

National Aeronautics and  
Space Administration  
**John H. Glenn Research Center**  
**Lewis Field**  
Cleveland, OH 44135-3191



May 28, 2008

Reply to Attn of: QSH

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

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

Please amend the subject byproduct materials license as indicated below to reflect the following changes in authorized possession by the National Aeronautics and Space Administration's (NASA) John H. Glenn Research Center (GRC).

Remove Item A, "Carbon-14" (Amersham TO77). This item was transferred to the Duratek (Energy Solutions) Bear Creek Facility on April 3, 2008, on manifest 3533-T081414. Enclosed is the receipt letter from Duratek (Energy Solutions), the associated Uniform Low-Level Radioactive Waste Manifest "Shipping Paper" (Form 540), and "Container and Waste Description" (Form 541), and the GRC's internal "Radioactive Material Receipt and Inventory Record."

Remove Item C, "Americium-241/Beryllium" (General Nuclear, Inc.). This item was transferred to the *Off-Site Source Recovery (OSR) Project* which is managed by the Department of Energy's Los Alamos National Laboratory. Enclosed is the "Authorization to Transfer/Relinquishment of Ownership" (ATRO) number 2008:37 and associated cover letter.

Also, based upon the change in the Nuclear Regulatory Commission's (NRC) definition of "byproduct material" and the requirements of 10 CFR 30.36(d), the GRC provided formal notification to the NRC on January 29, 2008, of NASA's possession of a shutdown particle accelerator. Enclosed is a copy of this letter. GRC requests that its possession of the activated materials (equipment and infrastructure) associated with this shutdown cyclotron facility be covered under item D on the current license. To accommodate the cyclotron materials, the "Authorized Use" for this item would need to be updated to include "For storage only incident to disposal" in addition to "For research and development as described in 10 CFR 30.4." There would be no change in possession limits and consequently no impact on financial assurance.

RECEIVED JUN 03 2008

Should you have questions or require additional information, you may contact Mr. Chris Blasio, Radiation Safety Officer at (216) 433-6520.

A handwritten signature in black ink that reads "Gayle M. Reid". The signature is written in a cursive style with a large, prominent initial "G".

Gayle M. Reid, Chief  
Occupational Health Branch

3 Enclosures



Thursday, April 3, 2008

Radiation Safety Officer  
NASA - Plumbrook Reactor Facility  
6100 Columbus Avenue  
Sandusky, OH 44870

Dear Attn Officer:

The attached signed shipping manifest copies are your notice of receipt of the radioactive waste materials shipment specified on the manifest number below.

Manifest Number

Date Received

3533-T081414

Thank you for your business.

Sincerely,

A handwritten signature in cursive script that reads "Tammy P. Payne".

Shipping and Receiving

cc: Manifest File  
Shipping and Receiving file

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 estimates to the Records and FOIA Privacy Service Branch (7-4752), U.S. Nuclear Regulatory Commission, Washington, DC 20543-0001, or by Internet e-mail to [infocentre@nrc.gov](mailto:infocentre@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NRC-1222, (210-0147), Office of Management and Budget, Washington, DC 20503. If a means used to improve 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 NASA-Plum Brook C/O EnergySolutions 6100 Columbus Avenue Sandusky, OH 44870		SHIPMENT ID NUMBER T081414 COLLECTOR PROCESSOR		7. FORM 540 AND 546A FORM 541 AND 541A FORM 542 AND 542A ADDITIONAL INFORMATION		PAGE 1 OF 1 PAGE(S) 2 PAGE(S) 1 PAGE(S) 1 PAGE(S)		8. MANIFEST NUMBER (Use this number on all construction pages) T081414									
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) (865) 220-1553		USER PERMIT NUMBER T-TN012-L08		SHIPMENT NUMBER T081414		X. GENERATOR TYPE (Specify) G		9. CONSIGNEE - Name and Facility Address EnergySolutions, Bear Creek Processing Operations Operated By EnergySolutions 1500 Bear Creek Road Oak Ridge, TN 37830		CONTACT Fred Schutz TELEPHONE NUMBER (Include Area Code) (865) 220-1589									
ORGANIZATION Duntek Inc. Attn: Emergency Duty Officer		CONTACT Mike Schaefer		TELEPHONE NUMBER (Include Area Code) (410) 800-8318		EPA I.D. NUMBER TND-98-778-3068		SIGNATURE - Authorized consignee acknowledging waste receipt <i>[Signature]</i>		DATE 4/3/08									
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 Hibon Transport Services 1560 Bear Creek Road Oak Ridge, TN 37830		TRUCK #: 093 TRAILER #: U35801		SHIPPING DATE 04/02/2008		10. CERTIFICATION This is to certify that the herein-stated 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.									
4. DOES EPA REGULATED WASTE REQUIRE 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 Karen Kirby		TELEPHONE NUMBER (Include Area Code) 800-233-9033		SIGNATURE - Authorized carrier acknowledging waste receipt <i>[Signature]</i>		DATE 4-2-08									
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 RADIOACTIVE CLASSES		16. TOTAL PACKAGE ACTIVITY MBq : mCi		17. LSARPC CLASS		18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE			
UN2916, RADIOACTIVE MATERIAL, TYPE A PACKAGE, 7, SEALED SOURCES 1 - 66 GALLON DRUM		Yellow II		1.0		SOLIDMETAL OXIDES		AM-241 ; C-14 ; CO-108 ; CE-139 ; CO-67 ; CO-60 ; CS-137 ; H-3 ; HG-203 ; KR-85 ; NI-63 ; RA-226 ; SM-113 ; SR-90 ; TC-99 ; TH-230 ; Y-88		2.8031E+01		8.7850E-01		NA		7.50 m <sup>3</sup> 340.00000 lb		001582-A009	
UN2916, RADIOACTIVE MATERIAL, TYPE A PACKAGE, 7, FISSION EXCEPTED SEALED SOURCES 1 - B-25 BOX		Yellow II		0.1		SOLIDMETAL OXIDES		AM-241 ; BH-207 ; C-14 ; CO-108 ; CO-60 ; CS-137 ; FE-55 ; H-3 ; KR-85 ; NA-22 ; PB-210 ; PL-238 ; RA-226 ; SR-90 ; TH-230 ; TH-232 ; U-238		8.7032E+02		(2.3803E+01)		NA		84.80 m <sup>3</sup> 3368.00000 lb		17-0487	
FOR CONSIGNEE USE ONLY Tennessee "License for Delivery" No. _____ South Carolina Transport Permit No. _____ US Ecology Generator No. _____ US Ecology Permit No. _____		20. Generator Certification Statement a) Radioactive Materials: Certification is hereby made that 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 version of the site labeled radioactive wastes. b) Hazardous Materials: Consignor hereby certifies that this material does not include a hazardous waste as defined in 40 CFR 261. c) Both: Generator hereby represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE) MANIFEST are true and correct to all respects and in accordance with all applicable governmental laws, rules, regulations and site specific Radioactive Material Licenses. d) DEFECTIOUS SHIPMENTS: Generator hereby certifies that this material does not include an infectious substance as defined in 40 CFR 171.13.																	
		MICHAEL L. SCHAEFER <i>[Signature]</i> Michael L. Schutz <i>[Signature]</i> 4/2/08																	

FORM 541A	EnergySolutions, Bear Creek Processing Operations										2. MANIFEST NUMBER 7081414						
UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST												3. PAGE 2 OF 2 PAGE(S)					
DISPOSAL CONTAINER DESCRIPTION						WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER											
6. CONTAINER IDENTIFICATION NUMBER/GENERATOR NUMBER	8. CONTAINER DESCRIPTION (See Note 1) PROCESS REQUESTED (See Note 1A) BURNAL/REPROCESSING (See Note 2a)	7. VOLUME m <sup>3</sup> RT	9. WASTE AND CONTAINER WEIGHT kg lb	10. SURFACE RADIATION LEVEL mSv/hr	11. SURFACE CONTAMINATION MBq/100 cm <sup>2</sup> dpm/100 cm <sup>2</sup>		12. WASTE DESCRIPTOR (See Note 2)	13. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m <sup>3</sup> NP	14. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	15. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	16. WEIGHT % CHELATING AGENT IF > 0.1%	17. RADIOLOGICAL DESCRIPTION			18. WASTE CLASSIFICATION AB - Class A Radio AU - Class A Unstable B - Class B C - Class C		
					ALPHA	BETA-GAMMA						INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT					
17-0487	Z	2.68449	1524.08250	3.0000E-03	< 3.6740E-08	< 3.6740E-08	38	2.58449	100	SOLID METAL OXIDES / NP	NP	AM-241	5.0431E-01	1.3630E-02	AU		
3533	O	94.80000	3360.00000	3.0000E-01	< 2.2000E-02	< 2.2000E+03		94.80000				BI-207	5.0283E-02	1.3680E-03			
	O											C-14	3.8908E+00	9.8750E-02			
												CO-108	3.2442E-03	8.7680E-05			
												CO-60	2.5888E+00	6.5430E-02			
												CS-137	2.4483E-02	6.8170E-04			
												FE-55	1.1570E+00	3.1270E-02			
												H-3	7.8513E+02	2.1490E+01			
												KR-85	8.2123E+01	1.6790E+00			
												NA-22	1.2140E-04	3.2810E-06			
												PB-210	4.8247E-05	1.3310E-06			
												PJ-238	3.8184E-02	1.0320E-03			
												[1.8845E-05 g]	5.8880E+00	1.5400E-01			
												RA-226	5.8880E+00	1.5400E-01			
												SR-90	3.8480E-02	1.0400E-03			
												TH-230	1.8345E-03	4.8500E-05			
												[2.3810E-08 kg]	2.2803E+00	6.1630E-02			
												TH-232	2.2803E+00	6.1630E-02			
												[5.8027E-01 kg]	1.4983E-02	4.0500E-04			
												U-238	1.4983E-02	4.0500E-04			
												[1.1912E-03 kg]	6.7332E+02	2.3603E+01			
												Sub Total	[1.8845E-05 g]	6.7332E+02	2.3603E+01		
												Package Total	[5.8148E-01 kg]	6.7332E+02	2.3603E+01		
													[1.8845E-05 g]	8.9835E+02	2.4200E+01		
													[5.8148E-01 kg]	[1.8845E-05 g]	8.9835E+02	2.4200E+01	
Shipment Total		2.68449	1524.08250														
		102.30000	3700.00000														

SNM  B-P  
 SM  OTHER

### RADIOACTIVE MATERIAL RECEIPT AND INVENTORY RECORD

IDENTIFICATION NO. \_\_\_\_\_ DATE INVENTORIED 1-24-84 DATE DISPOSED Energy Solutions 4/3/08 - Bearcreek - Manifest NO.

ORDERING INFORMATION	RADIOISOTOPE <u>Carbon-14</u>	QUANTITY (gms/lbs)	ACTIVITY (Curies) <u>3533-T081414</u>
	CHEMICAL FORM	PHYSICAL FORM/SIZE <u>solid - "sealed" per mfr. (AEA Tech)</u>	T <sub>1/2</sub> <u>5730 yr</u>
	RADIATION <u>beta</u>	INTENDED USE <u>calibration of hp instruments</u>	
	PURCHASE REQ. NO. <u>508729-P</u>	ORDER/CONTRACT NO. <u>C-82186-D</u>	LICENSE NO. <u>34-00507-16</u>
	SECT. ACCT./ACCT. OFFICER	RESPONSIBLE USER <u>Health Physics</u>	ORDERED BY AND DATE <u>B. King 10/83</u>
	VENDOR <u>Amersham Corporation</u>	H.P. & L. REVIEW BY AND DATE	

DESCRIPTION	RADIOISOTOPE <u>Carbon-14</u>	CHEMICAL FORM	ACTIVITY (Curies) <u>102 nCi</u>
	PHYSICAL FORM <u>solid - sealed</u>	NET WT. COMPOUND (gms/lbs)	% ELEMENT IN COMPOUND
	NET WT. ELEMENT (gms/lbs)	% ISOTOPE IN ELEMENT	NET WT. ISOTOPE (gms/lbs)
	TYPE ENCAPSULATION		
	REMARKS <u>Source No. T0-77</u>  <u>Activity content is 119 nCi C-14 with a 14% selfabsorbtion.</u>		

HEALTH PHYSICS SURVEY	SURVEYED AT RECEIVING (Signature and Date) <u>delivered to Environ. Health Branch 1-23-84</u>	
	TYPE SHIPPING CONTAINER <u>fibreboard box- USA DOE 7A Type A</u>	
	SHIPPING CONTAINER SURVEY	
	1. MAXIMUM EXTERNAL RADIATION LEVEL <u>0</u> mrem/hr at outer surface <u>0</u> mrem/hr at 3 ft. from outer surface	2. TRANSFERRABLE CONTAMINATION ON OUTER SURFACE <u>0</u> d/m/100 cm <sup>2</sup> alpha <u>0</u> d/m/100 cm <sup>2</sup> beta-gamma
	RECEIVED AT M&S (Date) <u>1-23-84</u>	USER NOTIFIED (Date)
	BARE SOURCE RADIATION SURVEY <u>source activity: 1026 cps (61560 cpm) ± 5 %</u>	
APPLICABLE RESTRICTIONS <u>Do not touch source surface.</u>		

ACCOUNTABILITY	STORAGE LOCATION <u>Bldg. 49, Rm 37</u> <u>15140/hall</u>	USE LOCATION <u>Bldg. 49, Rm 17</u>
	CUSTODY ASSUMED BY (Signature and Date)	
	1. <u>Health Physics</u> <u>1-23-84</u>	3.
	2.	4.

COPY    WHITE - Health Physics Receipt File    PINK - Responsible User  
DISTRIBUTION: CANARY - Health Physics Inventory File    GOLDENROD - Sec. Acct./Accountability Officer

Bldg 49 Rm 17 DAK



*N3 International Threat Reduction  
Off-Site Source Recovery (OSR) Project*  
P.O. Box 1663, Mail Stop: J552  
Los Alamos, New Mexico 87545  
505-667-7440/Fax: 505-665-7913

Date: May 8, 2008  
Refer to: N3: 08-058

James Caldwell, Director  
Div. of Nuclear Materials Safety  
2443 Warrenton Road, Suite 210  
Lisle, ILL 60532-4352

Re: ATRO#2008:37

Dear Mr. Caldwell:

Enclosed please find a signed *Authorization to Transfer/Relinquishment of Ownership/Custody* form concerning:

NASA John H. Glenn Research Center  
21000 Brookpark Road  
Mailstop 6-4  
Brookpark, OH 44135

The radioactive source described on the form has been removed from the John H. Glenn Research Center in Brookpark, OH and is in storage at NSSI in Houston, TX. This source has been transferred to Department of Energy (DOE) ownership and is being stored under DOE license exemption.

This action was completed as part of the Off-Site Source Recovery (OSR) Project managed by this office. If you need any further information on this action, please contact the OSR Project Office at 505-667-7440.

Sincerely,

A handwritten signature in black ink, appearing to read 'Rick Rasmussen'.

Rick Rasmussen  
Team Leader OSR Project

RR/lh

Cy:

Christopher J. Blasio, John H. Glenn Research Center  
Michele Burgess, NRC HQ  
Joel Grimm, U.S. DOE, NA-211  
N3 File  
OSRP File

# Los Alamos

NATIONAL LABORATORY

ATRO # 2008:37

MAF -7 2008

## Off-Site Source Recovery Project Authorization to Transfer/Relinquishment of Ownership/Custody

SOURCE OWNER: NASA John H. Glenn Research Center TELEPHONE: 216 433-6520  
LICENSE: 3 NRC - Region III FAX: 216 433-8719  
No.: 34-00507-16  
CONTACT NAME: Christopher J. Blasio  
ADDRESS: 21000 Brookpark Road  
Mailstop 6-4  
Brookpark, OH 44135

Pursuant to its authority under the Atomic Energy Act, the U.S. Department of Energy (DOE) National Nuclear Security Administration (NNSA) has directed Los Alamos National Security, LLC (LANL), to recover and store excess, unwanted, abandoned, orphan radioactive sealed sources and other radioactive material sources on behalf of DOE/NNSA.

LANL has determined that the sealed source(s) identified below meet the requirements of the Los Alamos National Laboratory Off-Site Source Recovery Project and, on behalf of DOE/NNSA, authorizes NASA John H. Glenn Research Center to transfer the sealed source(s) to the following designated LANL support subcontractor:

NSSI / Sources & Services, Inc.  
Texas Department of State Health Services  
Radioactive Material License No. L02991

NASA John H. Glenn Research Center affirms it is the owner/custodian of the sealed source(s) identified below, and hereby irrevocably relinquishes all rights, title and ownership/custody in the sealed source(s) to DOE/NNSA in furtherance of the OSRP. LANL accepts the sealed sources on behalf of DOE/NNSA, pursuant to DOE/NNSA contract no. DE-AC52-06NA25396, upon the execution of the Acknowledgment of Receipt of the source(s) by the designated LANL support subcontractor below.

### SOURCE INFORMATION

Isotope:	Mfr/Model:	Serial No:	Activity (Ci):
241Am/Bc	GENNU/NB	NB-200	0.947

SOURCE OWNER:  
OFFICIAL NAME/TITLE: Christopher J. Blasio  
NAME (Please Print or Type)

Radiation Safety Officer  
TITLE (Please Print or Type)  
DATE 2/20/08

SIGNATURE [Signature]  
LANS AUTHORIZATION:

OFFICIAL NAME/TITLE: Rick Rasmussen; Team Leader, Off-Site Source Recovery Project

SIGNATURE [Signature]

DATE 2/25/2008

ACKNOWLEDGEMENT OF RECEIPT BY DESIGNATED LANS SUPPORT SUBCONTRACTOR:  
NSSI / Sources & Services, Inc.

OFFICIAL NAME/TITLE: CARLOS RIVERO  
NAME (Please Print or Type)

[Signature]  
TITLE (Please Print or Type)  
DATE 4-22-08

SIGNATURE [Signature]

National Aeronautics and  
Space Administration  
**John H. Glenn Research Center**  
**Lewis Field**  
Cleveland, OH 44135-3191



January 29, 2008

Reply to Attn of:

QSH

U.S. Nuclear Regulatory Commission  
Director, Office of Federal and State Materials  
and Environmental Management Program  
Attn: Document Control Desk  
Washington, DC 20555-0001

Subject: Notification In Accordance with 10 CFR 30.36(d)

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

Facilities at the National Aeronautics and Space Administration's (NASA) John H. Glenn Research Center (GRC) in Cleveland, Ohio include a non-operational particle accelerator. Construction of this cyclotron by General Electric began in the late 1940's with the operational unit being turned over to the National Advisory Committee for Aeronautics (NACA) in 1956. Over the years, various research activities were performed using this cyclotron, including the intentional generation of radioactive isotopes. After ceasing operations in 1990, facility modifications were implemented to stabilize the underground building housing the cyclotron in order to prevent the potential spread of contamination and facilitate storage for radiological decay. These improvements included an upgrade to the ventilation system in the area, the installation of a new heating system, as well as improvements to other structural components. The building housing the particle accelerator is posted as a restricted area and has been under the control of GRC's health physics staff since cyclotron activities ended.

Based upon available information regarding the Nuclear Regulatory Commission's (NRC) change to their definition of "byproduct material," NASA believes that the activated cyclotron machine and supporting equipment should now be designated as byproduct material. Accordingly, this now licensable material is subject to NRC rules on decommissioning in 10 CFR 30.36 "Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas." As such, GRC is providing this formal notification to the commission about the NASA cyclotron facility.

Additionally, the Center Radiation Safety Officer has been involved with initial communications with Region III decommissioning branch personnel. Two individuals from Region III and two from NRC headquarters managed to briefly visit the cyclotron facility at the tail-end of a regularly-scheduled inspection of the NASA's Plum Brook Reactor Facility decommissioning in early November.

Should you have questions or require additional information, you may contact Mr. Chris Blasio, Radiation Safety Officer, at (216) 433-6520.



Gayle M. Reid, Chief  
Occupational Health Branch

cc:  
U.S. Nuclear Regulatory Commission/W. Snell

National Aeronautics and  
Space Administration

John H. Glenn Research Center

*REID 16-4*  
Sender Mail Stop  
21000 Brookpark Road  
Cleveland, OH 44135-3191



U S NUCLEAR REGULATORY COMMISSION  
REGION III  
2443 WARRENSVILLE ROAD, SUITE 210  
LISLE IL 60532-4352

