

LICENSEE NAME AND ADDRESS Kalamazoo College 1200 Academy Street Kalamazoo, MI 49006	LICENSE NUMBER 21-13658-01	DOCKET NUMBER 030-00830
	LICENSE EXPIRATION DATE 05/31/2024	

A. LICENSE STATUS (Check the appropriate box)

This license has expired. This license has not yet expired; please terminate it.

B. DISPOSAL OF RADIOACTIVE MATERIAL
 (Check the appropriate boxes and complete as necessary. If additional space is needed, provide attachments)

The licensee, or any individual executing this certificate on behalf of the licensee, certifies that:

1. No radioactive materials have ever been procured or possessed by the licensee under this license.

2. All activities authorized by this license have ceased, and all radioactive materials procured and/or possessed by the licensee under this license number cited above have been disposed of in the following manner.

a. Transfer of radioactive materials to the licensee listed below:
 Agilent Technologies - 2/1/2021 - see attached shipping/receiving documents
 David Bennett, 302-636-8262, NRC license NRC 0728762-01

b. Disposal of radioactive materials:

1. Directly by the licensee:
 decay-in-storage
 sewer and ordinary trash within limits of our license

2. By licensed disposal site:

3. By waste contractor:
 Bionomics, Inc - 3/16/2021 -see attached manifest and receiving documents (address and phone on attached).

c. All radioactive materials have been removed such that any remaining residual radioactivity is within the limits of 10 CFR Part 20, Subpart E, and is ALARA.

C. SURVEYS PERFORMED AND REPORTED

1. A radiation survey was conducted by the licensee. The survey confirms:

a. the absence of licensed radioactive materials

b. that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.

2. A copy of the radiation survey results:

a. is attached; or b. is not attached (Provide explanation); or c. was forwarded to NRC on: _____ Date

3. A radiation survey is not required as only sealed sources were ever possessed under this license, and


a. The results of the latest leak test are attached; and/or b. No leaking sources have ever been identified.

The person to be contacted regarding the information provided on this form:

NAME	TITLE	TELEPHONE (Include Area Code)	E-MAIL ADDRESS
Laura Lowe Furge	RSO and Professor of Chemistry	269-337-7007	Laura.Furge@kzoo.edu

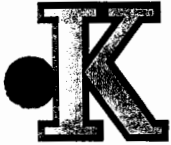
Mail all future correspondence regarding this license to:
 Arthur Cole, Chair & Associate Professor of Physics, Kalamazoo College, 269-337-5722, Arthur.Cole@kzoo.edu

C. CERTIFYING OFFICIAL
 I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE	SIGNATURE	DATE
Laura Lowe Furge, Professor of Chemistry		03/18/2021

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECT. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

RECEIVED MAR 24 2021



More in Four. More in a Lifetime.

1200 Academy Street • Kalamazoo, Michigan 49006 • USA
269.337.7000 phone • 269.337.7251 fax
www.kzoo.edu

1 February 2021

Agilent Technologies
ATTN: ECD Lab
2850 Centerville Road
Wilmington, DE 19808

RE: ECD Detector for Disposal - Serial Number F6291, 15 milliCi ⁶³Ni

To Whom It May Concern:

I am writing to request transfer to Agilent of an ECD source, model 19233-69576 [EXCH-Ser II ECD (Gen)/OBS 43-1006493], serial number F6291, manufactured 7/1993, for disposal with product numbers for US and protectorates R1629A.

Attached is my Purchase Order (Kalamazoo College PO #B0004027) for Agilent disposal quote # 3100163824 totaling \$334.

Enclosed is also the completed Environmental Health and Safety Form for return of the ECD detector.

Please let me know if you have any questions. I can be reached directly at 940-367-1743 or by email at Laura.Furge@kzoo.edu.

Thank you for your help.

Sincerely,

Laura Lowe Furge, PhD
Radiation Safety Officer, Kalamazoo College
Dorothy H. Heyl Professor of Chemistry
(she/her/hers)

Enclosures



Agilent Technologies

Agilent Technologies Inc.
2850 Centerville Road
Wilmington DE 19808-1610
United States

Tel: 800 227 9770 Option 3, 1 7648#
Fax: 1-302-993-5963
Email: tradeservices@agilent.com
Website: www.agilent.com/chem

Customer Contact:

Kalamazoo College
1200 Academy St
KALAMAZOO MI 49006-3295
USA

Blakely Tresca
blakely.tresca@kzoo.edu
269-337-7018

Invoice To:

Kalamazoo College
1200 Academy St
KALAMAZOO MI 49006-3295
USA

QUOTATION

Quotation Number: 3100163824	Quotation Date: January 26, 2021
Model Number: 19233-69576	Model Description: EXCH-Ser II ECD (Gen)/OBS 43-1006493
Serial Number: F6291	Quotation Expiration Date: February 25, 2021
Payment Terms: Net 30 Days	Acceptance Method for Quotation: Purchase Order or Credit Card
Service Request Number: 8102887475	

Delivery Site:

Kalamazoo College
1200 Academy St
KALAMAZOO MI 49006-3295
USA

Direct Inquiries to:

Contact Name: LFS IHRO Quotes team
Contact Email: LSCA-fieldrepaircenter@agilent.com
Contact Telephone: 302-633-8040
Contact Fax: 302-633-8925

Location:

Room
Bldg
Lab
Dept

Service Request Problem Description: 5890 ECD Disposal

products | applications | software | services

Learn more about Agilent's Special Offers, Products, Services and our full range of laboratory productivity solutions optimized for your applications and workflows. Visit us at www.agilent.com/chem

Agilent Technologies Inc
5301 Stevens Creek Blvd
Santa Clara CA 95051
United States

Federal Tax ID: 77-0518772

Beneficiary Bank: Bank of America
SWIFT: BOFAUS3N
Beneficiary Account: 12331-31561
Beneficiary Name: Agilent Technologies Inc

ORIGINAL

Quotation Number: 3100163824

Quotation Date: January 26, 2021

Service Request Quote Description:

Item #	Item	Description	Charge Type	Qty / Hour	Unit Price	Total Price (USD)
10	IHRO-ECD-DISP	IHRO_ECD_Disposal	INH-Strep Charge	1.00	334.00	334.00
Total Price before Tax						334.00
Sales Tax 0.000%						0.00
Total Price						334.00

Additional Information:

Customer Signature:

Customer Name:	Customer Signature:	Date:	Purchase Order:
Customer Billing Address (please populate if different from Invoice-To above):			

Note:

- * For payment, please contact us at any of the methods listed above in the Direct Inquiries to: section. For Credit Card Payment, please contact us by phone.
- * If an order for service is not placed within 30 days from the budgetary quotation date, then a new budgetary quotation will be issued. (If required)
- * If additional parts, consumables, or supplies are required, the current list price will be charged for them. Parts used for repairs, where the instrument is passed its end of service dates, are contingent upon availability.
- * Unless otherwise indicated herein, products referenced in this document will receive a 90 day replacement warranty.
- * If a refurbished/exchanged part becomes unavailable, the new part will be substituted which will increase the price.



ENVIRONMENTAL HEALTH AND SAFETY FORM

PLEASE FILL OUT ALL INFORMATION AND RETURN FORM WITH YOUR SHIPMENT. Please fold and insert this form into the shipping label holder in a HIGHLY VISIBLE LOCATION ON THE EXTERIOR OF EACH CONTAINER. **PRODUCTS WILL NOT BE ACCEPTED WITHOUT FORM.***

RETURN ECD'S TO: **Agilent Technologies**
Attn: ECD LAB
2850 Centerville Road
Wilmington, DE 19808

ECD Product # 19233-69576 Serial # F6291

Date: 1/31/2021
Returns Authorization Number: Quotation Number 3100163824, Service Request Number 8102887475
Sales Order Number: _____
Name: Laura Lowe Furge (for Blakley Tresca) Company: Kalamazoo College
Address: 1200 Academy Street
City/State: Kalamazoo, MI Country/Postal Code: USA/49009
Phone: 940-367-1743 Fax: _____

A. Please state reason for the return:

- Shipment Error: _____
- OP Error: _____
- Defective: _____
- Duplicate Order: _____
- Customer Error: _____
- Warranty Replacement: _____
- Damaged: _____
By: Carrier Forwarder Customer Other _____
- Other: disposal of ECD source; see enclosed letter

B. To protect our employees from exposure to various hazards, you MUST answer the following to the best of your ability.

1. Check if unit has been: Powered up? Injection made?
2. Is there any possibility of internal or external contamination on this equipment from any of the following?
 - YES NO Blood, body fluids (e.g. urine, secretions), pathological specimens
 - YES NO Infectious substances or other bioagents (e.g. proteins, enzymes, antibodies).
 - YES NO Regulated medical wastes
 - YES NO Radioactive isotopes are used in the area. Detail type (ECD, isotopic labels, etc.) and activity in microcuries: _____
This is an ECD source detector that contains 15 milliCi of 63-Ni
 - YES NO Chemicals or substances that are hazardous to health
 - YES NO Biodegradable material that could become hazardous
 - YES NO Other hazards: _____
3. If you circles YES to any of the above:
 - a. Specifically describe where (on or in) the instrument/part there might be any residual contamination (for example, blood spill on the top surface) _____
 - b. Provide details of these hazards. Include names, material safety data sheets (MSDS) and contaminants, where possible. _____
 - c. Describe your method of decontamination, if performed. Attach procedure a swipe test of the detector was made prior to shipment to confirm that there were no leaks; liquid scintillation counting

I declare that the information is true and complete to the best of my knowledge and belief.**

Authorized Signature: [Signature] Date: 1/28/2021

*If additional decontamination is required, you may be responsible for costs incurred to make the product safe for servicing; Shipment of equipment may fall under other transportation regulations; All applicable regulations must be followed when returning equipment.

**Agilent reserves the right to reject all returns, upon inspection.

*** RA valid for 30days.

Sales Administrator: _____

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**

Customers with a Daily Pickup
Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point™ location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

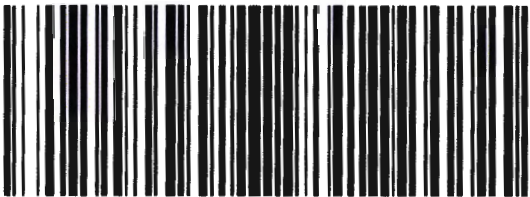
Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
Hand the package to any UPS driver in your area.

UPS Access Point™
GALES TRUE VALUE HARDWARE
2825 STADIUM DR
KALAMAZOO .MI 49008

UPS Access Point™
KAZOO BOOKS LLC
2413 PARKVIEW AVE
KALAMAZOO .MI 49008

UPS Access Point™
THE UPS STORE
5047 W MAIN ST
KALAMAZOO .MI 49009

FOLD HERE

LAURA FURGE 269-337-7252 KALAMAZOO COLLEGE 1200 ACADEMY ST KALAMAZOO MI 49006	2 LBS	1 OF 1
SHIP TO: AGILENT TECHNOLOGIES INC ATTENTION:ECD LAB 2850 CENTERVILLE RD WILMINGTON DE 19808-1610		
	<div style="text-align: center;"> DE 197 9-25  </div>	
<div style="background-color: black; color: white; padding: 5px;"> UPS GROUND TRACKING #: 1Z 6EY 823 03 1553 4546 </div>		
		
BILLING: P/P		
Reference # 1: 10-8-65422-53058 Reference # 2: chem \$3.86		
<small>CS 22.0.12. MACNV50.42.0A 01/2021*</small>		

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z6EY8230315534546

Weight

2.00 LBS

Service

UPS Ground

Shipped / Billed On

02/01/2021

Delivered On

02/04/2021 10:28 A.M.

Delivered To

WILMINGTON, DE, US

Received By

CD GOODMAN

Left At

Receiver

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 02/04/2021 3:24 P.M. EST



March 9, 2021

Laura Furge
Kalamazoo College
Biology Department
1135 West Main Street
Kalamazoo, MI 49006
(269) 337-7007

Dear Laura,

Thank you for contacting Bionomics, Inc. for your radioactive waste management needs.

On one of our regularly scheduled “milk runs” through your area, we will provide shipping containers, complete the manifesting, transportation and disposal services. We service Michigan customers once every two to three months.

We request that you have all waste segregated and prepared prior to arrival of our technician and assist us by packaging the material into our containers. Cs-137 source from Beckman LSC to be removed prior to pick up and placed into Bionomics’ Type A container.

Listed below are costs, terms and conditions associated with disposal of the following material from your recent list. Please note that these prices are based on information provided.

A. <u>Dry Active Waste (DAW) for Incineration – (1) 5-gallon plastic pail</u>	<u>\$600.00</u>
<i>-4 small boxes to be disposed at Energy Solutions</i>	
B. <u>Sealed Sources</u>	
<u>(1) 5-gallon Type A container</u>	<u>\$700.00</u>
<i>-To be registered with SCATR Program for 30% discount</i>	
C. <u>Non-hazardous exempt scintillation fluid – (1) x 5-gallon poly pail</u>	<u>\$250.00</u>
<i>-To be sent to ES for incineration; 0.00412 uCi of C-14; 900 mLs</i>	
Total:	\$1,550.00

Please be assured of a cost effective and compliant service. If you have any questions at all regarding this quotation, please do not hesitate to contact us at 865-220-8501.

Sincerely,

Leyla Coleman
Bionomics, Inc.

Terms and Conditions

- This service is subject to the continuing approval of the appropriate disposal site for the receipt of material of this kind.
- The price as quoted will be valid for all deliveries up to December 31st, 2021; prices will be subject to change should the disposal costs change significantly in any way.
- A payment option must be arranged prior to pickup. Please contact Jerry Noll (jnoll@bionomics-inc.com) for more information.



Package(s) Summary

Page: 1

Generator: Kalamazoo College
 Office Phone: 269-337-7007
 Cell: 940-367-1743

1135 West Main Street,
 Pickup Address: Kalamazoo, MI 49006
 EPA ID #: _____

Contact Name: Laura Furge
 Alternate Contact: Arthur Cole
 Alt PHN/Cell: _____

Date: 2/4/2021

PO# _____

Package #	Package Type (See below)	Container Volume (ft ³)	Container Weight (lbs.)	Highest Surface Radiation Level On Contact (mRem/hr)	Surface Contamination (100cm ²)		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)
					Alpha	BetaGamma					
1	FB	~0.08 ft ³	< 1 lb				DAW, V - solids (e.g. tubes and other disposables)	None	14C		<0.0418 microCi
2	FB	~1.5 ft ³	<5 lbs				DAW, V - solids (e.g. tubes and other disposables)	None	3H		<0.5 mCi
3	FB	~1.5 ft ³	<5 lbs				DAW, V - solids (e.g. tubes and other disposables)	None	3H		<0.5 mCi
4	FB	~1.5 ft ³	<5 lbs				DAW, V - solids (e.g. tubes and other disposables)	None	3H		<0.5 mCi
5	MB	~0.03 ft ³	~5 lbs				M (solid capsule; 350 micrograms total mass (~35 ng of ⁶⁰ Co); originally purchased in 1979. (See attached records & photos)	None	60-Cobalt		0.04 mCi
6	MB	~0.03 ft ³	~5 lbs				S (source from Beckman-Coulter liquid scintillation counter)	None	137-Cs		0.03 mCi
7	PP	~0.03 ft ³	~1 lb				AQ biodegradable scintillation fluid containing residual	14C	14-C		0.005 µCi
Totals		~5 ft ³	~25 lbs								~1.88 mCi

Package Type:

- Wooden Box (WB)
- Metal Box (MB)
- Metal Drum (MD)
- Metal Pail (MP)
- Other (O): _____

- Plastic Drum (PD)
- Plastic Pail (PP)
- Fiber Box (FB)
- Metal Tank (MT)

Wastes Description Detail:

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

Please Email to:

chladis@bionomics-inc.com

lcoleman@bionomics-inc.com

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 Records and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to infocollect@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202, (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.

FORM 540 EnergySolutions, Bear Creek Processing Operations UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER		5. SHIPPER - NAME AND FACILITY Kalamazoo College 1135 West Main Street Kalamazoo, MI 49006		SHIPMENT ID NUMBER 03152021MICH		7. FORM 540 AND 540A FORM 541 AND 541A FORM 542 AND 542A ADDITIONAL INFORMATION		PAGE 1 OF 1 PAGE(S) 1 PAGE(S) NONE PAGE(S) NONE PAGE(S)		8. MANIFEST NUMBER (Use this number on all continuation pages) 0321KCA							
1. EMERGENCY TELEPHONE NUMBER (include Area Code) (800) 424-9300		USER PERMIT NUMBER		SHIPMENT NUMBER 0321KCA		X GENERATOR TYPE (Specify) A		9. CONSIGNEE - Name and Facility Address EnergySolutions, Bear Creek Processing Operations Operated By EnergySolutions 1560 Bear Creek Road Oak Ridge, TN 37830		CONTACT Fred Schutz TELEPHONE NUMBER (include Area Code) (865) 481-0222							
ORGANIZATION CHEMTREC / CCN825454		CONTACT Laura Forge		TELEPHONE NUMBER (include Area Code) (269) 337-7007		SIGNATURE - Authorized consignee acknowledging waste receipt		DATE		10. CERTIFICATION This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and in proper condition for transportation and disposal in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulation							
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 ***** 2		6. CARRIER - Name and Address Bionomics, Inc. 1550 Bear Creek Road Oak Ridge, TN 37830		EPA ID. NUMBER TND982116493		SHIPPING DATE 03/16/2021		TELEPHONE NUMBER (include Area Code) 865-220-8501							
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If "Yes", provide Manifest Number *****		EPA MANIFEST NUMBER N/A		CONTACT John McCormick		DATE 3-16-2021		AUTHORIZED SIGNATURE <i>Laura Forge</i>		TITLE RSO + Prof of Chem							
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	
Non-Radioactive per DOT DAW 1 - 0.13 M3 FIBER BOX		NA		NA		SOLID/OXIDES		C-14 ; H-3		0.040700 (0.001100)		NA		4.59 ft ³ 37.00 lb		KC-02 (21-000412)	
Non-Radioactive per DOT AQUEOUS LIQUID 1 - 5 GAL PLASTIC PAL		NA		NA		LIQUID/OXIDES		C-14		0.000152 (0.000004)		NA		0.68 ft ³ 2.00 lb		KC-03 (21-000413)	
FOR CONSIGNEE USE ONLY				20. Generator Certification Statement													
Tennessee "License For Delivery" No. _____				A) Radioactive Materials: Certification is hereby made that this 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.													
South Carolina Transport Permit No. _____				B) Hazardous Materials: Generator hereby certifies that this material does (or) does not contain a hazardous waste as defined in 40 CFR 261.													
US Ecology Generator No. _____				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 site Radioactive Material Licenses.													
US Ecology Permit No. _____				D) INFECTIOUS SUBSTANCE: Generator hereby certifies that this material does not contain an infectious substance as defined in 49CFR 173.134													
				<i>Laura Lowe Forge</i> Print Name <i>[Signature]</i> Date: 3/16/21													

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 Records and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to infocollecta@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202, (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.

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										2. MANIFEST NUMBER			
		NUMBER OF PACKAGES/DISPOSAL CONTAINERS 2		NET WASTE VOLUME m ³ 0.1493 kg 15.42 ft ³ 5.2708 lb 34.00		NET WASTE WEIGHT m ³ 0.1493 kg 15.42 ft ³ 5.2708 lb 34.00		SPECIAL NUCLEAR MATERIAL (grams)				0321KCA			
								U-233 U-235 Pu TOTAL		NP NP NP NP		PAGE 1 OF 1 PAGE(S)			
		ACTIVITY (MBq/mCi) (LLD UNITS IN uCi/cc)										4. SHIPPER NAME Kalamazoo College			
ALL NUCLIDES TRITIUM C-14 Tc-99 I-129 SOURCE										SHIPMENT ID NUMBER 03152021MIOH					
MBq 0.040852 0.033300 0.007552 NP NP NP															
mCi 0.001104 0.000900 0.000204 NP 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.	6.	7.	8.	9.	10.		11.	12.	13.	14.	15.	15.			
CONTAINER IDENTIFICATION NUMBER/GENERATOR NUMBER	CONTAINER DESCRIPTION (See Note 1) PROCESS REQUESTED (See Note 1A) BURIAL/DISPOSITION (See Note 2A)	VOLUME m ³ ft ³	WASTE AND CONTAINER WEIGHT kg lb	SURFACE RADIATION LEVEL mSv/hr uSv/hr	SURFACE CONTAMINATION MBq/100 cm ² dpm/100 cm ²		WASTE DESCRIPTOR (See Note 2)	APPROXIMATE WASTE VOLUME(S) IN CONTAINER m ³ ft ³	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			
# - Innerpack Container	DI O	m ³ ft ³	kg lb	mSv/hr uSv/hr	ALPHA BETA-GAMMA		(See Note 2)	m ³ ft ³	(See Note 3)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	RADIONUCLIDES MBq mCi			
21-000412 (KC-02) 5343	19 Fiber Box DI O	0.1300 4.5908	16.78 37.00	< 5.0000E-04 < 5.0000E-02	< 3.3400E-07 < 1.6700E-05 < 2.0000E+01 < 1.0000E+03		59(DAW)	0.1300 4.5908	100	SOLID OXIDES / NP	NP	C-14 0.007400 0.000200 H-3 0.033300 0.000900			
21-000413 (KC-03) 5343	3 DI O	0.0193 0.6800	0.91 2.00	< 5.0000E-04 < 5.0000E-02	< 3.3400E-07 < 1.6700E-05 < 2.0000E+01 < 1.0000E+03		25	0.0193 0.6800	100	LIQUID OXIDES / NP	NP	C-14 0.000152 0.000004			
Shipment Total		0.1493 5.2708	17.69 39.00									0.040852 0.001104			

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	9. Drum/Drumliner
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 Requested

C. Compaction
SR. Steam Refining
DI. Direct Incineration
SI. Sort & Incinerate
D. Decon
G. Green Is Clean
M. Metal Melt
T. Trans-Ship
L. Liquid for Incineration
OI. Oil for Incineration
O. Other (describe)

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

28. Charcoal	29. Demolition Rubble	36. Evaporator Bottoms/Sludges/Concentrates
21. Incinerator Ash	30. Cation Ion-exchange Media	37. Paint or Plating
22. Soil	31. Anion Ion-exchange Media	
23. Gas	32. Mixed Bed Ion-exchange Media	
24. Oil	33. Contaminated Equipment	
25. Aqueous Liquid	34. Organic Liquid (except oil)	
26. Filter Media	35. Glassware or Labware	
27. Mechanical Filter	36. Sealed Source/Device	
28. EPA or State Hazardous	37. Paint or Plating	

NOTE 2A: Burial/Disposition Site

B. 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=None Required

90. Cement	94. Vinyl Ester Styrene
91. Concrete (encapsulation)	95. Other. Describe in Item 13, or additional page
92. Bitumen	100. None Required
93. Vinyl Chloride	

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 Records and FOIA/Privacy Services Branch (T-5 F32), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to infocollect@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202, (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.

FORM 540 UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER		Bionomics, Inc. Bionomics, Inc. on behalf of Kalamazoo College 1135 West Main Street Kalamazoo, MI 49006		5. SHIPPER - NAME AND FACILITY Bionomics, Inc. on behalf of Kalamazoo College 1135 West Main Street Kalamazoo, MI 49006		SHIPMENT ID NUMBER 03152021MIOH		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) 0321KC							
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) (800) 424-9300		USER PERMIT NUMBER 		SHIPMENT NUMBER 0321KC		X GENERATOR TYPE (Specify) A		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							
ORGANIZATION CHEMTREC / CCN825454		CONTACT Laura Furge		TELEPHONE NUMBER (Include Area Code) (269) 337-7007		SIGNATURE - Authorized consignee acknowledging waste receipt 		DATE 		10. CERTIFICATION This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and in proper condition for transportation and disposal in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulation.							
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 =====> 1		6. CARRIER - Name and Address Bionomics, Inc. 1550 Bear Creek Road Oak Ridge, TN 37830		Truck #: Trailer #: 		EPA I.D. NUMBER TND982116493		SHIPPING DATE 03/16/2021							
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If "Yes", provide Manifest Number =====>		EPA MANIFEST NUMBER N/A		CONTACT John McCormick		TELEPHONE NUMBER (Include Area Code) 865-220-8501		SIGNATURE - Authorized carrier acknowledging waste receipt <i>Yael Marx</i>		DATE 3-16-2021							
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 - 5 GAL METAL DRUM		Yellow II		0.1		SOLID/OXIDES		CO-60 ; CS-137		2.316200 (0.062600)		NA		0.68 ft ³ 80.00 lb		KC-01 (21-000411)	
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				20. TERMS AND CONDITIONS A. HAZARDOUS MATERIALS: Generator represents & warrants that Waste Material is (or is not) 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 the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1. 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 this 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 Environmental Code 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 supplied on the UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST, or if the shipment fails to meet the standards prescribed by the Department of Transportation or any governmental agency having jurisdiction over such matters.													

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 Records and FOIA/Privacy Services Branch (T-5 F32), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to info@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202, (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.

FORM 541 UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST CONTAINER AND WASTE DESCRIPTION Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste		Bioionics, Inc.		1. MANIFEST TOTALS										2. MANIFEST NUMBER																	
		NUMBER OF PACKAGES/ DISPOSAL CONTAINERS 1		NET WASTE VOLUME m ³ 0.0193 kg 0.45 ft ³ 0.6800 ton 0.00		NET WASTE WEIGHT 0.45 0.00		SPECIAL NUCLEAR MATERIAL (grams)				U-233 U-235 Pu TOTAL		0321KC																	
								U-233 U-235 Pu TOTAL						PAGE 1 OF 1 PAGE(S)																	
		ACTIVITY (MBq/mCi) (LLD UNITS IN uCi/cc)												4. SHIPPER NAME																	
ALL NUCLIDES MBq 2.316200 mCi 0.062600												Tritium NP		C-14 NP		Tc-99 NP		I-129 NP		SOURCE NP		3. BIOIONICS, INC. ON BEHALF OF KALAMAZOO COLLEGE SHIPMENT ID NUMBER 03152021MIOH									
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		6. CONTAINER DESCRIPTION (See Note 1 & 1A)		7. VOLUME m ³ ft ³		8. WASTE AND CONTAINER WEIGHT kg ton		9. SURFACE RADIATION LEVEL mSv/hr μrem/hr		10. SURFACE CONTAMINATION MBq/100 cm ² dpm/100 cm ²		11. WASTE DESCRIPTOR (See Note 2 & Note 2A)		12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m ³ ft ³		13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)		14. CHEMICAL FORM/ CHELATING AGENT				15. RADIOLOGICAL DESCRIPTION WEIGHT & CHELATING AGENT (F > 0.1%)		INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT							
# - Innerpack Container																															
21-000411 (KC-01)		4		0.0193		36.29		0.006		< 0.00000334		< 0.0000167		H 36		0.0193		100		SOLID OXIDES / NP		NP		CO-60 88184.899042 CS-137 49824.467958		1.480000 0.836200		0.040000 0.022600		AU	
Origin: MI Kalamazoo College 1135 West Main Street Kalamazoo, MI 49005				0.6800		0.04		0.6		< 20		< 1000		0.6800										Sub Total 138009.367000		2.316200		0.062600			
Package Total																								138009.367000		2.316200		0.062600			
Shipment Total				0.0193		36.29																				2.316200		0.062600			
				0.6800		0.04																									

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	9. Desiccant
2. Metal Box	10. Gas Cylinder
3. Plastic Drum or Pail	11. Bulk, Unpacked Waste
4. Metal Drum or Pail	12. Unpackaged Components
5. Metal Tank or Liner	13. High Integrity Container
6. Concrete Tank or Liner	14. Other. Describe in Item 6, or additional page
7. Polyethylene Tank or Liner	
8. Fiberglass Tank or Liner	

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

A. Gaseous
B. Intermodal
C. End-dump
D. Roll-off
E. Service

NOTE 2: Waste Descriptor Codes. (Choose up to three which 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 Carcass
24. Oil	33. Contaminated Equipment	42. Biological Material (except animal carcass)
25. Aqueous Liquid	34. Organic Liquid (except oil)	43. Activated Material
26. Fiber Media	35. Glassware or Labware	44. 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 2A: Specific Waste Descriptors (Choose all applicable codes.)

G. Depleted
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 needing 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=None Required

90. Cement	94. Vinyl Ester Styrene
91. Concrete (encapsulation)	95. Other. Describe in Item 13, or additional page
92. Bitumen	96. Other. Describe in Item 13, or additional page
93. Vinyl Chloride	100. None Required

Counts from 2/2/2021 - Dow radioactive usage areas check

2 FEB 1921 11:58

COUNTING IN AUTOMATIC MODE

Data Calc: CPM Time: 0.00 of 1.00 H#: 41.0

SAMPLE	WIDE		SAMPLE	WIDE
12	22105.0	3H standard	5	29.0 Dow 103 shelves
11	46533.0	14C standard	4	21.0 Dow 210 hood
10	37.0	background standard	3	24.0 Dow 214 freezer
9	19.0	Dow 312 bench	2	29.0 Dow 214 bench
8	21.0	Dow 312 hood	1	138.0 Dow 214 bench (before cleaning)
7	40.0	Dow 103 storage barrel		
6	32.0	Dow 103 floors		

2 FEB 1921 12:18

COUNTING IN AUTOMATIC MODE

Data Calc: CPM Time: 0.45 of 1.00 H#:455.9

SAMPLE	WIDE		SAMPLE	WIDE
1	40.0	Dow 214 bench after cleaning		

Counts from 2/2/2021 – Dow radioactive usage areas check

2 FEB 1921 11:58

COUNTING IN AUTOMATIC MODE

Data Calc: CPM Time: 0.00 of 1.00 H#: 41.0

SAMPLE	WIDE		SAMPLE	WIDE
12	22105.0	3H standard	5	29.0 Dow 103 shelves
11	46533.0	14C standard	4	21.0 Dow 210 hood
10	37.0	background standard	3	24.0 Dow 214 freezer
9	19.0	Dow 312 bench	2	29.0 Dow 214 bench
8	21.0	Dow 312 hood	1	138.0 Dow 214 bench (before cleaning)
7	40.0	Dow 103 storage barrel		
6	32.0	Dow 103 floors		

2 FEB 1921 12:18

COUNTING IN AUTOMATIC MODE

Data Calc: CPM Time: 0.45 of 1.00 H#: 455.9

SAMPLE	WIDE		SAMPLE	WIDE
1	40.0	Dow 214 bench after cleaning		

March 11, 2021 - Scintillation Counting

11 MAR 1921 10:17

COUNTING IN AUTOMATIC MODE

Data Calc: CPM Time: 0.00 of 1.00 H#:455.8

SAMPLE	WIDE		SAMPLE	WIDE	
14	40.0	OU 101 box of depleted sources	36.0	OU 214 lead bricks	
13	48.0	OU 101 latch to storage box	37.0	OU 214 work table	
12	30.0	OU 101 shelving	5	33.0	OU 214 light switch
11	30.0	OU 101 door handle to room		27.0	Dow 312
10	32.0	OU 214 outside lead box	3	27.0	Dow 312
9	42.0	OU 214 inner lead box	2	18.0	Dow312
8	36.0	OU 214 swab of Co60 metal	1	27.0	Dow312

11 MAR 1921 10:33

COUNTING IN AUTOMATIC MODE

Data Calc: CPM Time: 0.00 of 1.00 H#: 33.2

SAMPLE	WIDE		SAMPLE	WIDE
6	46326.0	14C Standard		
5	22006.0	3H Standard		
4	28.0	Background Standard		
3	30.0	Dow 103 door knob, inner room		
2	39.0	Dow 103, light switch innner room		
1	25.0	Dow 312 scintillation counter exterior		

Express Envelope

RECEIVED MAR 24 2001

1 of 1

LAURA FURGE
269-337-7292
KALAMAZOO COLLEGE
1200 ACADEMY ST
KALAMAZOO MI 49006

1.0 LBS LTR 1 OF 1

SHIP TO:
NUCLEAR REGULATORY COMMISSION/REG 3
MATERIALS LICENSING SECTION
SUITE 210
2443 WARRENVILLE ROAD
LISLE IL 60532-4352



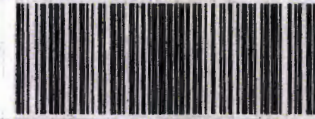
IL 603 9-03



UPS NEXT DAY AIR

TRACKING #: 1Z 6EY 823 01 3807 5799

1



BILLING: P/P

Reference # 1: 10-8-65422-53058
Reference # 2: chemistry 86.28



3/18/21 11:39 AM