00	<3.6740E-05	<3.6740E-05	34.35	0.0042	100 100	Organic/NP	NP	H-3	3.7015E+00	NA
												Total	3.7015E+00	

Note 1: Container Description Codes. For containers/ waste 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 Pail
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 8, 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 Compactable Trash
40 Noncompactable Trash
41 Animal Carcass
42 Biological Material (except animal carcass)
43 Activated Material
59. 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

60. Speedi Dri
61 Celatom
62 Floor Dry/ Superfine
63 Hi Dri
64. Safe T Sorb
65 Safe N Dry
66. Floreo
67 Floreo X
68 Solid A Sorb
69 Chemsil 30
70 Chemsil 50
71 Chemsil 3000
72 Diesel HP200
73 Diesel HP500
74 Petroset
75 Petroset II
76 Aquaset
77 Aquaset II
89 Other Describe in item 13, or additional page

Solidification

90 Cement
91 Concrete (encapsulation)
92 Bitumen
93 Vinyl Chloride
94 Vinyl Ester Styrene
99 Other Describe in item 13, or additional page
100 None Required

NRC FORM 541 (01-2014)

Attachment # 9: Copy of the Manifest No. 0419UPRB, (Disposal of Cesium-137 contamination in waste bunker)

Bionomics

P.O. Box 817 – Kingston, TN 37763 – (865) 220-8501

April 30, 2019

Receipt Acknowledgment

Jossian Pagan
University of Puerto Rico
Comprehensive Cancer Center at the Medical Center Area
San Juan, PR 00927

Dear Jossian Pagan:

As required by 10 CFR Part 20 (Appendix G), this letter is notification that EnergySolutions (formerly Duratek) has received the shipment recently picked up at your facility on April 4, 2019.

Attached you will find a copy of your NRC Form 540, the only change from the original is in Item No. 9 "signature" which identifies that EnergySolutions is acknowledging receipt of waste from your facility.

Please keep this with your original, as well as future disposal certifications.

If you have any questions, please feel free to contact me at (865) 220-8501.

Sincerely,

D. Agana

Denise Agana
Shipping/Manifesting

Cc: File: 2019-05
Manifest# 0419UPRB

FORM 540 — EnergySolutions, Bear Creek Processing Operations

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

5. SHIPPER - NAME AND FACILITY
University of Puerto Rico
Comprehensive Cancer Center at the Medical Center Area
San Juan, PR 00927

SHIPMENT ID NUMBER: 0419UPRB
COLLECTOR
PROCESSOR

7. FORM 540 AND 540A — PAGE 1 OF 2 PAGE(S)
FORM 541 AND 541A — 3 PAGE(S)
FORM 542 AND 542A — NONE PAGE(S)
ADDITIONAL INFORMATION — NONE PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 0419UPRB

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): (800) 424-9300

ORGANIZATION: CHEMTREC / CCN025454

USER PERMIT NUMBER

SHIPMENT NUMBER: 0419UPRB

X GENERATOR TYPE (Specify): A

CONTACT: Jessian Pagan

TELEPHONE NUMBER (Include Area Code): (787) 765-3052

9. CONSIGNEE - Name and Facility Address
EnergySolutions, Bear Creek Processing Operations
Operated By EnergySolutions
1580 Bear Creek Road
Oak Ridge, TN 37830

CONTACT: Fred Schulz

TELEPHONE NUMBER (Include Area Code): (865) 481-0222

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

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 8

6. CARRIER - Name and Address
Biotomics, Inc.
1556 Bear Creek Road
Oak Ridge, TN 37830

Truck #:
Trailer #:

EPA I.D. NUMBER: TND982116493

SHIPPING DATE: 04/04/2019

SIGNATURE - Authorized carrier acknowledging waste receipt

DATE: 4/4/19

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE: 4-25-19

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

EPA MANIFEST NUMBER

CONTACT: John McCormick

TELEPHONE NUMBER (Include Area Code): 865-220-6501

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 in proper condition for transportation and disposal in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulation.

AUTHORIZED SIGNATURE

TITLE: COO

DATE: 4/4/2019

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 MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
UN2910, Radioactive material, excepted package-limited quantity of material, 7 DAW 1 - 5 GAL PLASTIC PAIL	NA	NA	SOLID/OXIDES	CS-137 ; H-3 ; U (NAT)	0.555740	(0.015020)	NA	0.68 ft³ 15.00 lb	UPR-08 (19-000535)
Non-Radioactive per DOT CONCRETE 1 - 5 GAL PLASTIC PAIL	NA	NA	SOLID/OXIDES	CS-137	0.003700	(0.000100)	NA	0.68 ft³ ~~39.00 lb~~ 59 lbs.	UPR-09 (19-000536)
Non-Radioactive per DOT CONCRETE 1 - 5 GAL PLASTIC PAIL	NA	NA	SOLID/OXIDES	CS-137	0.003700	(0.000100)	NA	0.68 ft³ ~~39.00 lb~~ 57 lbs.	UPR-10 (19-000537)
Non-Radioactive per DOT CONCRETE 1 - 5 GAL PLASTIC PAIL	NA	NA	SOLID/OXIDES	CS-137	0.003700	(0.000100)	NA	0.68 ft³ ~~39.00 lb~~ 53 lbs.	UPR-11 (19-000538)
Non-Radioactive per DOT CONCRETE 1 - 5 GAL PLASTIC PAIL	NA	NA	SOLID/OXIDES	CS-137	0.003700	(0.000100)	NA	0.68 ft³ ~~39.00 lb~~ 62 lbs.	UPR-12 (19-000539)
Non-Radioactive per DOT CONCRETE 1 - 5 GAL PLASTIC PAIL	NA	NA	~~LIQUID~~/OXIDES SOLID	CS-137 ; PPS	0.037740	(0.001020)	NA	0.68 ft³ ~~25.00 lb~~ 30 lbs.	UPR-13 (19-000540)

FOR CONSIGNEE USE ONLY

Tennessee "License For Delivery" No. _____

South Carolina Transport Permit No. _____

US Ecology Generator No. _____

US Ecology Permit No. _____

20. Generator Certification Statement

A) Radioactive Materials. Certification is hereby made that the shipment of low-level radioactive waste has been prepared in accordance with a radioactive waste management program which has been approved by the Nuclear Regulatory Commission or an Agreement State regulatory agency and with the current revision of the site Material Acceptance Criteria.
B) Hazardous Materials. Generator hereby certifies that this material ___ does (or) X does not contain a hazardous waste as defined in 40 CFR 261.
C) Data. Generator hereby represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and the Radioactive Material License.
D) INFECTIOUS SUBSTANCE: Generator hereby certifies that this material does not contain an infectious substance as defined in 49CFR 173.134

John McCormick (Print Name) — (Signature) — 4/4/19 (Date)

Form 540 (10-95)

Modified Date: 04/04/2019 13:16

VIA - CROWLEY SJU TO JAX

FORM 540A

EnergySolutions, Bear Creek Processing Operations

UNIFORM LOW-LEVEL RADIOACTIVE
WASTE MANIFEST
SHIPPING PAPER (CONTINUATION)

5. MANIFEST NUMBER
(Use this number on all continuation pages)
0419UPRE

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 MBq	nCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Non-Radioactive per DOT [illegible] 1 - 5 GAL PLASTIC PAIL	NA	NA	SOLID/OXIDES	[illegible]	0.003700	(0.000100)	NA	0.68 ft³ 50.00 lb	UPR-15 (19-000518)
Non-Radioactive per DOT [illegible] 1 - 5 GAL PLASTIC PAIL	NA	NA	SOLID/OXIDES	[illegible]	0.003700	(0.000100)	NA	0.68 ft³ 50.00 lb	UPR-16 (19-000518)

FORM 541

EnergySolutions, Bear Creek Processing Operations

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/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
6	m³ 0.1914 / ft³ 6.4400	kg 151.50 / lb 334.00	NP	NP	NP	NP

ACTIVITY (MBq/Ci) (LLD UNITS IN uCi/ml)

	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE
MBq	0.616640	0.001400	NP	NP	NP	kg 0.007042
mCi	0.016640	0.000040	NP	NP	NP	lb 0.015525

2. MANIFEST NUMBER

0419UPR3

3. PAGE 1 OF 3 PAGE(S)

4. SHIPPER NAME

University of Puerto Rico

SHIPMENT ID NUMBER

0419UPR3

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

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR NUMBER	6. CONTAINER DESCRIPTION (See Note 1) PRIMARY/SECONDARY (See Note 1A) SURALLIMCONTAIN (See Note 1A)	7. VOLUME m³ / ft³	8. WASTE AND CONTAINER WEIGHT kg / lb	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION Bq/100 cm² / dpm/100 cm² ALPHA	BETA-GAMMA	11. WASTE DESCRIPTION (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m³ / ft³	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDE	MBq	mCi	16. WASTE CLASSIFICATION AS - Class A Stable AU - Class A Unstable B - Class B C - Class C
A - Contrpt(s) Contains															
19-000515 (UPR-06) 4102	3 / C / C	0.0193 / 0.6800	5.00 / 15.00	< 5.0000E-01 / < 5.0000E-01	< 3.3400E-07 / < 2.0000E-01	< 1.6700E-05 / < 1.0000E+03	59(NAV)	0.0193 / 0.6800	100	SOLID OXIDES / NP	NP	CS-137	0.379000	0.010000	AU
												H-3	0.000740	0.000020	
												U (NAT)	0.185000	0.005000	
													(0.007042 kg)		
												Sub Total	0.565740	0.015020	
													(0.007042 kg)		
												Package Total	0.565740	0.015020	
													(0.007042 kg)		
19-000516 (UPR-02) 4106	3 / C / C	0.0193 / 0.6800	22.00 / 50.00	< 5.0000E-01 / < 5.0000E-01	< 3.3400E-07 / < 2.0000E+01	< 1.6700E-05 / < 1.0000E+03	[illegible]	0.0193 / 0.6800	100	SOLID OXIDES / NP	NP	CS-137	0.003700	0.000100	AU
												Sub Total	0.003700	0.000100	
												Package Total	0.003700	0.000100	
19-000537 (UPR-10) 4126	3 / C / C	0.0193 / 0.6800	22.00 / 50.00	< 5.0000E-01 / < 5.0000E-01	< 3.3400E-07 / < 2.0000E+01	< 1.6700E-05 / < 1.0000E+03	CONCRETE	0.0193 / 0.6800	100	SOLID OXIDES / NP	NP	CS-137	0.003700	0.000100	AU
												Sub Total	0.003700	0.000100	
												Package Total	0.003700	0.000100	

NOTE 1: Container Description Codes. For container/waste multiplicity (Note 3) in approved structural overpacks, the material of construction follows by "/" or "."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
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. Drift, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
14. Other, Describe in Item 6, on additional page

NOTE 1A: Process Requested

C. Compaction
SR. Steam Reforming
DI. Direct Incineration
SI. Sort & Incinerate
D. Decon
G. Green is Clean
M. Metal Melt
T. Treatment
LI. Liquid for Incineration
OI. Oil for Incineration
O. Other (Describe)

NOTE 2: Waste Description 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 Debris
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. Chemicals or Chemicals
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges Concentrates
39. Compactible Trash
40. Hazardous/Mixed Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
99. Other, Describe in Item 11, or additional page

NOTE 3A: Final Disposition Site

D. Barnwell Waste Management Facility
E. EnergySolutions / Clive
R. Richland, WA
PR. Process and Return
O. Other

NOTE 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "S" and the media vendor and brand name must also be identified in Item 13. Code 100 alone requires

Solidification

03. Cement
01. Concrete (encapsulation)
07. Bitumen
03. Vinyl Chloride
04. Vinyl Ester Styrene
05. Other, Describe in Item 13, or additional page
100. None Required

* = Indicates Cross Contamination

FORM 541A

EnergySolutions, Bear Creek Processing Operations

7. MANIFEST NUMBER
041BUP86

8. PAGE 2 OF 3 PAGE(S)

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER								
							PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION			16. WASTE CLASSIFICATION A - Class A Stable AU - Class A Unstable B - Class B C - Class C
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR NUMBER	6. CONTAINER DESCRIPTION (See Note 6) PROCESS REQUESTED (See Note 7A) DISPOSAL DESCRIPTION (See Note 7A)	7. VOLUME m³ ft³	8. WASTE AND CONTAINER WEIGHT kg lb	9. SURFACE RADIATION LEVEL mR/hr mrem/hr	10. SURFACE CONTAMINATION Alfa/100 cm² Dpm/100 cm² ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m³ ft³	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	MBq	mCi	
6 - Reuse a.k. Container															
19-000526	3	0.0193	22.68	< 5.0000E-03	< 3.3400E-07	< 1.6700E-05	CONCRETE	0.0193	100	SOLID OXIDES / NP	NP	Cs-137	0.003700	0.000100	AU
(UPR-13)	C														
4906	O	0.6800	50.00	< 5.0000E-01	< 2.0000E+01	< 1.0000E+03		0.6800							
												Sub Total	0.003700	0.000100	
												Package Total	0.003700	0.000100	
19-000529	3	0.0193	22.68	< 5.0000E-03	< 3.3400E-07	< 1.6700E-05	CONCRETE	0.0193	100	SOLID OXIDES / NP	NP	Cs-137	0.003700	0.000100	AU
(UPR-13)	C														
4906	O	0.6800	50.00	< 5.0000E-01	< 2.0000E+01	< 1.0000E+03		0.6800							
												Sub Total	0.003700	0.000100	
												Package Total	0.003700	0.000100	
19-000530	3	0.0193	11.34	< 5.0000E-01	< 3.3400E-07	< 1.6700E-05	CONCRETE	0.0193	100	LIQUID OXIDES / NP	NP	Cs-137	0.037000	0.001000	AU
(UPR-13)	C											H-3	0.037740	0.001020	
4906	O	0.6800	25.50	< 5.0000E-01	< 2.0000E+01	< 1.0000E+03		0.6800							
												Sub Total	0.037740	0.001020	
												Package Total	0.037740	0.001020	
19-000519	3	0.0193	22.68	< 5.0000E-03	< 3.3400E-07	< 1.6700E-05	CONCRETE	0.0193	100	SOLID OXIDES / NP	NP	Cs-137	0.003700	0.000100	AU
(UPR-13)	C														
4906	O	0.6800	50.00	< 5.0000E-01	< 2.0000E+01	< 1.0000E+03		0.6800							
												Sub Total	0.003700	0.000100	
												Package Total	0.003700	0.000100	
19-000519	3	0.0193	22.68	< 5.0000E-03	< 3.3400E-07	< 1.6700E-05	CONCRETE	0.0193	100	SOLID OXIDES / NP	NP	Cs-137	0.003700	0.000100	AU
(UPR-13)	C														
4906	O	0.6800	50.00	< 5.0000E-01	< 2.0000E+01	< 1.0000E+03		0.6800							
												Sub Total	0.003700	0.000100	
												Package Total	0.003700	0.000100	

FORM 541A (10-98) * - Indicates Cross Contamination

Office of Management and Budget, Washington, DC 20503. If it displays 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.

FORM 541A

EnergySolutions, Bear Creek Processing Operations

2. MANIFEST NUMBER

0410UPR2

3. PAGE 3 OF 3 PAGE(S)

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER							
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR NUMBER	6. CONTAINER DESCRIPTION (See Note 1) PROCESS REQUESTED (See Note 1A) DISPOSAL DISPOSITION (See Note 1A)	7. VOLUME m³ ft³	8. WASTE AND CONTAINER WEIGHT kg lb	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm² dpm/100 cm² ALPHA	BETA-GAMMA	11. WASTE DESCRIPTION (See Note 2)	PHYSICAL DESCRIPTION 12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m³ ft³	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT*	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT RADIONUCLIDES	MBq	Ci	16. WASTE CLASSIFICATION AS - Class A Stable AU - Class A Unstable B - Class B C - Class C
* Indicates Cross Contamination														
Shipment Total		0.1544	134.22										0.616596	0.016640
		5.4400	340.00										(0.00-0.616596 kg)	

DOE/NRC 541A (10-08) * Indicates Cross Contamination

University of Puert Rico, Medical Sciecnes campus
SEALED SOURCE NOT IN USE A (April 4, 2019)

Container Number	Item Number	Radionuclide	Original Reference Date	Model Lot #	Serial #	Original Activity	Decay Act	Contact Dose Rate mR/hr	Physical Form (plastic, metal, gel, liquid)	Devise Dimensions	Manufacture
	[redacted]		Dec/25/1958	RS137	[illegible]	10 [illegible] opsimal	[illegible]	16	Low level radioactive sources, liquid source in a crystal ampoule	[redacted]	Nuclear Chicago Corp. Radioactive Standards and Sources Sal.
A	1	Cs-137	Feb/12/2004	PIN: 598360	1636	40 uCi	21.1987 uCi March/25/2019		Metal	Sealed Source inside a Lead Container from a LSC instrument.	Beckman
	2	Cs-137	Nov/21/2003	PIN: 598860	1545	39 uCi	19.42 uCi March/25/2019		Metal	Sealed Source inside a Lead Container from a LSC instrument.	Beckman

Transferred information:

Date transferred to License Number: R-73021-E25, April 4, 2019

Radioactive sealed sources transferred to Bionomics Inc. P.O. Box 817 Kingston, Tennessee 37763, License Number: R-73021-E25, Expiration Date: May31, 2025, File No.: R-73021
Radiation Safety Officer of Bionomics Inc.: John McCormick

Certify that the above radioactive sealed sources were received by: _____ 4/4/19
John McCormick
Bionomics Inc. RSO
Date

Package(s) Summary

Page: 1

Generator: University of PR, MSC
Office Phone: (787) 766-3062
Cell: (787) 612-6825

Pickup Address: Comprehensive Cancer center
EPA ID #: PRD 000691071

Contact Name: Jossian J. Pagán Lisboa
Alternate Contact: Rafael Martínez
Alt PHN/Cell: (787) 758-2525, ext 1687 or 1688

Date: 4/4/2019
PO# 440051962

Package #	Package Type (See below)	Container Volume (ft^3)	Container Weight (lbs.)	Highest Surface Radiation Level On Contact (mRem/hr)	Surface Contamination (100cm2) Alpha	Surface Contamination (100cm2) BetaGamma	Waste Description (See Below)	Scintillation Vials/Fluid Hazardous or Biodegradable? (List hazardous constituents and percentages)	Radionuclides in Container	Activity per Nuclide (mCi)	Total Activity Per Container (mCi)
			5 pounds	N/A		0.005 dpm	DAW	N/A			<0.02 uCi
			350pounds	5 mR/hr		0.005 dpm	R	N/A		5 mR/hr	Unknown
			6 pounds	N/A		0.005 dpm	AQ	N/A	Tritium		<0.02 uCi
	Totals		361								

Package Type:

Wooden Box (WB) — Plastic Drum (PD)
Metal Box (MB) — Plastic Pail (PP)
Metal Drum (MD) — Fiber Box (FB)
Metal Pail (MP) — Metal Tank (MT)
Other (O):

Wastes Description Detail:

Paper, Plastic, Glass (DAW) — Oil (O)
Biological Materials (B) — Filters (F)
Metals (M) — Animals (A)
Soils/Rubble (R) — Sources (S)
Aqueous Liquids (AQ) — Vials (V)
Hazardous Liquids (H) — Other (X):

Supplies Needed:

Transferred information:

Date transferred to License Number: R-73021-E25 , April 4 , 2019

Radioactive waste material transferred to Bionomics Inc. Po Box. 817 Kingston, Tennessee 37763 , License Number : R-73021-E25.Expiration Date: May 31, 2025 , File No.: R-73021

Radiation Safety Officer of Bionomics:John McCormick. Radioactive materials: H3 liquid waste, contaminated cement with Cs 137, H3 vials and disposal rad waste (disposable gloves & absorbant paper)

Certify that the above radioactive materials and waste were received by:

John McCormick, RSO Bionomics — Date: 4/4/19

Package(s) Summary

Page: 1

Generator: University of PR-MSC
Office Phone: (787) 766-3062
Cell: (7870 612-6825
Date: 4/4/2019

Pickup Address: Comprehensive Cancer center
EPA ID #: PRD 000691071
POII 440051962

Contact Name: Jossian J. Pagán Lisboa
Alternate Contact: Rafael Martínez
Alt PHN/Cell: 787-758-2525 ext. 1688

Package #	Package Type (See below)	Container Volume (ft³)	Container Weight (lbs.)	Highest Surface Radiation Level On Contact (mRem/hr)	Surface Contamination (100cm^2) Alpha	Beta/Gamma	Waste Description (See Below)	Scintillation Vials/Fluid Hazardous or Biodegradable? (List hazardous constituents and percentages)	Radionuclides in Container	Activity per Nuclide (mCi)	Total Activity Per Container (mCi)
[illegible]	[illegible]		0.25 pounds	1 mRem/hr		0.005 dpm	X	N/A	Uranyl Acetate (25 grams)	0.3 uCi	0.3 uCi
	Totals		0.25								

Package Type:

Wooden Box (WB) — Plastic Drum (PD)
Metal Box (MB) — Plastic Pail (PP)
Metal Drum (MD) — Fiber Box (FB)
Metal Pail (MP) — Metal Tank (MT)
Other (O): _____

Wastes Description Detail:

Paper, Plastic, Glass (DAW) — Oil (O)
Biological Materials (B) — Filters (F)
Metals (M) — Animals (A)
Soils/Rubble (R) — Sources (S)
Aqueous Liquids (AQ) — Vials (V)
Hazardous Liquids (H) — Other (X): _____

Supplies Needed:

Important Notes:

1 *Company name, address, identification number, and the weight (pounds) must be posted on the top of each package.*

2 *Each customer will need to provide a package survey (smears and dose rates) with the appropriate calibrated instrumentation.*

3 *When computing package activity, please carry out the decimal point 4 places.*

Transferred Information:
Date transferred to License Number: R-73021-E25 , April 4 , 2019
Uranyk Acetate (25 grams) Transferred to Bionomics Inc. Po Box. 617 Kingston, Tennessee 37763 , License Number : R-73021-E25
Expiration Date: May 31, 2025 , File No.: R-73021 Radiation Safety Officer of Bionomics Inc.: John McCormick
Certify that the above radioactive materials and waste were received by:

John McCormick
RSO, Bionomics

4/4/19
Date

NRC FORM 532
(05-2016)

U.S. NUCLEAR REGULATORY COMMISSION

ACKNOWLEDGEMENT - RECEIPT OF CORRESPONDENCE

Name and Address of Applicant and/or Licensee	Date
University of Puerto Rico Medical Sciences Campus Attn: Segundo Rodriguez Quilichini, MD P.O. Box 365067 San Juan, PR 00936-5067	07/29/2019
	License Number(s) 52-01946-07
	Mail Control Number(s) 613718
	Licensing and/or Technical Reviewer or Branch Medical Branch

This is to acknowledge receipt of your: ☑ **Letter and/or** ☐ **Application** **Dated:** 07/18/2019

The initial processing, which included an administrative review, has been performed.

☑ **Amendment** ☐ **Termination** ☐ **New License** ☐ **Renewal**

☑ **There were no administrative omissions identified during our initial review.**

☐ **This is to acknowledge receipt of your application for renewal of the material(s) license identified above. Your application is deemed timely filed, and accordingly, the license will not expire until final action has been taken by this office.**

☐ **Your application for a new NRC license did not include your taxpayer identification number. Please complete and submit NRC Form 531, Request for Taxpayer Identification Number, located at the following link:** http://www.nrc.gov/reading-rm/doc-collections/forms/nrc531.pdf

Follow the instructions on the form for submission.

☐ **The following administrative omissions have been identified:**

Your application has been assigned the above listed MAIL CONTROL NUMBER. When calling to inquire about this action, please refer to this control number. Your application has been forwarded to a technical reviewer. Please note that the technical review, which is normally completed within 180 days for a renewal application (90 days for all other requests), may identify additional omissions or require additional information. If you have any questions concerning the processing of your application, our contact information is listed below:

Region I
U. S. Nuclear Regulatory Commission
Division of Nuclear Materials Safety
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406-2713
(610) 337-5260, (610) 337-5313,
(610) 337-5398, (610) 337-5513 or (610) 337-5239