

Aptuit, LLC  
10245 Hickman Mills Drive, Dock 5  
Kansas City, MO 64137

December 4, 2013

**VIA OVERNIGHT, DELIVERY RECEIPT REQUESTED**

Sara Forster  
Health Physicist Licensing Reviewer  
Region III - Division of Nuclear Materials Safety  
Nuclear Regulatory Commission  
2443 Warrenville Road Suite 210  
Lisle, Illinois 60532

**Re: Follow up to information request dated November 22, 2013.  
Docket Number: 030-09415 and Control Number: 582236**

Dear Mrs. Forster:

Below are responses to your information request dated November 22, 2013.

1. (i to iii) Although S-35 was listed on our license it was not utilized at our site. I-125 was utilized by our Micro-Biology group (Rooms B2-180 was the prep room, B2-181 was the use room and B2-189 had a freezer that was utilized for storage). Our last order of I-125 was on October 19, 2009 and the last use was in February 2010. Our last disposal was February 9, 2012. Based on the low activity used and the half-life of this isotope it was not considered a radionuclide of concern during the decommissioning. Survey results can be found in the Final Status Survey for Clinical Trials Supplies submitted to the NRC on 2/27/12.
2. We are currently proceeding with decommissioning and feel comfortable that we have less than 50 mCi of total activity remaining on the site. We have one seal and that is currently being filled. The last thing that we will have to add to this unit will be the laminate flooring from the B2 radio-laboratories.
3. Since announcing that we were closing the site we have actively pursued disposal of the remaining radioactivity through three methods: 1. Return of material to our clients 2. Selling our starting material, final products and equipment to American Radiolabeled Chemicals in St. Louis, Mo and 3. Disposal of material as waste through Bionomics Inc. These transfers have consisted of many shipments but the largest quantity of material was either transferred to ARC or disposed of as waste. As stated in our phone conversation on November 26, 2013, we have had between 18.9 Ci and 16.023 Ci (low in Jan/2012) of activity on site since 2009. Attached are two

**RECEIVED DEC 05 2013**

shipments to ARC amounting to 6.073 Ci of C-14 material and three shipments that constitute our largest activity disposal in 2012.

Calculations for activity remaining on site are less than 50 mCi of C-14 and 60 mCi H-3. This includes activity in the current sealand, approximate waste from the scintillation counter vials and remaining debris from decommissioning.

Please let me know if you require any additional information or if I can be of further assistance. Please contact me by cell phone at (816) 769-4382.

Sincerely,

A handwritten signature in black ink, appearing to read "Clinton Gregg", written in a cursive style.

Clinton Gregg  
Radiation Safety Officer  
Aptuit Scientific Operations, LLC

cc. Michael LaFranzo, NRC  
Lionel Rodriguez, NRC  
Zachary Peckham, Shaw Environmental  
Rick Greene, Shaw Environmental

**Clinton J. Gregg**

**From:** trackingupdates@fedex.com  
**Sent:** Wednesday, April 18, 2012 9:26 AM  
**To:** Clinton J. Gregg  
**Subject:** FedEx Shipment 479349085790 Delivered

is tracking update has been requested by:

Company Name: Aptuit - Dock 5  
 Name: Clint Gregg  
 E-mail: clinton.gregg@aptuit.com  
 Message: UN2915, Type A Package, II-yellow

ur records indicate that the following shipment has been delivered:

Ship (P/U) date: Apr 17, 2012  
 Delivery date: Apr 18, 2012 9:20 AM  
 Signed by: M.HEISMER  
 Delivery location: ST. LOUIS, MO  
 Delivered to: Receptionist/Front Desk  
 Service type: FedEx Standard Overnight  
 Packaging type: Your Packaging  
 Number of pieces: 1  
 Weight: 17.00 lb.  
 Special handling/Services: Inaccessible Dangerous Goods  
 Adult Signature Required  
 Deliver Weekday

Tracking number: 479349085790

Shipper Information	Recipient Information
Clinton Gregg	Attn: RSO Regis Greenwood
Aptuit - Dock 5	American Radiolabeled Chemicals,
245 HICKMAN MILLS DRIVE	In
ANSAS CITY	100 ARC Drive
0	ST. LOUIS
3	MO
11371418	US
	63146

lease do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:26 AM CDT on 04/18/2012.

o learn more about FedEx Express, please visit our website at [fedex.com](http://fedex.com).

ll weights are estimated.

o track the latest status of your shipment, click on the tracking number above, or visit us at [fedex.com](http://fedex.com).

is tracking update has been sent to you by FedEx on the behalf of the requestor noted above. FedEx does not validate the authenticity of the

'18/2012

5484 mci

**Clinton J. Gregg**

**From:** trackingupdates@fedex.com  
**Sent:** Tuesday, April 17, 2012 9:52 AM  
**To:** Clinton J. Gregg  
**Subject:** FedEx Shipment 479349085780 Delivered

is tracking update has been requested by:

Company Name: Aptuit - Dock 5  
 Name: Clint Gregg  
 E-mail: clinton.gregg@aptuit.com

ur records indicate that the following shipment has been delivered:

Ship (P/U) date: Apr 16, 2012  
 Delivery date: Apr 17, 2012 9:46 AM  
 Signed for by: M.HEISMER  
 Delivery location: ST. LOUIS, MO  
 Delivered to: Receptionist/Front Desk  
 Service type: FedEx Standard Overnight  
 Packaging type: Your Packaging  
 Number of pieces: 1  
 Weight: 22.00 lb.  
 Special handling/Services: Inaccessible Dangerous Goods  
 Dry Ice  
 Deliver Weekday

Tracking number: 479349085780

Shipper Information	Recipient Information
Clinton Gregg	Attn: RSO Regis Greenwood
Aptuit - Dock 5	American Radiolabeled Chemicals,
2245 HICKMAN MILLS DRIVE	In
ST. LOUIS CITY	100 ARC Drive
MO	ST. LOUIS
3	MO
41371418	US
	63146

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:52 AM CDT on 04/17/2012.

To learn more about FedEx Express, please visit our website at [fedex.com](http://fedex.com).

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above, or visit us at [fedex.com](http://fedex.com).

This tracking update has been sent to you by FedEx on the behalf of the requestor noted above. FedEx does not validate the authenticity of the requestor and does not validate, guarantee or warrant the authenticity of the request, the requestor's message, or the accuracy of this tracking update. For

4/17/2012

589.5mci

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER				Aptuit 10245 Hickman Mills Drive Kansas City, Mo. 64137		COLLECTOR		NRC 541 AND 541A NRC 542 AND 542A		3 PAGE(S) 2 PAGE(S) 0 PAGE(S)		(Use this number on all continuation pages)  20912							
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) (865) 220-8520				USER PERMIT NUMBER		SHIPMENT NUMBER		GENERATOR TYPE (Specify) <input checked="" type="checkbox"/> X		9. CONSIGNEE - Name and Facility Address Energy Solutions 1550 Bear Creek Road Oak Ridge, Tn. 37830		CONTACT Donnie Brackett (865) 481-0222							
ORGANIZATION BIONOMICS, INC.				CONTACT Clint Gregg		TELEPHONE NUMBER (Including Area Code) (816) 767-3745		EPA I.D. NUMBER TND982116493		SIGNATURE - Authorized consignee acknowledging waste receipt		DATE							
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST  11		6. CARRIER - Name and Address Bionomics Inc. 1550 Bear Creek Road Oak Ridge, Tn. 37830		SHIPPING DATE 2-9-12		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 requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.									
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes" provide Manifest Number				EPA MANIFEST NUMBER		CONTACT John McCormick		TELEPHONE NUMBER (Including Area Code) (865) 220-8501		AUTHORIZED SIGNATURE <i>[Signature]</i>		DATE 2-9-12							
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. LSA/SCO CLASS		18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE	
Radioactive Material, excepted package- limited quantity of material, 7, UN2910(Fiber Box)				N/A		N/A		Solid / Oxides		C14		444.666MBq		N/A		0.76m3		AB2-088	
Radioactive Material, excepted package- limited quantity of material, 7, UN2910(Poly Drum)				N/A		N/A		Liquid / Oxides		H25		0.0007MBq		N/A		0.21m3		AB2-089	
Radioactive Material, excepted package- limited quantity of material, 7, UN2910(Poly Drum)				N/A		N/A		Solid / Oxides		H3;C14		0.0481MBq		N/A		0.21m3		AB2-090	
Radioactive Material, excepted package- limited quantity of material, 7, UN2910(Fiber Box)				N/A		N/A		Solid / Oxides		C14		999MBq		N/A		0.76m3		AB2-091	
Radioactive Material, excepted package- limited quantity of material, 7, UN2910(Fiber Box)				N/A		N/A		Solid / Oxides		C14		962MBq		N/A		0.76m3		AB2-092	
Radioactive Material, excepted package- limited quantity of material, 7, UN2910(Fiber Box)				N/A		N/A		Solid / Oxides		C14		913.9MBq		N/A		0.76m3		AB2-093	
Radioactive Material, excepted package- limited quantity of material, 7, UN2910(Metal wrapped in plastic)				N/A		N/A		Solid / Oxides		H3;C14		1.85MBq		N/A		0.15m3		AB2-094	
Radioactive Material, excepted package- limited quantity of material, 7, UN2910(Metal wrapped in plastic)				N/A		N/A		Solid / Oxides		H3;C14		22.51MBq		N/A		0.15m3		AB2-095	
FOR CONSIGNEE USE ONLY										BIONOMICS, INC.									

12201

## (Use this number on all continuation pages)

PAGE 2 OF 2 PAGE(S)

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# UNIFORM LOW-LEVEL RADIOACTIVE MANIFEST WASTE MANIFEST

## CONTAINER AND WASTE DESCRIPTION

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

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET VOLUME (m3)	NET WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams)				TOTAL	20912	
			U-233	U-235	Pu	PAGE 1 OF 1 PAGE(S)			
			NP	NP	NP				
11	4.71	1109.5	NP	NP	NP	NP	SHIPPER NAME Aptuit		
ALL NUCLIDES			TRITIUM		ACTIVITY (MBq)		SOURCE (kg)	SHIPMENT ID NUMBER	
4307.2748			7.0372		4300.2369			NP	NP

DISPOSAL CONTAINER DESCRIPTION							WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER								16. WASTE CLASSIFICATION AS-Class A Stable AU- Class A Unstable B- Class B C- Class C
5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL (mSv/hr)	10. SURFACE CONTAMINATION MBq/100 cm <sup>2</sup>		11. PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION			
					ALPHA	BETA-GAMMA	11. WASTE DESCRIPTION (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)	13. SORBENT, SOLIDIFICATION, STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM / CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL, OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT			
AB2-088	19Other,Fiber Box	0.76	90	0.0002	<3.34E-7	<1.67E-5	59.Paper/Plastic	0.76	100	Oxides / N/A	N/A	C14 444.666		AU	
Ab2-089	3Plastic Drum or Pail	0.21	149.5	0.0002	<3.34E-7	<1.67E-5	25.Aqueous Liquid	0.21	100	Oxides / N/A	N/A	I125 0.0007		AU	
AB2-090	3Plastic Drum or Pail	0.21	150	0.0002	<3.34E-7	<1.67E-5	59.Ash	0.21	100	Oxides / N/A	N/A	H3 0.0322 C14 0.0159 Total 0.0481		AU	
AB2-091	19Other,Fiber Box	0.76	90	0.0002	<3.34E-7	<1.67E-5	59.Paper/Plastic	0.76	100	Oxides / N/A	N/A	C14 999.0		AU	
AB2-092	19Other,Fiber Box	0.76	90	0.0002	<3.34E-7	<1.67E-5	59.Paper/Plastic	0.76	100	Oxides / N/A	N/A	C14 962.0		AU	
AB2-093	19Other,Fiber Box	0.76	90	0.0002	<3.34E-7	<1.67E-5	59.Paper/Plastic	0.76	100	Oxides / N/A	N/A	C14 913.9		AU	

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 Lines
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
14. Other, Describe in item 6,  
or additional page.

NOTE 1A: Process Type Codes Are Specific To Biometrics  
and Only Apply To How The Waste Will Be Processed /  
Handled By The Grindings. Use up to two process codes and  
one disposal site.

- 1A Supercompact
- 2A Incineration
- 3A Transfer
- 4A Solidify
- 5A Encapsulate
- 6A Metal Melt
- 7A Sort
- 8A
- 9A
- 10A Other, Specify in the block or  
on attached page.
- 11A Burnwell
- 12A Richmond
- 13A Enrichment
- 14A Return
- 20A Other, Specify in the block or  
on an attached page.

NOTE 2: Waste Descriptor Codes: (Choose up to three 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
- 35 Glassware or Labware
- 36 Sealed Source / Device
- 37 Paint or Plating
- 38 Evaporator Bottoms / Sludges / Concentrates
- 39 Compressible Trash
- 40 Noncompressible Trash
- 41 Animal Carcasses
- 42 Biological Material (except animal carcasses)
- 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 (manu-  
facture) and brand name must also be identified in item 13. Code 100-NONE REQUIRED.

- 60 Spread Dri
- 61 Cement
- 62 Floor Dry
- 63 Superfine
- 64 Safe T Sorb
- 65 Safe N Dri
- 66 Florco
- 67 Florco X
- 68 Solid A Sorb
- 69 Chemus 30
- 70 Chemus 50
- 71 Chemus 3050
- 72 Dicoaped HP200
- 73 Dicoaped HP500
- 74 Petroset
- 75 Petroset II
- 76 Aquest
- 77 Aquest II
- 84 Other
- 85 Describe in  
item 13, or  
additional  
page.
- 91 Concrete  
(offspecification)
- 92 Bitumen
- 93 Vinyl Chloride
- 94 Other, Describe in  
item 13, or additional  
page.
- 100 None Required
- SOLIDIFICATION  
90 Cement

### CONTAINER AND WASTE DESCRIPTION

**Aptuit**

[illegible]



12R03



Diversified Scientific Services, Inc.

657 Gallaher Road Kingston, TN 37763

May 31, 2012

Aptuit LLC  
10245 Hickman Mills Drive  
Kansas City, MO 64137

Attention: Clint Gregg

Subject: Certificate of Management - Diversified Scientific Services, Inc.  
Manifest Number: 007905263JJK  
Shipment Number: DSSI-12-047

Please find enclosed, Certificate(s) of Management for your waste which has been in storage at DSSI. Each certificate lists the manifest number under which the waste was shipped to DSSI and the date treatment of the waste was completed. The Hazardous Waste Manifest identifies the specific management method codes utilized for waste treatment. This certificate is verification that treatment has been made in full compliance with all applicable regulations.

DSSI appreciates the opportunity to serve your mixed waste treatment needs. If you have any questions or comments, please contact Dawn Garrett at 865-376-8747.

Sincerely,

Dawn Garrett  
Waste Tracking & Shipping

Rec 6/6/12  
Rpt

EPA ID # TND 98-210-9142  
TENNESSEE PERMIT #TNHW-102

Certificate No. 2012076

DIVERSIFIED SCIENTIFIC SERVICES, INC.



## Certificate of Management

Diversified Scientific Services, Inc. of Kingston, Tennessee has managed waste(s)  
received from Aptuit LLC

EPA ID Number MOR000030866

as identified in Hazardous Waste

Manifest Number 007905263JJK and hereby certifies such management as of  
5/23/2012 in accordance with applicable Federal and State regulations.

Shipment Number: DSSI-12-047

Generator: Aptuit LLC

Address: 10245 Hickman Mills Drive  
Kansas City MO 64137

By: Dawn Garrett

Title: Waste Tracking & Shipping

Signature: Dawn Garrett

Contact: Clint Gregg

Kansas City MO 64137

UNIFORM LOW-LEVEL RADIOACTIVE  
WASTE MANIFEST  
SHIPPING PAPER

Aptuit  
10245 Hickman Mills Drive  
Kansas City, Mo. 64137

COLLECTOR

-NRC 541 AND 541A

PAGE(S)

(Use this number on all continuation  
pages)

PROCESSOR

NRC 542 AND 542A

PAGE(S)

5263

ADDITIONAL INFORMATION

PAGE(S)

USER PERMIT NUMBER SHIPMENT NUMBER

X GENERATOR TYPE (Specify)

9. CONSIGNEE - Name and Facility Address

CONTACT

1. EMERGENCY TELEPHONE NUMBER (Include Area Code)

(865) 220-8520

CONTACT

Clint Gregg

TELEPHONE NUMBER (Including Area Code)

(816) 767-3745

DSSI  
657 Gallaher Road  
Kingston, Tn. 37763

Tammy Monday

(865) 376-0084

ORGANIZATION

BIONOMICS, INC.

6. CARRIER - Name and Address

Bionomics Inc.  
1550 Bear Creek Road  
Oak Ridge, Tn. 37830

EPA I.D. NUMBER

TND982116493

SIGNATURE - Authorized consignee acknowledging waste receipt

DATE

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?

X YES

NO

EPA MANIFEST NUMBER

007905263JJK

CONTACT

John McCormick

TELEPHONE NUMBER (Including Area Code)

(865) 220-8501

AUTHORIZED SIGNATURE

TITLE

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 requirements of 49 CFR Parts 20 and 61, or equivalent state regulations.

05/01/12

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION  
(Including proper shipping name, hazard class, UN ID number,  
and any additional information)

UN3321, Waste Radioactive Material, low specific activity (LSA II), 7, (3) "RQ" (Metal Drum)

12. DOT LABEL  
"RADIOACTIVE"

N/A

13. TRANSPORT  
INDEX

N/A

14. PHYSICAL AND  
CHEMICAL FORM

Liquid / Organic  
Solvents

15. INDIVIDUAL  
RADIONUCLIDES

C14;H3

16. TOTAL PACKAGE  
ACTIVITY IN SI UNITS

200421.6MBq

17. LSA/SCO  
CLASS

LSA II

18. TOTAL WEIGHT  
OR VOLUME  
(Use appropriate units)

0.21m3

19. IDENTIFICATION  
NUMBER OF  
PACKAGE

A132-104

FOR CONSIGNEE USE ONLY

BIONOMICS, INC.

# UNIFORM LOW-LEVEL RADIOACTIVE MANIFEST WASTE MANIFEST

## CONTAINER AND WASTE DESCRIPTION

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

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET VOLUME (m3)	NET WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams)				5263
			U-233	U-235	Pu	TOTAL	
1	0.12	135.2	NP	NP	NP	NP	PAGE 1 OF 1 PAGE(S)
			ACTIVITY (MBq)				4. SHIPPER NAME
ALL NUCLIDES		TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)	Aptuit
200421.60		173.53	200248.070	NP	NP	NP	SHIPMENT ID NUMBER

## DISPOSAL CONTAINER DESCRIPTION

## WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5.	6.	7.	8.	9.	10.		11. PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION			CLASSIFI- CATION AS-Class A Stable AU- Class A Unstable B- Class B C- Class C
					SURFACE CONTAMINATION MBq/100 cm²		11.	12.	13.					INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT	
CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER	CONTAINER DESCRIPTION (See Note 1)	VOLUME (m3)	WASTE AND CONTAINER WEIGHT (kg)	SURFACE RADIATION LEVEL (mSv/hr)	ALPHA	BETA- GAMMA	WASTE DESCRIP- TOR (See Note 2)	APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)	SORSENT, SOLIDIFICATION, STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM / CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%				
AB2-104	4Metal Drum or Pail	0.21	135.2	0.0002	<3.34E-7	<1.67E-5	28.EPA or State Hazardous	0.12	100	Organic Solvents / N/A	N/A	C14 200248.07 H3 173.53 Total 200421.60			N/A

NOTE: Container Descriptions Codes: For containers/ waste requiring disposal in approved structural overpacks, the numerical code must be followed by "OP."

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

NOTE 1A: Process Type Codes Are Specific To Economics and Only Apply To How The Waste Will Be Processed / Handled By The Consignee. Use up to two process codes and one disposal site.

- |   |  |
|---|--|
| 1A. Supercompact                                      | 11A. Burnwell  |
| 2A. Incineration                                      | 12A. Richland  |
| 3A. Transship   | 13A. Envirocare  |
| 4A. Solidify  | 14A. Return  |
| 5A. Encapsulate                                       | 20A. Other, Specify in the block or on an attached page. |
| 6A. Metal Melt  |  |
| 7A. Sort  |  |
| 8A.   |  |
| 9A.   |  |
| 10A. Other, Specify in the block or on attached page. |  |

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

- |                            |                                  |   |
|----------------------------|----------------------------------|---|
| 20. Charcoal               | 29. Demolition Rubble            | 38. Evaporator Bottoms / Sludges / Concentrates     |
| 21. Incinerator Ash        | 30. Cation Ion-exchange Media    | 39. Compressible Trash                              |
| 22. Soil                   | 31. Anion Ion-exchange Media     | 40. Noncompressible Trash                           |
| 23. Gas                    | 32. Mixed Bed Ion-exchange Media | 41. Animal Carcasses                                |
| 24. Oil                    | 33. Contaminated Equipment       | 42. Biological Material (except animal carcasses)   |
| 25. Aqueous Liquid         | 34. Organic Liquids              | 43. Activated Material                              |
| 26. Filter Media           | 35. Glassware or Labware         | 59. Other, Describe in Item 11, or additional page. |
| 27. Mechanical Filter      | 36. Sealed Source / Device       |   |
| 28. EPA or State Hazardous | 37. Paint or Plating             |   |

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 15. Code 100-NONE REQUIRED.

- |                 |                    |   |   |
|-----------------|--------------------|---|---|
| SORPTION        | 66. Solid A Sorb   | 77. Aqueous II                                      | 91. Concrete (nonpackaging)                         |
| 60. Speedi Dri  | 68. Chemofil 50    | 88. Other, Describe in Item 13, or additional page. | 92. Styrofoam                                       |
| 61. Celoterm    | 71. Chemofil 3030  |   | 93. Vinyl Chloride                                  |
| 62. Floor Dry   | 72. Dicapost HP200 |   | 94. Other, Describe in Item 13, or additional page. |
| 63. J-R Dri     | 73. Dicapost HP500 |   |   |
| 64. Safe T Sorb | 74. Petrosol       | SOLIDIFICATION                                      | 100. None Required                                  |
| 65. Safe N Dri  | 75. Petrosol II    | 80. Cement  |   |
| 66. Floco       | 76. Aqueous        |   |   |
| 67. Floco X     |                    |   |   |

12 Ro 6



Diversified Scientific Services, Inc.

657 Gallaher Road Kingston, TN 37763

December 17, 2012

Aptuit, LLC  
10245 Hickman Mills Drive  
Kansas City, MO 64137

Attention: Clint Gregg

Subject: Certificate of Management - Diversified Scientific Services, Inc.  
Manifest Number: 007905375JJK  
Shipment Number: DSSI-12-129

Please find enclosed, Certificate(s) of Management for your waste which has been in storage at DSSI. Each certificate lists the manifest number under which the waste was shipped to DSSI and the date treatment of the waste was completed. The Hazardous Waste Manifest identifies the specific management method codes utilized for waste treatment. This certificate is verification that treatment has been made in full compliance with all applicable regulations.

DSSI appreciates the opportunity to serve your mixed waste treatment needs. If you have any questions or comments, please contact Dawn Garrett at 865-376-8747.

Sincerely,

Dawn Garrett  
Waste Tracking & Shipping

EPA ID # TND 98-210-9142  
TENNESSEE PERMIT #TNHW-102

Certificate No. 2012119

DIVERSIFIED SCIENTIFIC SERVICES, INC.



## Certificate of Management

Diversified Scientific Services, Inc. of Kingston, Tennessee has managed waste(s)  
received from Aptuit, LLC

EPA ID Number MOR000542761

as identified in Hazardous Waste

Manifest Number 007905375JJK and hereby certifies such management as of  
12/13/2012 in accordance with applicable Federal and State regulations.

Shipment Number: DSSI-12-129

Generator: Aptuit, LLC

Address: 10245 Hickman Mills Drive  
Kansas City MO 64137

By: Dawn Garrett

Title: Waste Tracking & Shipping

Signature: 

Contact: Clint Gregg

Kansas City MO 64137

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER					
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) (865) 220-8520					
ORGANIZATION BIONOMICS, INC.					
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO					
3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST 1					
4. DOES EPA REGULATE A WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes" provide Manifest Number					
EPA MANIFEST NUMBER 007905375JJK					
5. CARRIER - Name and Address Clint Gregg 1550 Bear Creek Road Oak Ridge, Tn. 37830					
6. GENERATOR TYPE (Specify) X PROCESSOR I COLLECTOR					
7. CONSIGNEE - Name and Facility Address DSSI 657 Gallaher Road Kingston, Tn. 37763					
8. CONTACT TAMMY MONDAY (865) 376-0084					
9. SIGNATURE - Authorized consignee acknowledging waste receipt DATE 11-2-12					
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 requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.					
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. LSA/SCO CLASS					
18. TOTAL WEIGHT OR VOLUME (Use appropriate units)					
19. IDENTIFICATION NUMBER OF PACKAGE					
FOR CONSIGNEE USE ONLY					
BIONOMICS, INC.					

# UNIFORM LOW-LEVEL RADIOACTIVE MANIFEST WASTE MANIFEST

## CONTAINER AND WASTE DESCRIPTION

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

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET VOLUME (m3)	NET WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams)				SOURCE (kg)	SHIPMENT ID NUMBER
			U-233	U-235	Pu	TOTAL		
1	0.12	135.2	NP	NP	NP	NP		
ALL NUCLIDES			ACTIVITY (MBq)					
78676.8			68311.25					
			NP					

5375

PAGE 1 OF 1 PAGE(S)

SHIPPER NAME

Actual

## DISPOSAL CONTAINER DESCRIPTION

## WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL (mSv/hr)	10. SURFACE CONTAMINATION MBq/100 cm <sup>2</sup>		11. PHYSICAL DESCRIPTION			14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION		CLASSIFI- CATION AS-Class A Stable AU- Class A Unstable B- Class B C- Class C	
					ALPHA	BETA- GAMMA	11. WASTE DESCRIP- TOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)	13. SOLVENT, SOLIDIFICATION, STABILIZATION MEDIA (See Note 3)	CHEMICAL FORM / CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT			
AB2-110	4Metal Drum or Pail	0.21	135.2	0.0002	<3.34E-7	<1.67E-5	28.EPA or State Hazardous	0.12	100	Organic Solvents / N/A	N/A	C14 H3 Total	68311.25 10365.55 78676.8		

NOTE 1: Container Description Codes: For container waste requiring disposal in approved standard overpacks, the numerical code must be followed by "OP".

- |                               |  |
|-------------------------------|--|
| 1. Wooden Box or Crate        | 9. Demolition                                      |
| 2. Metal Box                  | 10. Gas Cylinder                                   |
| 3. Plastic Drum or Pail       | 11. Bulk, Unpackaged Waste                         |
| 4. Metal Drum or Pail         | 12. Unpackaged Containers                          |
| 5. Metal Tank or Liner        | 13. Vape Integrity Container                       |
| 6. Concrete Tank or Liner     | 14. Other: Describe in item 8, or additional page. |
| 7. Polyethylene Tank or Liner |  |
| 8. Fiberglass Tank or Liner   |  |

NOTE 1A: Process Type Codes Are Specific To Solidification and Only Apply To How The Waste Will Be Processed / Handled By The Consignee. Use up to two process codes and one disposal site.

- |  |  |
|--|--|
| 1A. Supercompact   | 11A. Borehole  |
| 2A. Incineration   | 12A. Landfill  |
| 3A. Tranship   | 13A. Evaporation   |
| 4A. Solidify   | 14A. Retain  |
| 5A. Encapsulate  | 20A. Other: Specify in the block or on an attached page. |
| 6A. Metal Melt   |  |
| 7A. Sort   |  |
| 8A   |  |
| 9A   |  |
| 10A. Other: Specify in the block or on an attached page. |  |

NOTE 2: Waste Description Codes: (Choose up to three predominate by volume.)

- |                            |                                  |   |
|----------------------------|----------------------------------|---|
| 20. Charcoal               | 29. Demolition Rubble            | 38. Evaporator Bottoms / Sludges / Concentrates     |
| 21. Incinerator Ash        | 30. Cation Ion-exchange Media    | 39. Compressible Trash                              |
| 22. Soil                   | 31. Anion Ion-exchange Media     | 40. Noncompressible Trash                           |
| 23. Gas                    | 32. Mixed Bed Ion-exchange Media | 41. Animal Carcasses                                |
| 24. Oil                    | 33. Contaminated Equipment       | 42. Biological Material (except animal carcasses)   |
| 25. Aqueous Liquid         | 34. Organic Liquid               | 43. Archived Material                               |
| 26. Filter Media           | 35. Glassware or Labware         | 50. Other: Describe in item 11, or additional page. |
| 27. Mechanical Filter      | 36. Sealed Solvent / Device      |   |
| 28. EPA or State Hazardous | 37. Paint or Pasting             |   |

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.

- |                 |                    |  |   |
|-----------------|--------------------|--|---|
| 60. Speed Dr    | 69. Solid A Sorb   | 77. Aquasol II                           | 91. Concrete (encapsulation)                        |
| 61. Celatom     | 70. Chemul 50      | 88. Other                                | 92. Skunkan   |
| 62. Floor Dry   | 71. Chemul 500     | Describe in item 13, or additional page. | 93. Vinyl Chloride                                  |
| 63. Hi Di       | 72. Disposal HP200 |  | 94. Other: Describe in item 13, or additional page. |
| 64. Safe T Sorb | 73. Disposal HP500 |  |   |
| 65. Safe N Di   | 74. Petrosol       |  |   |
| 66. Florco      | 75. Petrosol II    |  |   |
| 67. Florco X    | 76. Aquasol        |  |   |
|                 |                    | SOLIDIFICATION                           | 100. None Required                                  |
|                 |                    | 90. Cement                               |   |



Description	C-14 Activity (MBq)	C-14 Activity (mCi)	H-3 Activity (MBq)	Total H-3 Activity (mCi)	Weight (lbs)	Sea Land #	Total C-14 Activity (MBq)	Total C-14 Activity (mCi)	Total H-3 Activity (MBq)	Total H-3 Activity (mCi)	Total Weight (lbs)
Radiator Housing Section A	16.1045	0.4353	1.130283	0.030548		7					
Radiator Housing Section B	13.3278	0.3602	0.935407	0.025281		7					
Radiator Housing Section C	12.0783	0.3264	0.847712	0.022911		7					
Radiator Housing Section D	13.3278	0.3602	0.935407	0.025281		7					
Radiator Housing Section E	4.4426	0.1201	0.311802	0.008427		7					
Radiator Housing Section F	37.1721	1.0047	2.608907	0.070511		7					
Radiator Housing Section G	25.8676	0.6991	2.782386	0.075200		7					
Radiator Housing Section H	23.3232	0.6304	1.636961	0.044242		7					
Radiator Housing Section I	16.2307	0.4387	1.745811	0.047184		7					
Radiator Housing Section J	9.6490	0.2608	1.037874	0.028051		7					
Radiator Housing Section K	5.0238	0.1358	0.540370	0.014605		7					
Radiator Housing Section L	8.2119	0.2219	0.883297	0.023873		7					
Radiator Housing Section M	6.5696	0.1776	0.706638	0.019098		7					
Radiator Housing Section N	5.0238	0.1358	0.540370	0.014605		7					
API Stack Section 2	2.9032	0.0785	0.4180	0.0113	120	7					
API Stack Section 3	1.8069	0.0488	0.2316	0.0063	100	7					
API Stack Section 4	3.5166	0.0950	0.6484	0.0175	120	7					
API Stack Section 5	1.8786	0.0508	0.2829	0.0076	160	7					
API Stack Section 6	1.8210	0.0492	0.5460	0.0148	100	7					
API Stack Section 7	1.8344	0.0496	0.5059	0.0137	100	7					
API Stack Section 2	0.1259	0.0034	0.1689	0.0046	60	7					
API Stack Section 3	2.2081	0.0597	0.4337	0.0117	120	7					
API Stack Section 4	3.7225	0.1006	0.8507	0.0230	200	7					
API Stack Section 5	1.2114	0.0327	0.1179	0.0032	200	7					
API Stack Section 6	2.6510	0.0716	0.5448	0.0147	170	7					
API Stack Section 7	2.9154	0.0788	0.5845	0.0158	200	7					
API Stack Section 8	3.5965	0.0972	0.8631	0.0233	200	7					
API Stack Section 9	1.6209	0.0438	0.2728	0.0074	180	7					
API Stack Section 10	2.3730	0.0641	0.9084	0.0246	175	7					
API Stack Section 11	3.0519	0.0825	0.7998	0.0216	170	7					
API Stack Section 12	3.4050	0.0920	0.4522	0.0122	180	7					
API Stack Section 13	4.1673	0.1126	0.8974	0.0243	210	7					
API Stack Section 14	4.1240	0.1115	0.2678	0.0072	200	7					
API Stack Section 15	3.7720	0.1019	1.3069	0.0353	200	7					
API Stack Section 16	5.3322	0.1441	0.6854	0.0185	190	7					
API Stack Section 17	3.4319	0.0928	0.6163	0.0167	195	7					
API Stack Section 18	2.6815	0.0725	0.1055	0.0029	285	7					
API Stack Section 19	0.0000	0.0000	0.0000	0.0000	250	7	260.504	7.041	29.152	0.788	4085.0

Floor Location	Activity in dpm/m2 (H-3 swipe)	H-3 Activity in dpm/m2 (assuming swipe is 10% of total activity)	Total C-14 Activity (dpm)	Total C-14 Activity (MBq)	Total C-14 Activity (mCi)	Total H-3 Activity (dpm)	Total H-3 Activity (MBq)	Total H-3 Activity (mCi)
2	94,300	943,000	555,764,229.39	9.26	0.2503	24,902,623.30	0.4150	0.011217
3	55,800	558,000	172,114,927.66	2.87	0.0775	18,912,610.94	0.3152	0.008519
4	65,800	658,000	147,803,414.30	2.46	0.0666	21,631,371.58	0.3605	0.009744
5	4,700	47,000	331,334,371.58	5.52	0.1492	2,091,420.29	0.0349	0.000942
6	135,300	1,353,000	316,677,073.84	5.28	0.1426	48,577,592.45	0.8096	0.021882
7	334,200	3,342,000	1,285,131,591.32	21.42	0.5789	114,379,032.06	1.9063	0.051522
8	24,000	240,000	17,386,326.05	0.29	0.0078	4,308,433.92	0.0718	0.001941
9	58,000	580,000	8,120,828.04	0.14	0.0037	10,081,507.41	0.1680	0.004541
10	107,200	1,072,000	227,721,359.92	3.80	0.1026	58,847,551.49	0.9808	0.026508

1.3793  
mci

0.1368 mci

Floor Location	Location	Survey No.	Floor length (ft)	Floor width (ft)	Floor Thickness (ft)	Floor length (m)	Floor width (m)	Surface area (m2)	Highest Activity on Section (dpm/100cm2)	C-14 Activity in dpm/m2	Highest Activity on Section (H-3 swipe, dpm/100cm2)
2	API	111413-02	27	10.583	0.0083333	8.208	3.2173	26.407872	210,454	21,045,400	943
3	API	111413-02	27	13.583	0.0083333	8.208	4.1293	33.893568	50,781	5,078,100	558
4	API	111413-02	28.0833	12.667	0.0083333	8.53733	3.8507	32.8744249	44,960	4,496,000	658
5	API	111413-02	27	17.833	0.0083333	8.208	5.4213	44.498304	74,460	7,446,000	47
6	API	111413-02	18.5	21	0.0083333	5.624	6.384	35.903616	88,202	8,820,200	1,353
7	API	111413-02	8.41667	44	0.0083333	2.55867	13.376	34.2247253	375,498	37,549,800	3,342
8	API	111413-02	18.5	10.5	0.0083333	5.624	3.192	17.951808	9,685	968,500	240
9	API	111413-02	18.5	10.167	0.0083333	5.624	3.0907	17.3819093	4,672	467,200	580
10	API	111413-02	27	22	0.0083333	8.208	6.688	54.895104	41,483	4,148,300	1,072

Floor Location	Density of Linoleum (lbs/ft3)	Volume of flooring (ft3)	Floor Weight (lbs)
2	74	2.38125	176
3	74	3.05625	226
4	74	2.964351852	219
5	74	4.0125	297
6	74	3.2375	240
7	74	3.086111111	228
8	74	1.61875	120
9	74	1.567361111	116
10	74	4.95	366

# FEDEX

## Express

9719  
12.05  
RT 0  
FZ 0

The World  
E

ORIGIN ID:0JCA (818) 767-3745  
CLINT GREGG  
APTUIT - DOCK 5  
10245 HICKMAN MILLS DRIVE  
KANSAS CITY, MO 641371418  
UNITED STATES US

SHIP DATE: 04DEC13  
ACTWT: 0.2 LB  
CAD: 812617/CAFE2704

BILL SENDER

TO **SARA FORSTER**  
**US NRC**  
**REGION III**  
**2443 WARRENVILLE ROAD SUITE 210**  
**LISLE IL 60532**  
(630) 829-9882  
**DEPT: API DEVELOPMENT**



TRK# 4793 4908 9710  
0201

**THU - 05 DEC A1**  
**PRIORITY OVERNIGHT**

TRK# 4793 4908 9719  
0201

**THU - 05 DEC 10:30A**  
**PRIORITY OVERNIGHT**

**AC ENLA**

60532  
IL-US ORD



980315 12/04 51A64/99D5/1A9E