

National Aeronautics and  
Space Administration

John H. Glenn Research Center  
Lewis Field  
Cleveland, OH 44135-3191



March 13, 2019

Reply to Attn of: QSH

U.S. Nuclear Regulatory Commission, Region III  
Chief, Materials Licensing Branch  
2443 Warrenville Road, Suite 210  
Lisle, IL 60532-4352

Subject: Amendment Request for Removal of Licensed Materials from Authorized Possession

Ref: License #34-00507-16, Docket #030-05626

The NASA John H. Glenn Research Center (GRC) has received final documentation regarding an August 2016 waste shipment of various radioactive materials/sources. A few items within the subject shipment were considered specifically-licensed and are identified on our current (Amendment 59) license as:

C.	Am-241	IPL, AFR 241	100 microcuries
F.	Cs-137	IPL, LB-137; NBS,4200-128; NBS, 4207-162	30 microcuries total
G.	Pm-145	NEN, X-2	1 microcurie

The NASA requests that the above-listed items be removed from the Center's list of byproduct materials authorized for possession. Enclosed find copies of the applicable Certificate of Disposal as well as the Nuclear Regulatory Commission Forms 540 and 541.

Should additional information be required, please contact Mr. Christopher J. Blasio, Radiation Safety Officer, at (216) 433-6520.

*Len Y. Jezorowski for S. Herron*  
Steven L. Herron  
Chief, Safety and Health Division

3 Enclosures:

1. Certificate of Disposal
2. Uniform Low-Level Radioactive Waste Manifest NRC Form 540
3. Uniform Low-Level Radioactive Waste Manifest NRC Form 541

RECEIVED MAR 19 2019

bcc:

Q/A. D. Liang

QSH/A. D. Windau *AW*

QSH/C. J. Blasio

QS/Official File

QSH/CJBlasio:psu:3/12/2019:NRC Letter\_Pm145 Am241 Cs137 Disposal\_Mar2019

QSH *AW* *CJBL*



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February 19, 2019

**ALARON NUCLEAR SERVICES**  
2138 State Route 18  
Wampum, PA 16157

**CERTIFICATE OF DISPOSAL**

Alaron Nuclear Services received radioactive material on November 14, 2016 via Radioactive Waste Manifest # 1788-083116PH from:

NASA-John Glenn

The material is described as (1) 5 gallon bucket and (1) B-25 containing sealed sources and DAW. The total activity was 14.505 mCi.

This document certifies that the materials on the above-listed manifest were accepted for disposal at Waste Control Specialists disposal facility located in Andrews Texas.

Michael Ottowski /   
Authorized Alaron Representative

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 Service Branch (T-4 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to [infocollection@nrc.gov](mailto:infocollection@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEIOB-10202, (2159-0166), Office of Management and Budget, Washington, DC 20803. 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 (8-2010) U.S. NUCLEAR REGULATORY COMMISSION UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER		5. SHIPPER - NAME AND FACILITY Philotechnics @ NASA John H. Glenn Research Center 21000 Brookpark Road Cleveland, OH 44136		SHIPMENT ID NUMBER 1788-083118PH <input checked="" type="checkbox"/> COLLECTOR PROCESSOR GENERATOR TYPE (Specify)		7. FORM 540 AND 540A FORM 541 AND 541A FORM 542 AND 542A ADDITIONAL INFORMATION NONE PAGE(S) 2 PAGE(S) 1 PAGE(S)		8. MANIFEST NUMBER (Use this number on all continuation pages) 1788-083118PH									
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) 800-424-9300		USER PERMIT NUMBER T-TN024-D18		SHIPMENT NUMBER 1788-083118PH		9. CONSIGNEE - Name and Facility Address Philotechnics, Ltd. Operated By Philotechnics, Ltd 201 Renovare Blvd. Oak Ridge, TN 37830		CONTACT Justin Burton TELEPHONE NUMBER (Include Area Code) (865) 285-3027									
ORGANIZATION CHEMTREC #17253		CONTACT Christopher Blasio		TELEPHONE NUMBER (Include Area Code) (210) 433-6620		SIGNATURE - Authorized consignee acknowledging waste receipt		DATE (865) 285-3027									
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 2		6. CARRIER - Name and Address Philotechnics, Ltd 201 Renovare Blvd. Oak Ridge, TN 37830 Truck #: 6322 Trailer #: 08557		EPA I.D. NUMBER TNR00030544		DATE 08/31/2016									
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 Justin Burton		TELEPHONE NUMBER (Include Area Code) (865) 466-4812		DATE 8-31-16									
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 NBq 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 DAW: DAW-SOURCES 1 - 5 GALLON DRUM EB 2/21/14		Yellow II		NA 0.3 8/31/14		SOLID/OXIDES		AM-241; BI-207; CO-60; FE-55; KR-85; NA-22; PM-146; PU-239; RA-226; TH-232; U-238 EB 8/31/14		380.513724122(10.294104700; 558.11047		NA		0.68 ft <sup>3</sup> 10.00000 lb		18-000951 (ALARON-1)	
UN2912, Radioactive material, low specific activity (LSA-I), 7 DAW: DAW-SOURCES; EQUIPMENT TO PROCESS & DISPOSE OF; METAL; SEALED SOURCES 1 - B-25 BOX		NA		NA		SOLID/OXIDES		AG-146M; CD-108; CO-60; CS-137; NI-63; PO-210; SB-125; SR-90; Tc-99; TH-232 EB 9/9/14		156.169158000(4.2207880000;		LSA I		86.00 ft <sup>3</sup> 8400.00000 lb		18-000952 (15-005)	
FOR CONSIGNEE USE ONLY				20. Generator Certification Statement 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. B) Hazardous Materials. Generator hereby certifies that this material does not contain a hazardous waste as defined in 49 CFR 261. C) Date. 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 License. D) INFECTIOUS SUBSTANCE: Generator hereby certifies that this material does not contain an infectious substance as defined in 49CFR 173.134 Christopher J Blasio Print Name Signature 8-31-2016 Date													

NRC Form 540 (8-2010)

Modified Date: 08/23/2016 14:10

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 infofoia@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEDB-10202, (2150-0100), 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 (8-2010)	U.S. NUCLEAR REGULATORY COMMISSION	1. MANIFEST TOTALS	2. MANIFEST NUMBER								
<b>UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST</b> <b>CONTAINER AND WASTE DESCRIPTION</b> Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste		NUMBER OF PACKAGES/DISPOSAL CONTAINERS: 2 NET WASTE VOLUME: 2.73774 m <sup>3</sup> / 96.88000 lb NET WASTE WEIGHT: 3510.78884 kg / 7740.00000 lb	1788-083116PH								
		SPECIAL NUCLEAR MATERIAL (grams) U-233: NP    U-235: NP    Pu: 0.0000073802 g (1 pkg.)    TOTAL: 0.0000073802 g (1 pkg.)									
		ACTIVITY (MBq/mCi) (LLD UNITS IN uCi/mCi) ALL NUCLIDES: 538.6828801220 MBq / 14.5049427060 mCi TRITIUM: NP    C-14: NP    Tc-99: 0.0003629000 NP    I-129: NP    SOURCE: 3.3623113895 kg / 7.4128880079 lb									
<b>DISPOSAL CONTAINER DESCRIPTION</b>		<b>WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER</b>									
5. CONTAINER IDENTIFICATION NUMBER/TRANSPORT PERMIT NUMBER	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME (m <sup>3</sup> / gal)	8. WASTE AND CONTAINER WEIGHT (kg / lb)	9. SURFACE RADIATION LEVEL (mSv/hr / mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm <sup>2</sup> / dpm/100 cm <sup>2</sup> ) (ALPHA / BETA-GAMMA)	11. WASTE DESCRIPTOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m <sup>3</sup> / gal)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL FORM/ CHELATING AGENT	15. RADIOLOGICAL DESCRIPTION (INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT)	16. WASTE CLASSIFICATION (A-B - Class A Stable / AU - Class A Unstable / B - Class B / C - Class C)
18-000951 (ALARON-1)	4	0.01926	4.53550	< 0.005	< 0.00004008	59(DAW) 40 36	0.01926	100	SOLID OXIDES / NP	AM-241: 3.9280000000 BI-207: 0.0028600000 CO-60: 0.0009731000 FE-55: 0.3387000000 KR-85: 222.3704440000 NA-22: 0.0225722200 PM-145: 0.0074000000 PU-239: 0.0169238000 RA-226: 148.0522000000 TH-230: 0.0014088000 TH-232: 0.0008009016 kg U-238: 5.9989800000 Sub Total: 380.5137241220	>CU
Package Total		0.68000	10.00000	< 0.5	< 240	< 2400	0.68000			[0.0000073802 g] [0.0028600000] [0.0009731000] [0.3387000000] [222.3704440000] [0.0225722200] [0.0074000000] [0.0169238000] [148.0522000000] [0.0014088000] [0.0008009016 kg] [5.9989800000] [0.4825107870 kg] [380.5137241220] [0.0000073802 g] [0.5054283158 kg]	1.31
										9/16 EMB 380.5137241220 [0.0000073802 g] [0.5054283158 kg]	5 58 41047
<b>NOTE 1: Container Description Codes.</b> For containers/waste requiring disposal in approved structural overpacks, the numerical code must be followed by "OP."		<b>NOTE 2: Waste Descriptor Codes.</b> (Choose up to three which predominate by volume.)		<b>NOTE 3: Solidification and Stabilization Media Codes.</b> (Choose up to three which predominate by volume). For media meeting disposal site structural stability requirements, the numerical code must be followed by "S". For all solidification media, the vendor and brand name must also be identified in Item 13. Code 100=None Required.							
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. Drum/liner 10. Gas Cylinder 11. Bulk, Unpackaged Waste 12. Unpackaged Components 13. High Intensity Container 14. Other. Describe in Item 4, or additional page.	28. Charcoal 29. Incinerator Ash 30. Denatolion Rubble 31. Carbon Ion-exchange Media 32. Ion-exchange Media 33. Mixed Bed Ion-exchange Media 34. Contaminated Equipment 35. Organic Liquid (except oil) 36. Glassware or Laboratory 37. Sealed Sources/Devices 38. Paint or Plating 39. Evaporator Bottoms/Sludges/Concentrates 40. Compressible Trash 41. Noncombustible Trash 42. Animal Carcass 43. Biological Material (except animal carcass) 44. Activated Material 45. Other. Describe in Item 11, or additional page.	01. Small Dri 02. Cobalt 03. Floor Dry 04. Superfine 05. 15 Dri 06. Safe T Scrub 07. Flaco 08. Flaco X 09. Safe A Scrub 10. Channel 30 11. Channel 50 12. Channel 3030 13. Flaco X 14. Dispersal NP 200 15. Agassent 16. Agassent 17. Agassent 18. Other. Describe in Item 11 or additional page.	06. Cement 07. Concrete (non-pneumated) 08. Clay 09. Vinyl Chloride 10. Other. Describe in Item 11 or additional page.	04. Vinyl Ester Epoxies 05. Other. Describe in Item 11, or additional page. 100. None Required							

NRC Form 541 (8-2010) \* - Indicates Cross Contamination

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NRC FORM 541A (8-2010)		UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST CONTAINER AND WASTE DESCRIPTION (CONTINUATION)										U.S. NUCLEAR REGULATORY COMMISSION		2. MANIFEST NUMBER 1788-083116PH			
														3. PAGE 2 OF 2 PAGE(S)			
6. CONTAINER IDENTIFICATION NUMBER/TRANSPORT PERMIT NUMBER	7. CONTAINER DESCRIPTION (See Note 1)	8. VOLUME m <sup>3</sup> /ft <sup>3</sup>	9. WASTE AND CONTAINER WEIGHT kg/lb	10. SURFACE RADIATION LEVEL mSv/hr/mrem/hr	10. SURFACE CONTAMINATION		11. WASTE DESCRIPTOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m <sup>3</sup> /ft <sup>3</sup>	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION	14. CHEMICAL DESCRIPTION	14. CHEMICAL DESCRIPTION	14. CHEMICAL DESCRIPTION	14. CHEMICAL DESCRIPTION	15. RADIOLOGICAL DESCRIPTION	16. WASTE CLASSIFICATION	
					ALPHA	BETA-GAMMA											15. RADIOLOGICAL DESCRIPTION
														INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT			
														RADIONUCLIDES	MBq	mCi	
16-000852 (16-005)	2	2.71847	3810.15824	= 0.012	< 0.00004008	< 0.00004008	59(DAW) 40 38 36 33	2.71848	100	SOLID OXIDES / NP	NP	AG-110M / 0.5 m	0.8033480000	0.0163040000	AU		
Origin: OH NASA John H. Glenn Research Center 21000 Brookpark Road Cleveland, OH 44135		96.00000	8400.00000	= 1.2	< 240	< 2400	96.00800					CD-108 0.6258200000	0.0169000000				
												CO-60 137.3628180000	3.7422387000				
												CS-137 0.5175580000	0.0138860000				
												HI-43 0.4831380000	0.0133280000				
												PO-210 0.0022750000	0.0000760000				
												SR-125 0.6728970000	0.0181810000				
												SR-90 4.3227470000	0.1166310000				
												TC-99 0.8009080000	0.0000080000				
												TH-232 11.5810000000	0.3130000000				
												[2.858820737 kg]					
Package Total												Sub Total	168.1691580000	4.2207880000			
													[2.858820737 kg]				
Shipment Total		2.73773	3814.89214										536.8828801220	-14.6048427088			
		96.00000	8410.00000										[0.0000073802 g]	9.8218727	EM A 1/19/16		
													[3.3623113886 kg]				

NRC Form 541A (8-2010) \* - Indicates Cross Contamination

National Aeronautics and  
Space Administration  
John H. Glenn Research Center  
Lewis Field  
C. Blasio 16-4  
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ZIP 44135 \$ 000.50<sup>0</sup>  
02 4W  
0000354779 MAR 14 2019

US NUCLEAR REGULATORY COMMISSION  
REGION III  
CHIEF MATERIALS LICENSING BRANCH  
2443 WARRENVILLE ROAD SUITE 210  
181E-IL 60532 4352

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