



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**ENGINEER RESEARCH AND DEVELOPMENT CENTER, CORPS OF ENGINEERS**  
**COLD REGIONS RESEARCH AND ENGINEERING LABORATORY**  
**72 LYME ROAD**  
**HANOVER, NEW HAMPSHIRE 03755-1290**

CEERD-RR-N

23 April 2013

Dennis R. Lawyer  
Health Physicist  
Commercial and R&D Branch  
Division of Nuclear Materials Safety  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

SUBJECT: Docket No. 3036221 Control No. 579945 License No. 28-07946-08

Dear Mr. Lawyer:

This is in reference to your letter dated March 11, 2013 requesting certain records to terminate our License No. 28-07946-08.

1. a. Enclosed please find:

Our 14C inventory which details the receipt, use, and disposal of unsealed materials.

The industrial Wastewater Discharge Permit Request Approvals (IDP 05-003 and IDP 05-005) from the State of New Hampshire Department of Environmental Services authorizing the discharge of low level 14C waste into the Town of Hanover's Wastewater Treatment Facility.

1. b. No contamination was detected during usage of the 14C. Enclosed are floor plans of labs where the label was stored or used in experiments. Indicated on the plans are the areas where contamination was most likely to occur. Following usage of the label in a lab, these areas were well scanned. Note that during experiments involving the label, access to the labs was restricted.
2. Enclosed is a table indicating when and where surveys and / or scans were performed to check for contamination.  
Note that the only radioisotope used under this license (28-07946-28) was Carbon 14. While our original license also allowed us to use other isotopes, only 14C was used and the license was amended in April 2012 to show this. This action was assigned Mail Control Number 577422.
3. The NRC Form 314 was signed by Terrance M. Sobecki, PhD, Biogeochemical Sciences Branch Chief.

Sincerely,

Charles M. Reynolds, Ph.D.  
Engineer Research and Development Center  
Cold Regions Research & Engineering Laboratory

REC RG 1 04 26 13 AM 10:54



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

Form Approved. OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NH 6 5 7 0 0 9 6 8 4 6	2. Page 1 of 1	3. Emergency Response Phone (877) 818-0087	4. Manifest Tracking Number 000697173 VES			
5. Generator's Name and Mailing Address US ARMY COLD REGIONS RESEARCH LABS (USACREL) 72 LYME ROAD HANOVER, NH 03755-4281		Generator's Site Address (if different than mailing address) SAME						
6. Generator's Phone 603 646-4281		U.S. EPA ID Number NJ D 0 8 0 6 3 1 3 6 9						
6. Transporter 1 Company Name VEOLIA ES TECHNICAL SOLUTIONS		U.S. EPA ID Number NJ D 0 7 1 6 2 9 9 7 6						
7. Transporter 2 Company Name SJ TRANSPORTATION CO INC.		U.S. EPA ID Number T N D 9 8 2 1 0 9 1 4 2						
8. Designated Facility Name and Site Address DIVERSIFIED SCI.SERV. INC.-DSSI 657 GALLAHER ROAD KINGSTON, TN 37763		Facility's Phone 865 376-0084						
9a. HWM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No. Type		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes	
	X	1. UN0471, WASTE ARTICLES, EXPLOSIVE, n.o.s., (CYCLOTRIMETHYLENETRINITRAMINE), 1.4E (7), II, DOT-SP 13481, LIMITED QUANTITY RADIOACTIVE	1	D M	180	P	D003 F003	D001
		2. MATERIAL						
		3.						
		4.						
14. Special Handling Instructions and Additional Information ER Service Contracted by VESTS SHIPMENT AUTHORIZATION # DSSI-13-003 - 1) LAB PACK CHEMICALS WETTED RDX WITH C-14 (N.E.W.=0.2 GMS)(APPROVAL #13-01-006)								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Officer's Printed/Typed Name JOHN HEBERT		Signature <i>John Hebert</i>		Month 1		Day 25		Year 13
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:								
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name ROSE A. FORTIN Signature <i>Rose A. Fortin</i> Month 1 Day 25 Year 13 Transporter 2 Printed/Typed Name Signature Month Day Year								
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: U.S. EPA ID Number								
18b. Alternate Facility (or Generator) Facility's Phone: 18c. Signature of Alternate Facility (or Generator) Month Day Year								
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. 2. 3. 4.								
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Signature Month Day Year								

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

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

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 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.resource@nrc.gov](mailto:infocollects.resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0164), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NRC FORM 540 (8-2010)		U.S. NUCLEAR REGULATORY COMMISSION		5. SHIPPER - NAME AND FACILITY		SHIPPER I.D. NUMBER		7. NRC FORM 540 AND 540A		8. MANIFEST NUMBER	
UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER				US Army Cold Regions Research Labs (USACRREL) 72 Lyme Road Hanover, NH 03755-4281		NH6570096846		PAGE 1 OF 1 NRC FORM 541 AND 541A NRC FORM 542 AND 542A ADDITIONAL INFORMATION		(Use this number on all continuation pages) 000697173VES	
1. EMERGENCY TELEPHONE NUMBER (877)818-0087		1. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST 1		USER PERMIT NUMBER T-NJ011-G13		SHIPMENT NUMBER DSSI-13-003		<input type="checkbox"/> COLLECTOR <input type="checkbox"/> PROCESSOR <input checked="" type="checkbox"/> GENERATOR TYPE (Specify) 1		9. CONSIGNEE - Name and Facility Address DIVERSIFIED SCI. SERV. INC.(DSSI) 657 GALLAGHER ROAD KINGSTON, TN 37763	
ORGANIZATION ER Service Contracted by VESTS				CONTACT John Hebert		TELEPHONE NUMBER (Include Area Code) 603-646-4281		SIGNATURE - Authorized consignee acknowledging waste receipt		CONTACT JOE CRIDER TELEPHONE NUMBER (Include Area Code) 865-376-0084 DATE	
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				6. CARRIER - Name and Address		EPA ID Number		10. CERTIFICATION			
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number		EPA MANIFEST NUMBER 000697173VES		Transporter #1 Veolia BS Technical Solutions, L.L.C. 1 Eden Lane Flanders, NJ 07836 Contact: Dispatch		Transporter #2 S J Transportation Company Inc. US Route 40 Woodstown, NJ 08098 Contact: Dispatch		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 applicable requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.			
				SHIP DATE: 1-25-13		Telephone #1: 973-347-7111 #2: 856-769-2741		AUTHORIZED SIGNATURE <i>Joe Crider</i>		DATE 1/25/13	
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)	
UN0471, Waste Articles, Explosive, n.o.s., (Cyclotrimethylenetrinitramine), 1.4E(7), II, DOT-SP13481, Limited Quantity Radioactive Material		NA		NA		Liquid organic		C-14		2.4070E+02	
										17. LSA/SCO CLASS	
										18. TOTAL WEIGHT OR VOLUME (Use appropriate units) 180 LBS; 4.09 FT3	
										19. IDENTIFICATION NUMBER OF PACKAGE EP166859800 0-001-01-0	
FOR CONSIGNEE USE ONLY											

APPROVED BY OMB: NO. 3150-0166  
EXPIRES: 08/31/2013

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 Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to [infocollects.resource@nrc.gov](mailto:infocollects.resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0166), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NRC FORM 541 (8-2010) <b>UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST</b> Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste										1. MANIFEST TOTALS							2. MANIFEST NUMBER 000697173VES			
										NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME (m <sup>3</sup> )	NET WASTE WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams)							
										1	0.1158	81.6466	U-233	U-235	Pu	Total				
										ACTIVITY (MBq)						SOURCE (kg)				
										ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129						
										2.4070E+02	NP	2.4070E+02	NP	NP	NA					
DISPOSAL CONTAINER DESCRIPTION										WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER										16. WASTE CLASSIFI- CATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIP- TION (See Note 1)	7. VOLUME (m <sup>3</sup> )	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL <input checked="" type="checkbox"/> (μSv/hr) (mSv/hr)	10. SURFACE CONTAMINATION (MBq/100 cm <sup>2</sup> ) ALPHA BETA- GAMMA		11. WASTE DESCRIP- TOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m <sup>3</sup> )	13. SORBENT SOLIDIFICATION, STABILIZATION, MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT								
EP1668598000-001-01-0/NH8570096846	4	0.1158	81.6466	<5.0000E+00	<3.6740E-05	<3.6740E-04	28,35	0.0001	100 100	organic/NP	NP	C-14	2.4070E+02	NA						
												Total	2.4070E+02							

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

- |                            |                                  |  |
|----------------------------|----------------------------------|--|
| 20. Charcoal               | 29. Demolition Rubble            | 38. Evaporator Bottoms/Studges/Concentrates        |
| 21. Incinerator Ash        | 30. Cation Ion-exchange Media    | 39. Compactible Trash                              |
| 22. Soil                   | 31. Anion Ion-exchange Media     | 40. Noncompactible 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. 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             |  |

Note3: For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "-S." For all solidification media, the vendor (manufacturer) and brand name must also be identified in item 13. Code 100=NONE REQUIRED.

- | Sorption                 |                  |                    |                 | Solidification                                     |                    |  |  |
|--------------------------|------------------|--------------------|-----------------|--|--------------------|--|--|
| 60. Speedi Dri           | 64. Safe T Sorb  | 69. Chemsil 30     | 74. Petrosel    | 89. Other. Describe in item 13, or additional page | 90. Cement         | 94. Vinyl Ester Styrene                            |  |
| 61. Celeton              | 65. Safe N Dri   | 70. Chemsil 50     | 75. Petrosel II |  | 91. Concrete       | 99. Other. Describe in item 13, or additional page |  |
| 62. Floor Dry/ Superfine | 66. Florco       | 71. Chemsil 3030   | 76. Aquaset     |  | 92. Bitumen        |  |  |
| 63. Hi Dri               | 67. Florco X     | 72. Dicaperl HP200 | 77. Aquaset II  |  | 93. Vinyl Chloride | 100. None Required                                 |  |
|                          | 68. Solid A Sorb | 73. Dicaperl HP500 |                 |  |                    |  |  |



Isotope  
Inventory

Isotope	Specific Activity	Received				Usage			
		Date	Amount	units	initials	Date	Amount	units	initials
2-14C-acetic acid sodium salt	51 mCi/nmol	5/14/2003	1 mCi	db					
14C-U-RDX	32.21 mCi/nmol	6/4/2003	0.25 mCi	db		2/24/2004	0.15 mCi	db	
						6/14/2004	0.1 mCi	db	
14C-U-RDX	39.20 mCi/nmol	6/6/2003	1 mCi	db		6/14/2004	0.05 mCi	db	
14C-U-RDX in leaf tissue	0.052 uCi/g	8/25/2004	0.0053 mCi	klf		10/1/04 - 12/30/04	0.00017 mCi	klf	
						1/25/2005	0.00468 mCi	klf	
						3/2/2005	0.0000702 mCi	klf	
						3/7/2005	0.0000468 mCi	klf	
14C RDX	9.24 mCi/mmol	7/1/2005	5 mCi	db					
S-Adenosyl-L-(Carboxyl-14C)MET Hionine	50-60 mCi/mMol	8/11/2005	0.01 mCi	klf		2/16/2006	0.225 µCi	db	

[illegible]



In samples or in undisposed of waste	Disposal								
amount	Date	Amount, ml	LSC average dpm	Activity, uCi/ml or g	units	Route	total amount, mCi	initials	notes
	5/7/2004	4000	1145	5.16E-05	uCi/ml	7May04 pick up	2.06E-04	kf	lsc waste - picked up
	5/7/2004	20000	132	5.95E-06	uCi/ml	sink in rm 178	1.19E-04	kf	"count-off" wash waste
	5/7/2004	total of the above					3.25E-04	kf	sink and surrounding area scanned after disposal to verify no contamination.
	7/8/2004	1 bag				dry waste bag	1.62E-03	kf	dry waste BAG#1, as of 8/11/2004 still in lab 48
	8/1/2004	4000	4387	1.98E-04	uCi/ml	1Aug04 pick up	7.90E-04	kf	lsc waste - picked up
		20000	446	2.01E-05	uCi/ml	sink in rm 178	4.02E-04	kf	"count-off" wash waste
	8/2/2004	total of the above					1.19E-03	kf	sink and surrounding area scanned after disposal to verify no contamination.
	11/30/2004	20000	38	1.71E-05	uCi/ml	sink in rm 178	3.42E-04	kf	wash waste - as of 11/30 this has not been put down the drain. On 12/1 this was disposed of down the drain in lab 178. Both Cliff Pollard and the Hanover WWTP were notified first and approval was given.
	3/10/2005					dry waste bag 2	1.28E-03	kf	dry waste BAG#2, see "BT25 Soil Tracking for specifics, bag picked up on 3/11/05 by Cliff Pollard
	4/15/2005	20000	66	2.97E-05	uCi/ml	sink in rm 178	5.95E-04	kf	this is wash waste. Was put down drain on 4/15 with C. Pollard's permission
		1000	6025	2.71E-03	uCi/ml	sink in rm 178	2.71E-03	kf	this is neutralized KOH used in CO2 scrubbers. Was put down drain on 4/15 with C. Pollard's permission
	total of the above						3.31E-03		
	7/20/2005	1000	4448	2.00E-03	uCi/ml	sink in rm 178	2.00E-03	kf	IL of the outlet scrubber KOH (combination of all 3 studies), neutralized with HCl and put down the drain in lab 178 on 8/11/05. Phone call from C. Pollard gave permission.
	10/20/2005					dry waste bag #3a	1.04E-02	kf	dry waste BAG#3a, see "BT25 Soil Tracking for specifics, contents are still in lab trash can.

In samples or in undisposed of waste	Disposal								
amount	Date	Amount, ml	LSC average dpm	Activity, uCi/ml or g	units	Route	total amount, mCi	initials	notes
	10/28/2005	1000	5206	2.35E-03	uCi/ml	sink in rm 178	2.35E-03		IL of the outlet scrubber KOH (combination of all 3 studies), neutralized with HCl
		16000	109	4.91E-05			7.86E-04		16L of wash water
	total of the above						3.13E-03		The two above put down the drain in lab 178 on 28 October 2005 with permission from Byron Young and Kevin Maclean of the Hanover WWTP
	11/22/2005	1000	5206	2.35E-03	uCi/ml	sink in rm 178	2.35E-03		IL of the outlet scrubber KOH (combination of all 3 studies), neutralized with HCl
	2/7/2006	1000	5206	2.35E-03	uCi/ml	sink in rm 178	2.35E-03		IL of the outlet scrubber KOH (combination of all 3 studies), neutralized with HCl
	8/17/2006	1000	5379	2.42E-03			2.42E-03		IL of the outlet scrubber KOH (combination of all 3 studies), neutralized with HCl
	8/17/2006	17000	237	1.07E-04			1.81E-03		4.5ga of wash water that has been being collected in 6ga container. These two wastes were put down the drain on 17 Aug with permission from Kevin Maclean at the Hanover WWTP.
	3/16/2007					dry waste bag#3b	5.58E-03		dry waste BAG#3b, see "BT25 Soil Tracking for specifics, contents are still in lab trash can.
	6/8/2007	500	5471	2.46E-03		sink in rm 178	1.23E-03		0.5L of the outlet scrubber KOH (combination of all 3 studies), neutralized with HCl
	6/8/2007	15000	25	1.13E-05			1.69E-04		4 ga of wash water that has been being collected in 6ga container. These two wastes were put down the drain on 8 June with permission from Kevin Maclean at the Hanover WWTP.
	9/14/2007	17000	27	1.22E-05	uCi/ml	sink in rm 178	2.07E-04		2 separate containers of wash water from washing the MIBK glassware. Each contained +/- 4.5 gallons of wash water. E-mail sent to Cpollard and the Hanover WWTP on 9/14. Both containers of wash water were put down the drain in lab 178 on 9/21 with permission from Mark Roper at the Hanover WWTP
	9/14/2007	17000	35	1.58E-05	uCi/ml	sink in rm 178	2.68E-04		
	11/6/2007	310g dry soil in MIBK or NaOH		2.70E-02	uCi/g	11-6-07 pick up	8.37E-03		Humic/fulvic extr waste Tub Study 1, soil still in extractant
	11/6/2007	320 g dry soil in MIBK or NaOH		2.17E-02	uCi/g	11-6-07 pick up	6.94E-03		Humic/fulvic extr waste Tub Study 2, soil still in extractant



In samples or in undisposed of waste	Disposal								
amount	Date	Amount, ml	LSC average dpm	Activity, uCi/ml or g	units	Route	total amount, mCi	initials	notes
	11/6/2007	2000	5240	2.36E-03	uCi/ml	11-6-07 pick up	4.72E-03		RDX extr waste, ACN:H2O 1:1
	11/6/2007	12000	470	2.12E-04	uCi/ml	11-6-07 pick up	2.54E-03		KOH:BaCl2:HCl from CO2 titrations
	11/6/2007	14000	177	7.97E-05	uCi/ml	11-6-07 pick up	1.12E-03		used Ultima Gold cocktail
	11/6/2007	14000	35	1.58E-05	uCi/ml	11-6-07 pick up	2.21E-04		used HiSafe3 cocktail
	11/6/2007					dry waste bag 3	1.28E-03		Dry waste bags 3a and 3b less activity in liquid waste
	11/6/2007	total activity of waste picked up on 11-6-07					<b>2.52E-02</b>		
	1/5/2010	14000	93.3	4.20E-05	uCi/ml	sink in rm 178	<b>5.88E-04</b>		Labware wash water
	1/5/2010	13000 retrover soil from BT25	50	2.25E-05	uCi/ml	waiting for pick up	2.93E-04		used HPLC eluent, pick up on 2/11/2010
	2/11/2010	Humify					2.61E-01		includes 14C methionine (<10uCi), pick up on 2/11/2010
0.26121 mCi									
In samples or in undisposed of waste									

notice sent to HWWTP on 5Jan10.

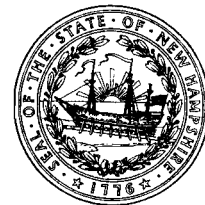
THESE TWO WASTES WERE PICKED UP FROM THE  
LAB ON 12FEB10 BY JOHN HEBERT- will stay on  
inventory until waste leaves CRREL

NOTE: frost from the freezer where the soils were kept was  
counted. No activity above background was detected.  
Freezer door handle and CR176 room handle was wiped.  
No activity above background was detected

0.04978 mCi
disposed of



The State of New Hampshire  
**Department of Environmental Services**



Michael P. Nolin  
Commissioner

**INDUSTRIAL WASTEWATER DISCHARGE PERMIT REQUEST (DPR) APPROVAL**

**INDUSTRY**

Company	Cold Regions Research and Engineering Laboratory	
Address	72 Lyme Road	
Authorized Signature	Dr. Charles M. Reynolds <i>Charles M. Reynolds</i>	Radiation Officer <i>George F. Carlson, Jr.</i>
Engineer		

**APPLICANT**

Municipality/POTW	Hanover Wastewater Treatment Facility	
Approval Signature	Peter Kulbacki, P.E.	Director of Public Works
Date of DPR	February 8, 2005	

**APPROVAL**

PERMIT/REQUEST NUMBER **IDP 05-003**

FLOW **0.09** gallons/day

DATE: **February 22, 2005**

The Department of Environmental Services has reviewed and hereby approves the request as follows: Approval of the discharge to the applicant's wastewater facilities is based on review of the supporting information submitted and is subject to the conditions indicated below and the standard Conditions of Approval on the second page.

**CONDITIONS:**

Approval is for discharge of about 1 liter/month of potassium carbonate with trace C14. Disposal will be in accordance with NRC requirements.

*George F. Carlson, Jr.*  
George F. Carlson, Jr., P.E.

Telephone (603) 271-2052

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

INDUSTRIAL WASTEWATER DISCHARGE PERMIT REQUEST APPROVAL

**CONDITIONS OF APPROVAL**

- 1) The Company shall fully comply with the applicable Municipality's/Wastewater Treatment Facility's Sewer Use Ordinance.
- 2) The Company shall fully comply with all federal, state and local pretreatment standards and requirements;
- 3) Additional water usage to accomplish dilution, or the introduction of uncontaminated water, shall not be substituted for any pretreatment necessary to maintain compliance with the Sewer Use Ordinance.
- 4) Any substantial change in the type of production, amount of flow or pollutant characteristics, or any increase in pollutant concentration, must receive prior approval by this agency.
- 5) Approval applies only to the subject DPR with plans and supporting information as submitted and signed by the authorized representative of the company who assumes responsibility for the accuracy and completeness of this information, on which approval is based.
- 6) This approval is based on existing local limits. The discharge as proposed, may not be adequately pretreated to meet future local limits, requiring additional pretreatment.
- 7) This approval will become void if the discharge approved herein does not begin within one year from the date of this letter.
- 8) The Municipality/Wastewater Facility of jurisdiction shall issue a permit to the company to include the discharge approved herein. The company (permittee) shall comply with all pollutant limits and pretreatment, sampling, monitoring and reporting requirements and the municipality/wastewater treatment facility (permittee) shall strictly enforce same. This office shall be notified by the permitter within 24 hours of any violations, interference or pass thorough.

If there are any question or comments concerning this approval, please contact George Carlson, Industrial Pretreatment Section Supervisor, at the Water Division, telephone 271-2052.



State of New Hampshire  
DEPARTMENT OF ENVIRONMENTAL SERVICES

6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095  
(603) 271-3503 FAX (603) 271-2982



**INDUSTRIAL WASTEWATER DISCHARGE PERMIT REQUEST (DPR) APPROVAL**

**INDUSTRY**

Company Cold Regions Research and Engineering Laboratories  
Address 72 Lyme Road  
Authorized Signature Dr. Charles M. Reynolds Radiation Safety Officer  
Engineer

**APPLICANT**

Municipality/POTW Hanover Wastewater Treatment Facility  
Approval Signature Peter Kulbacki, P.E. Director of Public Works  
Date of DPR April 6, 2004

**APPROVAL**

PERMIT/REQUEST NUMBER

IDP 04-005

FLOW — gallons/day

DATE: April 12, 2004

The Department of Environmental Services has reviewed and hereby approves the request as follows: Approval of the discharge to the applicant's wastewater facilities is based on review of the supporting information submitted and is subject to the conditions indicated below and the standard Conditions of Approval on the second page.

**CONDITIONS:**

Approval is to discharge low level radioactive waste, (Carbon 14) to the POTW in an amount not to exceed 1 mCi per month.

George F. Carlson, Jr., P.E.

Telephone (603) 271-2052

**NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES  
INDUSTRIAL WASTEWATER DISCHARGE PERMIT REQUEST APPROVAL**

**CONDITIONS OF APPROVAL**

- 1) The Company shall fully comply with the applicable Municipality's/Wastewater Treatment Facility's Sewer Use Ordinance.
- 2) The Company shall fully comply with all federal, state and local pretreatment standards and requirements;
- 3) Additional water usage to accomplish dilution, or the introduction of uncontaminated water, shall not be substituted for any pretreatment necessary to maintain compliance with the Sewer Use Ordinance.
- 4) Any substantial change in the type of production, amount of flow or pollutant characteristics, or any increase in pollutant concentration, must receive prior approval by this agency.
- 5) Approval applies only to the subject DPR with plans and supporting information as submitted and signed by the authorized representative of the company who assumes responsibility for the accuracy and completeness of this information, on which approval is based.
- 6) This approval is based on existing local limits. The discharge as proposed, may not be adequately pretreated to meet future local limits, requiring additional pretreatment.
- 7) This approval will become void if the discharge approved herein does not begin within one year from the date of this letter.
- 8) **The Municipality/Wastewater Facility of jurisdiction shall issue a permit to the company to include the discharge approved herein.** The company (permittee) shall comply with all pollutant limits and pretreatment, sampling, monitoring and reporting requirements and the municipality/wastewater treatment facility (permittee) shall strictly enforce same. This office shall be notified by the permitter within 24 hours of my violations, interference or pass through.

If there are any question or comments concerning this approval, please contact George Carlson, Industrial Pretreatment Section Supervisor, at the Water Division, telephone 271-2052.

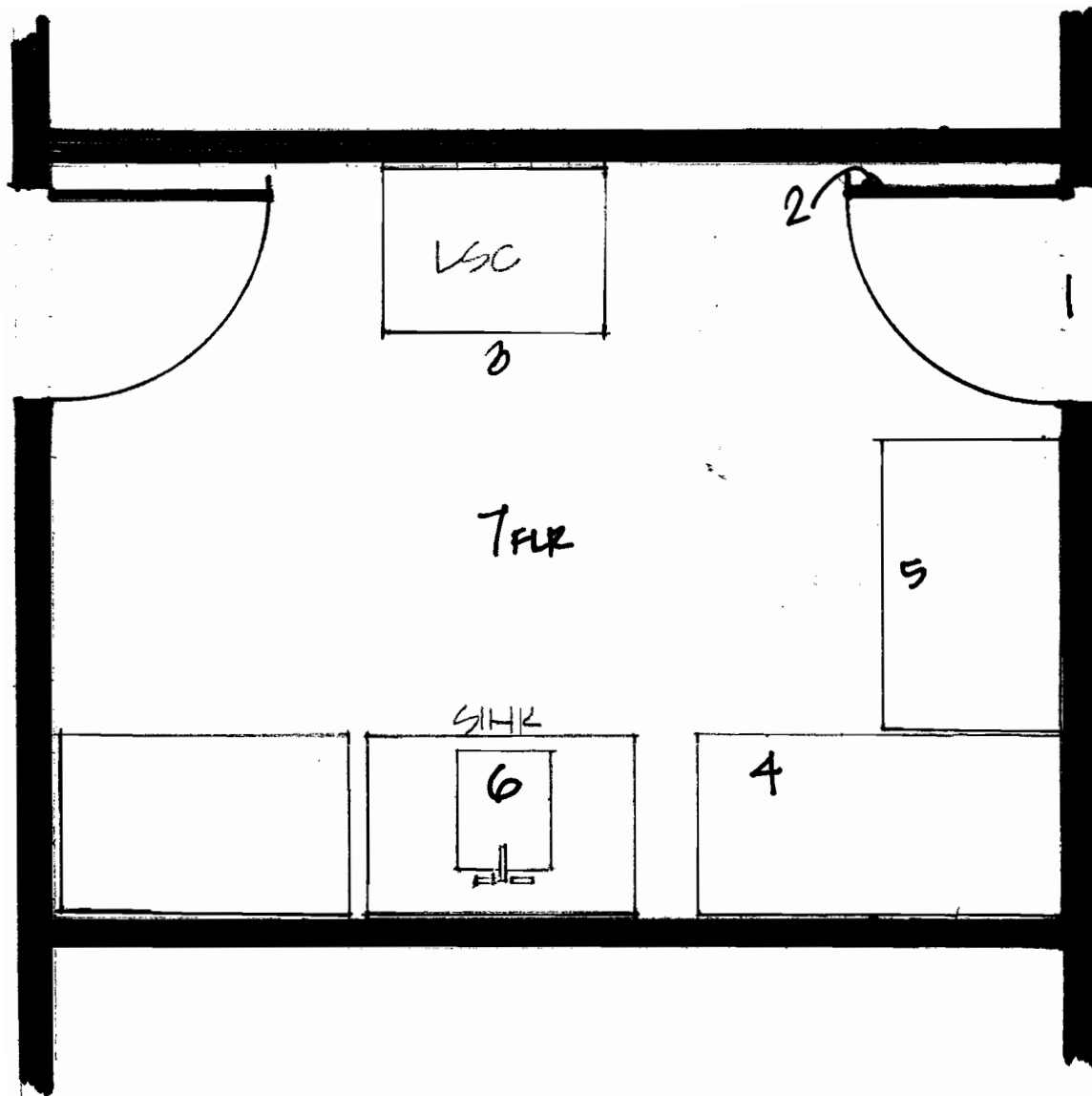
cc: Stephen H. Roberts, P.E. - NHDES-WD-WEB

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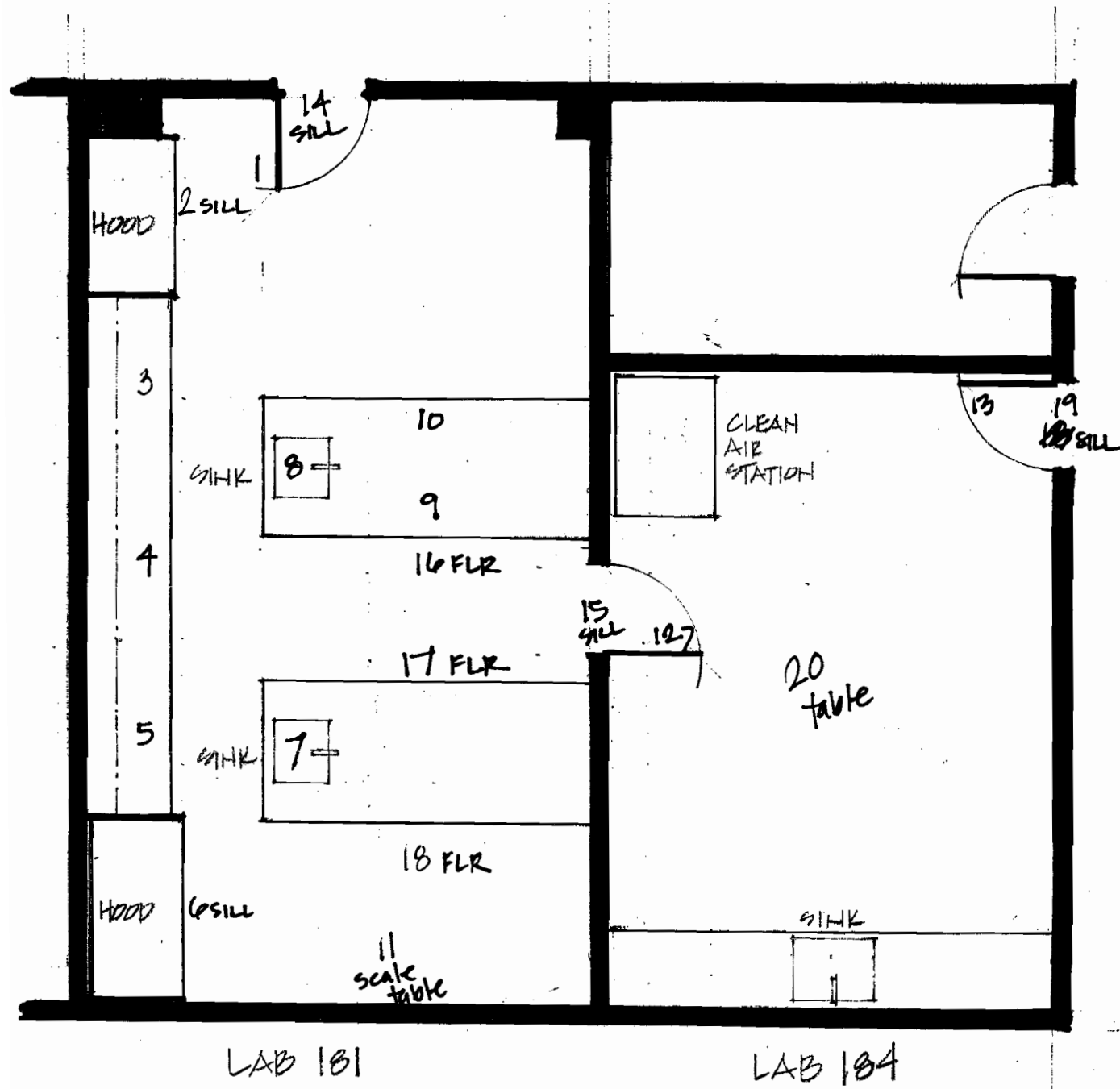
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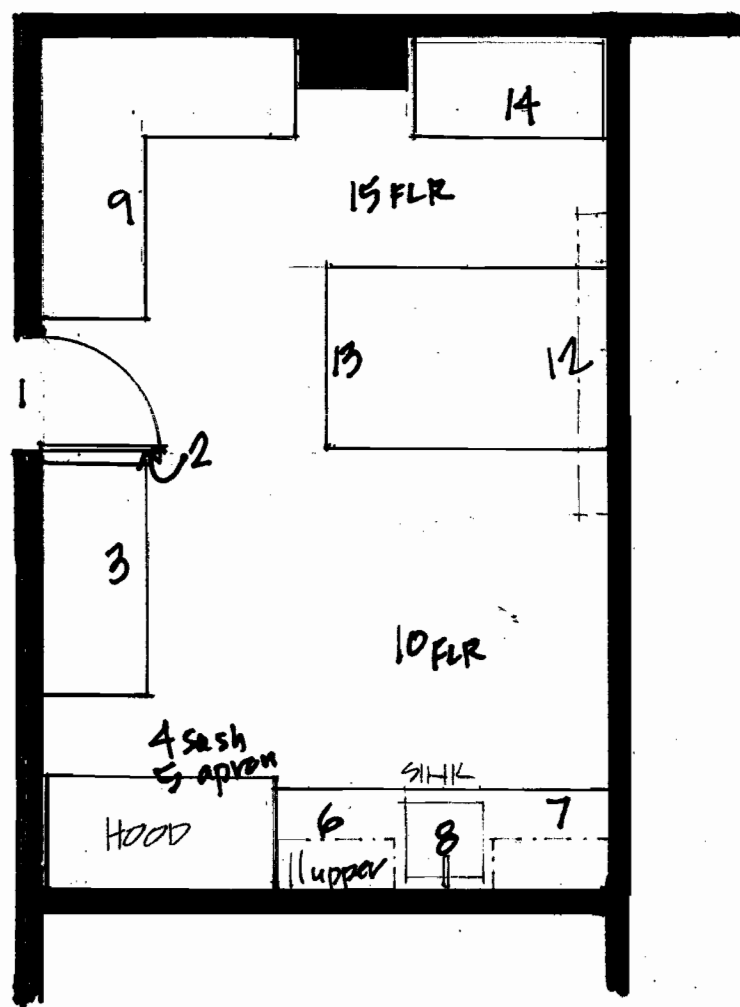
Page 2 of 2



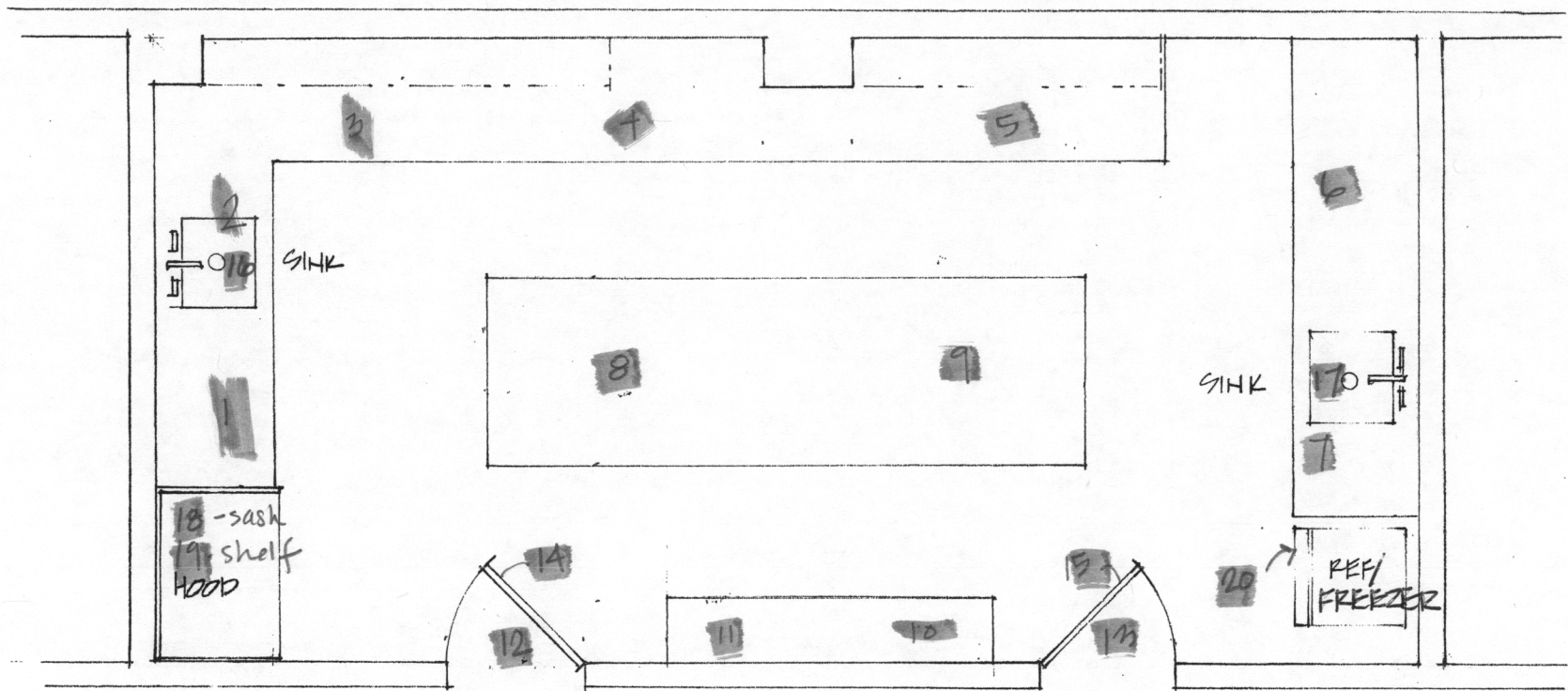


LAB 140





LAB 136



LAB 178

Date	Method	name of person performing scan	Notes
2/25/2004	Wipe test - LSC	Karen Foley	All labs were wipe tested prior to using 14C
3/27/2004	Wipe test - LSC	Karen Foley	All labs were scanned. No contamination was detected
4/2004 - 5/2004	Note: scans have been being performed during this time - however, I neglected to write down the dates.		
6/25/2004	Ludlum Model 3 Survey Meter	Karen Foley	All labs were scanned. No contamination was detected
7/30/2004	Wipe Test-LSC	Karen Foley	All labs were wipe tested - no contamination was found
8/31/2004	Ludlum Model 3 Survey Meter	Larry Perry	All labs were scanned. No contamination was detected
9/1/2004	Wipe Test-LSC	Larry Perry	All labs were wipe tested - no contamination was found
9/30/2004	Wipe Test-LSC	Larry Perry	All labs were wipe tested - no contamination was found
10/1/2004	Ludlum Model 3 Survey Meter	Larry Perry	All labs were scanned. No contamination was detected
10/28/2004	Ludlum Model 3 Survey Meter	Karen Foley	All labs were scanned. No contamination was detected
12/8/2004	Ludlum Model 3 Survey Meter	Karen Foley	All labs were scanned. No contamination was detected
1/7/2005	Ludlum Model 3 Survey Meter	Karen Foley	All labs were scanned. No contamination was detected
2/13/2005	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used were scanned. No contamination was detected
3/15/2005	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected
4/14/2005	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected
5/19/2005	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected. Survey performed using Ludlum Model 3 Survey meter SN 151183 with Model 44-9 pancake probe SN PR 153705. Both calibrated on 2/16/05
6/30/2005	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected. Survey performed using Ludlum Model 3 Survey meter SN 151183 with Model 44-9 pancake probe SN PR 153705. Both calibrated on 2/16/05



Date	Method	name of person performing scan	Notes
7/29/05	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected. Survey performed using Ludlum Model 3 Survey meter SN 151183 with Model 44-9 pancake probe SN PR 153705. Both calibrated on 2/16/05
9/6/2005	Ludlum Model 3 Survey Meter	Larry Perry	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected. Survey performed using Ludlum Model 3 Survey meter SN 151183 with Model 44-9 pancake probe SN PR 153705. Both calibrated on 2/16/05
10/6/2005	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected. Survey performed using Ludlum Model 3 Survey meter SN 151183 with Model 44-9 pancake probe SN PR 153705. Both calibrated on 2/16/05
11/22/2005	Ludlum Model 3 Survey Meter	Karen Foley	As we have not been using the label in any experiments since the breakdown of BT25 Humify Tub Study #3 on 7/21/2005, I have not performed full lab scans. However, the hood in which I have been neutralizing the 14CO2 scrubber KOH and the area around the sink where this is wasted have been scanned after each disposal.
2/6/2006			Ludlum Model 3 Survey meter SN 151183 with Model 44-9 pancake probe SN PR 153705 picked up by Cliff Pollard for calibration. Ludlum Model 3 Survey meter SN 150971 with Model 44-9 pancake probe SN PR 153688 brought for use in lab.
3/3/2006	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected. Survey performed using Ludlum Model 3 Survey meter SN 150971 with Model 44-9 pancake probe SN PR 153688. Both calibrated on 6/2/2005
4/06 - 7/06	Ludlum Model 3 Survey Meter	Karen Foley	Surveys of areas where label has been used have been performed immediately following use of the label. No contamination has been detected.

Date	Method	name of person performing scan	Notes
6-Jul	Ludlum Model 3 Survey Meter (meter SN150971, probe SN PR153688)	Karen Foley	Meter and probe picked up for calibration.
7/6/2006	Ludlum Model 3 Survey Meter (meter SN150971, probe SN PR153688)	Karen Foley	Meter returned from calibration and checked against check source.
7/19/2006	Ludlum Model 3 Survey Meter (meter SN150971, probe SN PR153688)	Karen Foley (Dave Ringelberg)	Surveys of lab 178, cylinder storage room, hallways outside of lab 178 performed following a water leak due to failed Milli-Q connection. No contamination was detected.
7/20/2006	Wipe Tests	Karen Foley	Following a water leak in lab 178 wipe tests were performed on areas in the lab, cylinder storage room, hallways outside the lab, and Dave Ringelberg's office.
7/21/2006	Wipe Tests	Karen Foley	Per request of Safety Office, wipe test were performed in the VTC and hallway outside of the VTC.
4/4/2007	Ludlum Model 3 Survey Meter	Larry Perry	Laboratories 178, 181, 184, 186, and CR 176 were scanned. No contamination was detected. Survey performed using Ludlum Model 3 Survey meter SN 150971 with Model 44-9 pancake probe SN PR 153688.
1/25/2013	Ludlum Model 3 Survey Meter	Karen Foley/Cliff Pollard	Our C-14 has been kept locked in a freezer in lab 178 since the last experiment in 2006. Periodic scans were performed with the Ludlum Survey meter with no contamination detected. Following the pick up of the unused label on Jan 25, 2013, the inside of the freezer and the surrounding area in lab 178 were scanned by both Karen Foley and Cliff Pollard. No contamination was detected.

This is to acknowledge the receipt of your letter/application dated

4/24/12, and to inform you that the initial processing which includes an administrative review has been performed.



Amendment (28-07946-08)  
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.



Please provide to this office within 30 days of your receipt of this card.

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned Mail Control Number 577422 ←  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.

**U.S. NUCLEAR REGULATORY COMMISSION**

Date: April 23, 2012

**TELEPHONE CONVERSATION RECORD**

Mail Control or Report No(s). 577331 License No(s). 28-07946-08 Docket No(s). 03036221

Name of Licensee: Department of the Army

Name of Participant(s): Charles M. Reynolds, Radiation Safety Officer  
Steven R. Courtemanche, Health Physicist NRC RI

Telephone No. 603-646-4860, 610-337-5075

Subject: Need for Amendment to license or Financial Assurance

(NOTE: This will be used as the Documents Title in ADAMS)

4/23/2012 (09:10) I left a message for Mr. Reynolds to call me back concerning some issues regarding the NRC license issued to their facility. (10:45) Mr. Reynolds returned my call. I explained that, as a result of an internal audit, it was noted that the NRC license for the facility required financial assurance. The driving factor was Lead-210 which has a half-life greater than 120 days and requires financial assurance if the possession limit exceeds 100 microcuries in an unsealed form. Inspection documentation seemed to indicate that Lead-210 was never used by the licensee and Mr. Reynolds confirmed that Lead-210 was not used at the facility. Mr. Reynolds further stated that only Carbon-14 had been used on-site a number of years ago and that the licensee was considering terminating its license. Since the licensee had not made a final decision as to whether the license should be terminated, I requested that the licensee send in a request to remove the authorization for the Lead-210 if the licensee did not see it being used in the future or submit financial assurance if it did see a use for the isotope. Mr. Reynolds stated that the licensee would be requesting that the authorization be removed after reviewing its records to ensure that Lead-210 had not been ordered and/or used in the past.

Action Required: None

Document Availability:



Publicly Available



Non-Publicly Available



Non-Sensitive



Non-Sensitive Copyright



Sensitive - Proprietary



Sensitive - Privacy Act/ PII



Sensitive - Internal



Sensitive - Security-Related



Immediate Release

Normal Release Date: 05/01/2012

Delayed Release Date:

SUNSI Review Completed By:

Steven R. Courtemanche

/ RA /

Document Accession #:

ML121160325



DEPARTMENT OF THE ARMY  
ENGINEER RESEARCH AND DEVELOPMENT CENTER, CORPS OF ENGINEERS  
COLD REGIONS RESEARCH AND ENGINEERING LABORATORY  
72 LYME ROAD  
HANOVER, NEW HAMPSHIRE 03755-1290

REPLY TO  
ATTENTION OF

April 24, 2012

Biogeochemical Sciences Branch

Br. 2

Steve Coutermarsh  
U.S. Nuclear Regulatory Commission, Region 1  
475 Allendale Road  
King of Prussia, PA 19406

Dear Mr. Coutermarsh

03036221

This letter is in reference to NRC license #28-07946-08, which you had discussed with Charles (Mike) Reynolds.

We are requesting NRC to amend our license to remove Pb210. We have never used Pb210 in our laboratory and we will not be using it in the future.

If you have any questions or concerns about this matters please contact Charles M. Reynolds @ 603-646-4394 or me @ 603-646-4597.

Sincerely,

Jay L. Clausen  
Biogeochemical Sciences Acting Branch Chief

2012 APR 26 PM 1:00

RECEIVED  
REGION 1





UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

March 11, 2013

Docket No. 03036221  
Control No. 579945

License No. 28-07946-08

Charles M. Reynolds, Ph.D.  
Research Physical Scientist  
Department of the Army  
Engineer Research and Development Center  
Cold Regions Research & Engineering Laboratory  
72 Lyme Road  
Hanover, NH 03755-1290

SUBJECT: DEPARTMENT OF THE ARMY, REQUEST FOR ADDITIONAL INFORMATION  
CONCERNING APPLICATION FOR AMENDMENT TO LICENSE, CONTROL  
NO. 579945

Dear Dr. Reynolds:

This is in reference to your letter dated January 28, 2013 requesting to amend Nuclear Regulatory Commission License No. 28-07946-08. In order to continue our review, we need the following additional information:

1. Prior to termination of a license, 10 CFR 30.35(g), 30.36(k)(4) and 30.51 require that you submit to the NRC certain records. Please submit the following records, or explain why such records are not applicable.
  - a. for unsealed materials with half-lives greater than 120 days, records for disposal made pursuant to 10 CFR 20.2002 (alternate disposal procedures, including burial authorized prior to January 28, 1981), 20.2003 (disposals to the sanitary sewerage system), 20.2004 (incineration of wastes), 20.2005 (disposal of specific wastes including liquid scintillation cocktail and animal tissue), and 20.2103(b)(4), evaluations of effluent releases.
  - b. records important for decommissioning as described in 30.35(g), 40.36(f) and 70.25(g). Examples of such records include but are not limited to: records of contamination, identifying the radionuclides, quantities and concentrations; as-built drawings and modifications of structures and equipment in restricted areas and locations of inaccessible contamination such as buried pipes; a single list, updated at least every 2 years, of areas to which access is limited for the purpose of radiation protection (restricted areas); and records related to the provision of financial assurance.

No license will be terminated until the required records are received by the NRC. Records may be transferred to the U.S. Nuclear Regulatory Commission, Region I, 2100 Renaissance Blvd, Suite 100, King of Prussia, PA 19406-2713.

2. Specific surveys were not included in the submission. Please submit the surveys used to release the facility for unrestricted use. Specific surveys are needed to demonstrate that sufficient scope of measurement has been conducted. As stated in NUREG-1757, Volume 1, "Consolidated Decommissioning Guidance Decommissioning Process for Materials Licensees", submit a Final Status Survey Report, or demonstrate that the facility, or portion of the facility, meets NRC criteria for unrestricted use by using the dose screening methodology described in Section 6.6. Guidance on surveys is found in Figure 8.1 and Section 15.4 of this volume and Volume 2 of this NUREG. Please note that this licensee also possessed unsealed cesium 137 and the surveys should reflect screening for this radioisotope. Surveys should also show specialized areas like hood ventilation and drains.
3. The NRC Form 314 was signed by Terrance Sobecki. Please provide the title of Terrance Sobecki to ensure the proper level of management has authorized the termination of this license.

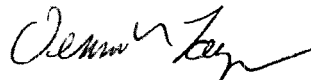
Current NRC regulations and guidance are included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **Nuclear Materials; Med, Ind, & Academic Uses**; then **Licensee Toolkits**, see our **toolkit index page**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

We will continue our review upon receipt of this information. Please reply to my attention at the Region I Office and refer to Mail Control No. 579945. If you have any technical questions regarding this deficiency letter, please call me at (610) 337-5366.

The NRC's Safety Culture Policy Statement became effective in June 2011. While a policy statement and not a regulation, it sets forth the agency's *expectations* for individuals and organizations to establish and maintain a positive safety culture. You can access the policy statement and supporting material that may benefit your organization on NRC's safety culture Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/safety-culture.html>. We strongly encourage you to review this material and adapt it to your particular needs in order to develop and maintain a positive safety culture as you engage in NRC-regulated activities.

If we do not receive a reply from you within 30 calendar days from the date of this letter, we will assume that you do not wish to pursue your application.

Sincerely,



Dennis R. Lawyer  
Health Physicist  
Commercial and R&D Branch  
Division of Nuclear Materials Safety