



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

24 January 2014

Br.2

CEERD-RR-N

REC RG 1 01 27 14 AM 10:29

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: License No. 28-07946-08
Docket No. 03036221
Control No. 579945

(Ref.) RLS

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 detailing the receipt, use, and disposal of unsealed materials.

Supporting materials include:

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.

Sewer release calculations verifying that, when approved waste was released to the sewerage system, the concentration of C-14 in the effluent did not exceed the concentration listed in 10 CFR 20.2003, table 3 in Appendix B.

Waste manifests for all C-14 waste picked up and transported off site. Waste picked up and transported off site included dry waste, sample extracts in liquid scintillation cocktail, sample material (soil) in extracts, unused sample material (soil), and unused label.

Note that though the concentration of C-14 in used liquid scintillation cocktail did not exceed the concentration specified in 10CFR20.2003 (a.1), the waste was handled as radioactive waste. Please also note that alternate disposal procedures were not used and no waste was incinerated. Nor were any animal tissues used in experiments.

1. b. No contamination was detected during usage of the C-14. 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. Access to the labs remained restricted until the workspace where the

583130

NMSS/RGN1 MATERIALS-002

label had been used was scanned and it was determined that no contamination had occurred.

2. Enclosed please find specific surveys performed by Colin O'Connor, Safety Specialist at CRREL, on November 20, 2013. Both scan and wipe tests were performed. Wipe tests were analyzed for both C-14 and Cs-137. The survey report includes information on meter type, probe type, and calibration dates of survey equipment used. Particular attention was afforded to drains, air vents, doors, sinks, and other fixtures during the survey. No contamination was detected.
3. The NRC Form 314 was signed by Charles M Reynolds, Ph.D., Radiation Safety Officer.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles M. Reynolds", with a stylized flourish at the end.

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

CERTIFICATE OF DISPOSITION OF MATERIALS

Estimated burden per response to comply with this mandatory collection request: 30 minutes. This submittal is used by NRC as part of the basis for its determination that the facility is released for unrestricted use. Send comments regarding burden estimate to the Information Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0028), 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.

LICENSEE NAME AND ADDRESS

Department of the Army
Engineer Research and Development Center
Cold Regions Research and Engineering Laboratory
72 Lyme Road, Hanover, New Hampshire 03755-1290

LICENSE NUMBER

28-07946-08

DOCKET NUMBER

3036221

LICENSE EXPIRATION DATE

February 28, 2013

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:
- ☒ b. Disposal of radioactive materials:
- ☒ 1. Directly by the licensee:
Per NHDES Permit #'s IDP 05-003 and IDP 04-005 trace levels of C14 was discharged to the Hanover, NH Wastewater Treatment Facility.
- ☐ 2. By licensed disposal site:
- ☒ 3. By waste contractor:
Dry waste, C14 contaminated extracts, unused label, and unused labeled samples were disposed of through a licensed waste contractor. Manifests are 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
Dr. Charles M. Reynolds	Radiation Safety Officer	603-646-4394	Charles.M.Reynolds@us.army.mil

Mail all future correspondence regarding this license to:

Dr. Charles M. Reynolds, Cold Regions Research and Engineering Laboratory, 72 Lyme Road, Hanover, NH 03755

C. CERTIFYING OFFICIAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE

Dr. Charles M. Reynolds, Radiation Safety Officer

SIGNATURE

Charles M Reynolds

DATE

01/23/2014

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.

CERTIFICATE OF DISPOSITION OF MATERIALS

PLEASE READ THESE INSTRUCTIONS BEFORE COMPLETING NRC FORM 314.

Subpart E of 10 CFR Part 20 establishes the radiological criteria for license terminations/decommissioning of facilities licensed under 10 CFR Parts 30, 40, 50, 60, 61, 70, and 72, as well as other facilities subject to the Commission's jurisdiction under the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended.

INSTRUCTIONS

Section B, Item 2.

Licensees should describe the specific radioactive material transfer actions. If radioactive wastes were generated in terminating this license, the licensee should describe the disposal actions taken, including the disposition of low-level radioactive waste, mixed waste, greater-than-Class-C waste, and sealed sources.

Section B, Item 2.a.

The information provided concerning the transfer of radioactive material to another licensee should specify the date of the transfer, the name of the licensee recipient, an individual contact name and telephone number for the licensee recipient, and the recipient's NRC or Agreement State license number.

Section B, Item 2.b.

For disposal of radioactive materials, licensees should describe the specific disposal method or procedure (e.g., decay-in-storage). For those cases when radioactive materials are disposed of by a licensed disposal site or by a waste contractor, the licensee should specify the name, address, and telephone number of the licensed disposal site operator or waste contractor.

Section B, Item 2.c.

"Residual radioactivity," as defined in 10 CFR 20.1003, means radioactivity in 'areas' (structures, materials, soils, etc.) remaining as a result of activities (licensed and unlicensed) under the licensee's control from sources used by the licensee, excluding background radiation. ALARA is defined in 10 CFR 20.1003.

FILE CERTIFICATES AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND CERTIFICATES TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND CERTIFICATES TO:

MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

IF YOU ARE LOCATED IN:

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND CERTIFICATES TO:

MATERIAL RADIATION PROTECTION SECTION
U. S. NUCLEAR REGULATORY COMMISSION, REGION IV
1600 E. LAMAR BOULEVARD
ARLINGTON, TX 76011-4511

SOIL MICRO 14C INVENTORY

Isotope
Inventory

Inventory	Isotope	Specific Activity	Received				Usage				In samples or in undisposed of waste	Disposal								
			Date	Amount	units	initials	Date	Amount	units	initial s		amount	Date	Amount, ml	LSC average dpm	Activity, uCi/ml or g	units	Route	total amount, mCi	initials
	2-14C-acetic acid sodium salt	51 mCi/nmol	5/14/2003	1 mCi	dbr															
	14C-U-RDX	32.21 mCi/nmol	6/4/2003	0.25 mCi	dbr	2/24/2004	0.15 mCi	dbr			5/7/2004	4000	1145	5.16E-05 uCi/ml		sink in rm 178	2.06E-04 kf		isc waste-hisafe	
											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						3.25E-04 kf		sink and surrounding area scanned after disposal to verify no contamination.	
						6/14/2004	0.1 mCi	dbr												
											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	
	14C-U-RDX	39.20 mCi/nmol	6/6/2003	1 mCi	dbr	6/14/2004	0.05 mCi	dbr			8/1/2004	4000	4387	1.98E-04 uCi/ml		sink in rm 178	7.90E-04 kf		isc waste-hisafe	
												20000	446	2.01E-05 uCi/ml		sink in rm 178	4.02E-04 kf		"count-off" wash waste	
											8/2/2004						1.19E-03 kf		sink and surrounding area scanned after disposal to verify no contamination.	
	14C-U-RDX in leaf tissue	0.052 uCi/g	8/25/2004	0.0053 mCi	kf	10/1/04 - 12/30/04	0.00017 mCi	kf			11/30/2004	20000	38	1.71E-05 uCi/ml		sink in rm 178	3.42E-04 kf		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.	
						1/25/2005	0.00468 mCi	kf												
						3/2/2005	0.0000702 mCi	kf												
						3/7/2005	0.0000468 mCi	kf			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	
																	3.31E-03			
	14C RDX	9.24 mCi/nmol	7/1/2005	5 mCi	dbr						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.	
	S-Adenosyl-L- (Carboxyl- 14C)MET Hionine	50-60 mCi/mMol	8/11/2005	0.01 mCi	kf	2/16/2006	0.225 uCi	dbr			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.	
						2/22/2006	2.1 uCi	dbr			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	
						2/28/2006	1.2 uCi	dbr				16000	109	4.91E-05			7.86E-04		16L of wash water	
						5/8/2006	2.5 uCi	dbr									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	

Isotope	Specific Activity	Received				Usage				In samples or in undisposed of waste	Disposal								
		Date	Amount	units	initials	Date	Amount	units	initials		amount	Date	Amount, ml	LSC average dpm	Activity, uCi/ml or g	units	Route	total amount, mCi	initials
											8/17/2006	1000	5379	2.42E-03			2.42E-03		1L 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 17Aug 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 8June 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		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 permi
											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
											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					2.52E-02		
											1/5/2010	14000	93.3	4.20E-05	uCi/ml	sink in rm 178 waiting for pick up	5.88E-04		Labware wash water
											1/5/2010	13000 recover soil from BT25 Humify	50	2.25E-05	uCi/ml		2.93E-04		used HPLC eluent, pick up on 2/11/2010
											2/11/2010						2.61E-01		includes 14C methionine (<10uCi), pick up on 2/11/2010

totals

7.2653 mCi	
received	

0.310992 mCi	
used	

0.26121 mCi	
In samples or in undisposed of waste	

0.04978 mCi	
disposed of	



The State of New Hampshire
Department of Environmental Services



Michael P. Nollin
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 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.

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



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 04-005FLOW — gallons/dayDATE: 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) 271-3052

**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 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

F:\Conditions of Approval GC.doc

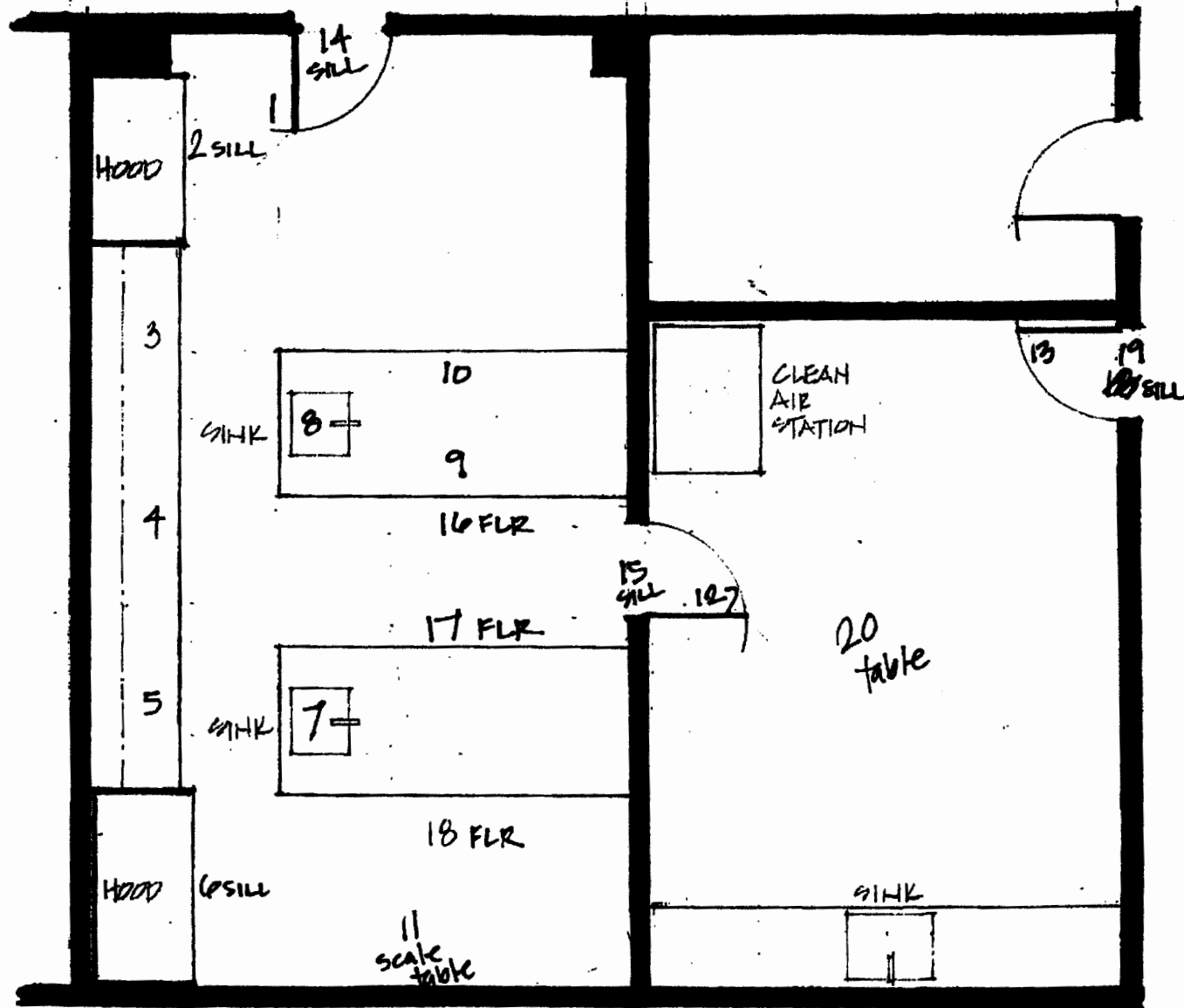
8/3/99 gic

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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

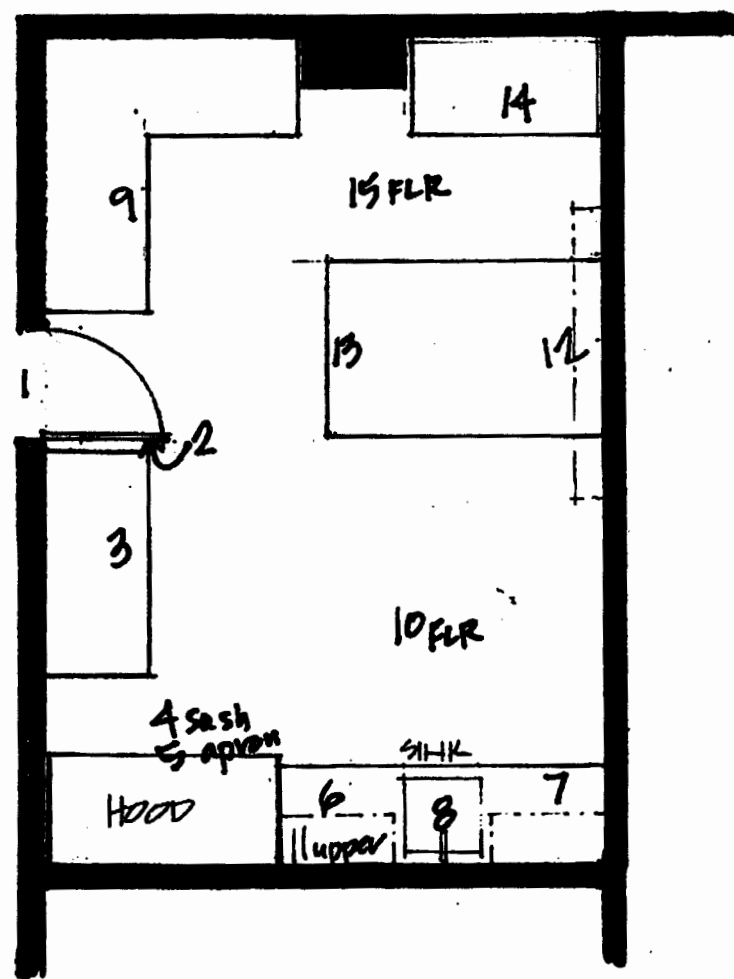
Date	Method	name of person performing scan	Notes
7/29/05	Ludlum Model 3 Survey Meter	Karen Foley	All labs where label has been used, is stored or where samples are analyzed were scanned. No contamination was detected. Survey performed using Ludlum Model 3 Survey meter SN 151183 with Model 44-9 pancake 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)	Survey 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.

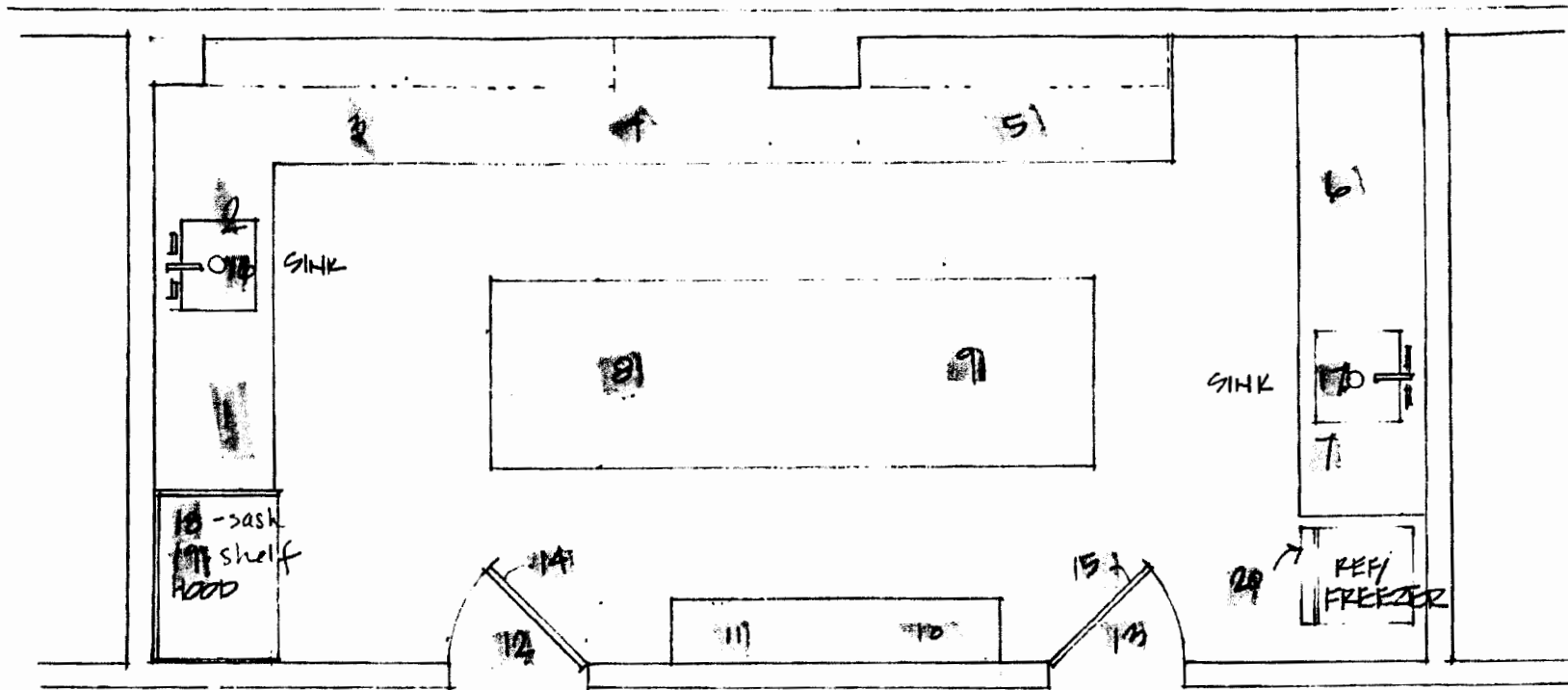


LAB 181

LAB 184



LAB 186



LAB 178

SEWER RELEASE

USACE ERDC CRREL Biogeochemistry Branch, Soil Micro group C-14 accounting

Data from inventory

date	activity, mCi	route	monthly water outflow, L	approx conc, uCi/ml	Manifest date
5/7/2004	3.252E-04	lab 178 sink	200297	1.62E-09	
7/8/2004	1.622E-03	picked up			10/21/2005
8/2/2004	1.192E-03	lab 178 sink	155883	7.65E-09	
11/1/2004	3.423E-04	lab 178 sink	85539	4.00E-09	
3/10/2005	1.276E-03	picked up			11/12/2007
4/15/2005	3.309E-03	lab 178 sink	123442	2.68E-08	
7/20/2005	2.004E-03	lab 178 sink	302184	6.63E-09	
10/28/2005	3.131E-03	lab 178 sink	395169	7.92E-09	
11/22/2005	2.345E-03	lab 178 sink	395169	5.93E-09	
2/7/2006	2.345E-03	lab 178 sink	138231	1.70E-08	
8/17/2006	2.423E-03	lab 178 sink	336467	7.20E-09	
8/17/2006	1.815E-03	lab 178 sink	336467	5.39E-09	
6/8/2007	1.232E-03	lab 178 sink	275554	4.47E-09	
6/8/2007	1.689E-04	lab 178 sink	275554	6.13E-10	
9/17/2007	2.070E-04	lab 178 sink	192387	1.08E-09	
9/14/2007	2.680E-04	lab 178 sink	192387	1.39E-09	
11/6/2007	2.519E-02	picked up			11/12/2007
1/5/2010	5.884E-04	lab 178 sink	54950	1.07E-08	
1/5/2010	2.928E-04	picked up			9/10/2010
2/11/2010	2.609E-01	picked up			9/10/2010
1/25/2013	6.506E+00	picked up			1/25/2013

Totals: 2.1695E-02 to HWWTP
6.7953E+00 picked up

NOTE: no data available for the 2nd quarter of 2010 so used data for the 2nd quarter of 2008

water outflow is calculated by dividing the water usage for the lab addition and dividing it by three. Water flowing out of CRREL consists of more water than that used by the lab addition, thus the concentration values in the table above are conservative.

10CFR20.2003 limit is .0003uCi C-14/ml outflow

Cubic Feet H2O Used Per Qtr - LAB ADDITION ONLY - FY2003-2008

		FY03		FY04		FY05	
		Cubic ft	Liters	Cubic ft	Liters	Cubic ft	Liters
1st Qtr	Oct-Dec	58,869	1,668,889	19,075	540,761	9,052	256,617
2nd Qtr	Jan-Mar	39,847	1,129,631	21,521	610,103	5,397	153,001
3rd Qtr	Apr-Jun	12,063	341,976	21,196	600,890	13,063	370,326
4th Qtr	Jul-Sept	14,036	397,909	16,496	467,648	31,978	906,551

		FY06		FY07		FY08	
		Cubic ft	Liters	Cubic ft	Liters	Cubic ft	Liters
1st Qtr	Oct-Dec	41,818	1,185,507	23,957	679,162	12,394	351,360
2nd Qtr	Jan-Mar	14,628	414,692	8,019	227,332	5,815	164,851
3rd Qtr	Apr-Jun	17,509	496,366	29,160	826,663	11,859	336,193
4th Qtr	Jul-Sept	35,606	1,009,402	20,359	577,161	23,805	674,853

In sum:	mCi
Rec'd	7.27E+00
waste to HWWTP	2.17E-02
waste picked up	6.80E+00
balance	4.48E-01

Note: this discrepancy, showing a balance of 0.45 mCi, is a result of the dry waste activity being calculated, not measured.

Manifest data

date	activity, mCi
10/21/2005	0.002
11/12/2007	0.01413
	0.00472
	0.2128
	0.2
9/10/2010	0.00029
	0.2615
1/25/2013	6.506

sum 7.20144

NOTE: sum includes some H-3 in the 11/12/07 pick up that was not on soil micro's inventory

**Duratek™**

Consolidation and Services Facility
15043 Dunbarton Boulevard
Barnwell, South Carolina 29812
803-541-1781 fax 803-541-7302
www.duratekinc.com

October 31, 2005

US Army; HQ, Army Field Support Command
ATTN: AMSFS-SF(Kelly Crooks)
1 Rock Island Arsenal
Building 350, 3rd Floor SE
Rock Island, Illinois 61299-6000

Attention: Kelly Crooks

USA 2005-014
HANOVER NH
USACE

Reference: Radioactive Waste Shipment- USA 2005-14-001
(SCN-0032-05)
Logistics Management Office
72 Lyme Road
Hanover, NH 03755-1290

Dear Mr. Crooks,

As required by 10CFR Part 20, South Carolina Title A, and Duratek Consolidation and Services Facility Radioactive Material Inventory and Control Procedure (DF-AD-010), you are hereby notified that the shipment referenced above has been received at the Duratek Consolidation and Services Facility.

A signed copy of the Form 540 for this shipment is attached as acknowledgment of the acceptance of the waste shipment. This material meets all the requirements of the Duratek Consolidation and Services Facility acceptance criteria at the point of receipt inspection. You will be notified by our facility if the material is found to be in non-compliance during processing.

If you have any questions regarding this letter, please contact me at (803) 259-1119, ext. 5064, fax (803) 259-1797 or e-mail NRBLACK@DURATEKINC.COM.

Sincerely,

N. Reynolds Black
Duratek Consolidation and Services Facility
Facility Coordinator

603 4705
11-7-05 646

FORM 541 CHEM-NUCLEAR CONSOLIDATION FACILITY 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 USA-2005-14-001 3. PAGE 1 OF 2 PAGE(S) 4. SHIPPER NAME Logistics management Office SHIPMENT ID NUMBER SCN-0032-05								
		NUMBER OF PACKAGES/ DISPOSAL CONTAINERS 2		NET WASTE VOLUME m3 0.3681 lb 13.0000		NET WASTE WEIGHT kg 130.6345 lb 288.0000		SPECIAL NUCLEAR MATERIAL (grams)									
								U-233			U-235	Pu	TOTAL				
		ACTIVITY ALL NUCLIDES MBq 2.9253E+04 mCi 7.9063E+02		TRITIUM 2.7760E+04 7.5000E+02		C-14	Tc-99	I-129			SOURCE (kgs) 6.4190E-01 (lbs) 1.4151E+00						
						NP	NP	NP									
WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER																	
DISPOSAL CONTAINER DESCRIPTION							PHYSICAL DESCRIPTION				14. CHEMICAL DESCRIPTION			15. RADIOLOGICAL DESCRIPTION			16. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER/ S.C. TRANSPORT PERMIT NUMBER	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (lb)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) (dpm/100 cm2)		11. WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (ft3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3 & Note 3A)	CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT					
					ALPHA	BETA-GAMMA						RADIONUCLIDES		MBq	mCi		
2005-14-01/0137-00-05-E	4	0.2124	66.7919	<5.0000E-03	<3.3400E-06	<3.3400E-05							Cs-137	9.3980E-01	2.5400E-02	AU	
		7.5000	123.0000	<5.000E-01	<2.000E+02	<2.000E+03							Subtotal	9.3980E-01	2.5400E-02		
0137-00-05-E							39-H	0.1699	100	100	Oxides/None	0.00	C-14	7.4000E-02	2.0000E-03		
													Na-22	3.7000E+00	1.0000E-01		
								6.0000					U-238	1.8000E-01 kgs	3.3337E-04	9.0100E-06	
													U-dep	[2.2700E-01 kgs]	4.2180E-04	1.1400E-05	
													Subtotal	3.7748E+00	1.0202E-01		
													Total	2.9235E+04	7.9013E+02		
0137-00-05-E							36	0.0283	100	100	Oxides/None	0.00	Co-60	3.8480E-02	1.0400E-03		
													H-3	2.7750E+04	7.5000E+02		
								1.0000					Ni-63	1.4800E+03	4.0000E+01		
													Pb-210	3.7000E-04	1.0000E-05		
													Po-210	3.7000E-02	1.0000E-03		
													Subtotal	2.9230E+04	7.9000E+02		
													Total	2.9235E+04	7.9013E+02		
													Source: [4.0700E-01 kgs]				

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over-packs the numerical code must be followed by "OP." 1. Wooden box or Crate 2. Metal Box 3. Plastic Drum or Pail 4. Metal Drum or Pail 5. Metal Tank or Liner 6. Concrete Tank or Liner 7. Polyethylene Tank or Liner 8. Fiberglass Tank or Liner 9. Demineralizer 10. Gas Cylinder 11. Bulk, Unpackaged Waste 12. Unpackaged Components 13. High Integrity Container 19. Other. Describe in item 6, or additional page.	Note 1A: Barnwell Specific Container Description Codes. (Choose one code as may be applicable) A High Integrity Container - Poly B High Integrity Container - Poly with Steel Shell C High Integrity Drum Overpack - Poly D High Integrity Container - Stainless Steel E High Integrity Container - Fiberglass F Liner - Steel	NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.) 20. Charcoal 21. Incinerator Ash 22. Soil 23. Gas 24. Oil 25. Aqueous Liquid 26. Filter Media 27. Mechanical Filter 28. EPA or State Hazardous 29. Demolition Rubble 30. Cation Ion-exchange Media 31. Anion Ion-exchange Media 32. Mixed Bed Ion-exchange Media 33. Contaminated Equipment 34. Organic Liquid (except oil) 35. Glassware or Labware 36. Sealed Source/Device 37. Paint or Plating 38. Evaporator Bottoms/Sludges/ Concentrates 39. Compactible Trash 40. Noncompactible Trash 41. Animal Carcass 42. Biological Material (except animal carcass) 43. Activated Material 59. Other. Describe in item 11, or additional page	Note 2A: Barnwell Specific Waste Descriptor Codes. (Choose all applicable codes.) G Dewatered 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 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. Solidification 90. Cement 91. Concrete (encapsulation) 92. Bitumen 93. Vinyl Chloride 94. Vinyl Ester Styrene 99. Other. Describe in item 13, or additional page 100. None Required	Note 3A: Barnwell Specific Solidification and Stabilization Media Codes (Choose this code if applicable) M Wax Binder
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UNIFORM LOW-LEVEL RADIOACTIVE
WASTE MANIFEST

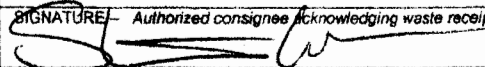
CHEM-NUCLEAR CONSOLIDATION FACILITY

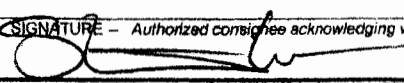
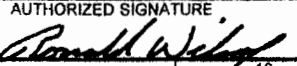
2. MANIFEST NUMBER
USA-2005-14-001

3. PAGE 2 OF 2 PAGE(S)

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

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 / S.C. TRANSPORT PERMIT NUMBER	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (LB)	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm2 dpm/100 cm2		11. WASTE DESCRIPTION (See Note 2 & Note 2A)		12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)		13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3 & Note 3A)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT (F>0.1%)		15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT				
					ALPHA	BETA-GAMMA	RADIOLOGICAL DESCRIPTION												
							RADIONUCLIDES	MBq	mCi										
2005-14-02/0137-00-05-E	4	0.2124	131.8954	<5.0000E-03	<3.3400E-06	<3.3400E-05													AU
		7.5000	291.0000	<5.000E-01	<2.000E+02	<2.000E+03													
0137-00-05-E							39-H		0.1416	100	100	Oxides/None	0.00	C-14 Mn-54 U-238 Zn-65 [1.8000E-01 kgs]	7.4000E-02	2.0000E-03			
									7.4000E+00	2.0000E-01									
								5.0000							3.3337E-04	9.0100E-06			
															7.4000E+00	2.0000E-01			
														Subtotal		1.4874E+01	4.0201E-01		
0137-00-05-E							40		0.0283	100	100	Oxides/None	0.00	Na-22 Th-nat [5.4900E-02 kgs]	3.7000E+00	1.0000E-01			
									4.4030E-05	1.1900E-06									
								1.0000						Subtotal	3.7000E+00	1.0000E-01			
														Total Source: [2.3490E-01 kgs]		1.8574E+01	5.0201E-01		
Shipment Totals		0.4248	187.7873											Source: [6.4190E-01 kgs]		2.9253E+04	7.9063E+02		
		15.0000	414.0000																

NRC FORM 540 (6-2004)			U.S. NUCLEAR REGULATORY COMMISSION UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER			5. SHIPPER -- NAME AND FACILITY USACE Engineer Research and Development Ctr. (CRREL) 72 Lyme Rd. Hanover, NH 03755		SHIPPER I.D. NUMBER USA 2007-060 <input type="checkbox"/> COLLECTOR <input type="checkbox"/> PROCESSOR <input checked="" type="checkbox"/> GENERATOR TYPE (Specify) G		7. NRC FORM 540 AND 540A NRC FORM 541 AND 541A NRC FORM 542 AND 542A ADDITIONAL INFORMATION		8. MANIFEST NUMBER (Use this number on all continuation pages) USA 2007-060 PFX-1						
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) 1-800-424-9300			3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST =====> 3		6. CARRIER -- Name and Address Tri-State Motor Transit P.O. Box 113 Joplin, MO 64802		EPA I.D. NUMBER MOD-09-503-8998		9. CONSIGNEE - Name and Facility Address Perma-Fix of Florida 1940 NW 67th Place Gainesville, FL 32653		CONTACT Ray Whittle TELEPHONE NUMBER (Include Area Code) 1-800-365-6066							
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number =====>		EPA MANIFEST NUMBER 002456167JJK		CONTACT Cassie Gardner		TELEPHONE NUMBER (Include Area Code) 1-800-248-8768		SIGNATURE - Authorized consignee acknowledging waste receipt 		DATE 11/12/07					
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)		17. LSA/SCO CLASS		18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE	
Waste, Sodium hydroxide, solution, 8, UN1824, PG II (limited quantity of radioactive material)			NA		NA		Liquid Oxides		C-14		5.2281E-01 (1.413E-05 Ci)		NA		161.9325 KGS; 0.2124 M3		USA 2007-060 PFX-1	
Waste, Toxic liquid, corrosive, inorganic, n.o.s. 6.1, 8, UN3289, PG II (Barium Chloride, Potassium Hydroxide, Hydrochloric Acid, limited quantity of radioactive material)			NA		NA		Liquid Oxides		C-14		1.7464E-01 (4.720E-06 Ci)		NA		36.2874 KGS; 0.1136 M3		USA 2007-060 PFX-2	
Waste, Flammable liquid n.o.s., 3, UN1993, PG II (ethanol, methyl isobutyl ketone, acetonitrile, toluene, xylene, limited quantity of radioactive material)			NA		NA		Liquid Oxides		C-14 H-3		7.8729E+00 (2.128E-04 Ci)		NA		72.5748 KGS; 0.2124 M3		USA 2007-060 PFX-3	
FOR CONSIGNEE USE ONLY																		

NRC FORM 540 (6-2004)		U.S. NUCLEAR REGULATORY COMMISSION UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER		5. SHIPPER - NAME AND FACILITY USACE Engineer Research and Development Ctr. (CRREL) 72 Lyme Rd. Hanover, NH 03755		SHIPPER I.D. NUMBER USA 2007-060 PFX2 <input type="checkbox"/> COLLECTOR <input type="checkbox"/> PROCESSOR <input checked="" type="checkbox"/> GENERATOR TYPE (Specify) G		7. NRC FORM 540 AND 540A NRC FORM 541 AND 541A NRC FORM 542 AND 542A ADDITIONAL INFORMATION		8. MANIFEST NUMBER (Use this number on all continuation pages) USA 2007-060 PFX2							
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) 1-800-424-9300				USER PERMIT NUMBER Profile# RS 6965		SHIPMENT NUMBER USA 2007-060 PFX2		9. CONSIGNEE - Name and Facility Address PERMA-FIX of FLORIDA 1940 NW 67th Place Gainesville, FL 32653		CONTACT Ray Whittle TELEPHONE NUMBER (Include Area Code) 1-800-365-6066							
ORGANIZATION CHEMTREC				CONTACT Ronald Wilcox		TELEPHONE NUMBER (Include Area Code) 925-324-3868		SIGNATURE - Authorized consignee acknowledging waste receipt 		DATE 11/12/07							
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 Tri-State Motor Transit P.O. Box 113 Joplin, MO 94802		EPA I.D. NUMBER MOD-09-503-8998		SHIPPING DATE 11/7/07		10. CERTIFICATION This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicable requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.							
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number =====		EPA MANIFEST NUMBER		CONTACT Cassie Gardner		TELEPHONE NUMBER (Include Area Code) 1-800-248-8788		DATE 11/7/07		AUTHORIZED SIGNATURE  TITLE BROKER/SHIPPER DATE 11/7/07							
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)		17. LSA/SCO CLASS		18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910		NA		NA		Liquid Oxides		C-14 H-3		7.4000E+00 (2.000E-04 Ci)		NA		68.0389 KGS; 0.1136 M3		USA 2007-060 PFX2	
FOR CONSIGNEE USE ONLY																	

NRC FORM 541 (6-2004)			U.S. NUCLEAR REGULATORY COMMISSION				1. MANIFEST TOTALS							
UNIFORM LOW-LEVEL RADIOACTIVE MANIFEST CONTAINER DESCRIPTION Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive			NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET VOLUME (m3)	NET WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams)				Total				
						U-233	U-235	Pu						
						NP	NP	NP						
						ACTIVITY (MBq)								
			ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)						
			8.1735E+02	NP	2.3695E+00	NP	NP	NA						
DISPOSAL CONTAINER DESCRIPTION											WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER			
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER(S)	6. CONTAINER DESCRIP- TION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL	10. SURFACE CONTAMINATION (MBq/100 cm2)		11. WASTE DESCRIP- TOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)	13. SORBENT SOLIDIFICATION STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. INDIVIDUAL RADIO- NUCLIDES AND RATES		
				<input checked="" type="checkbox"/> (μSv/hr) (mSv/hr)	ALPHA	BETA- GAMMA								
USA 2007-060 EMC-1/USA 2007-060	19 US DOT 7A TYPE A, METAL DRUM	0.2124	77.1107	3.0000E+01	<3.6740E-06	<3.6740E-05	36	0.2124	100	Oxides/NP	NP	Am-241 5.8200 C-14 2.3695 Cs-137 7.4000 Na-22 7.4000 Ra-226 9.2600 Total 8.1735		

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 | |
| 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/Sludges/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 | |

Note 3: For solidification media that meet disposal site structural stability. For all solidification media, the vendor (manufacturer) and brand name must be specified.

Sorption

- | | | | |
|----------------|------------------|-------------------|-----------------|
| 60. Speedi Dri | 64. Safe T Sorb | 69. Chemill 30 | 74. Petroset |
| 61. Celatom | 65. Safe N Dri | 70. Chemill 50 | 75. Petroset II |
| 62. Floor Dry/ | 66. Florco | 71. Chemill 3030 | 76. Aqueset |
| Superfine | 67. Florco X | 72. Dicapri HP200 | 77. Aqueset II |
| 63. Hi Dri | 68. Solid A Sorb | 73. Dicapri HP500 | |

Our 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 relative to the Records and FOIA/Privacy Services Branch (7-5 F82), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollections@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, (4-164), 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 form.

[illegible]

9/10/10

FORM 540 UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER		5. SHIPPER -- NAME AND FACILITY Cold Regions Research Engineering Lab 72 Lyme Road Hanover, NH 03755		SHIPPER I.D. NUMBER COE 2010-001-PF <input type="checkbox"/> COLLECTOR <input type="checkbox"/> PROCESSOR <input checked="" type="checkbox"/> GENERATOR TYPE (Specify) G		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) COE 2010-001-PF	
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) 865-482-3896		WSID RS8249		SHIPMENT NUMBER COE 2010-001-PF		9. CONSIGNEE - Name and Facility Perma-Fix of Florida 1940 N.W. 67th Place Gainesville, FL 32653		CONTACT Recliving TELEPHONE (Include Area Code) 352-373-6066	
ORGANIZATION Visionary Solutions		CONTACT Richard Thatcher		TELEPHONE NUMBER (Include Area Code) 803-507-1529		SIGNATURE -- Authorized consignee acknowledging waste receipt		DATE	
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ===== 1		6. CARRIER -- Name and Address Visionary Solutions/Interstate Ventures 111-B Union Valley Road Oak Ridge, TN 37830		EPA I.D. NUMBER TNR 00002380		10. CERTIFICATION This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.	
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number =====		EPA MANIFEST NUMBER 000734116 FLE		CONTACT Lisa Hyde		SHIPPING DATE 09/10/2010		TELEPHONE (Include Area Code) 865-482-8670	
				SIGNATURE -- Authorized carrier acknowledging waste receipt		DATE 9/10/10		AUTHORIZED SIGNATURE [Signature] TITLE Senior Shipping Broker DATE 9/10/10	
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	
Waste, Flammable Liquid, n.o.s., 3, UN1993		NA		NA		Liquid Oxides		C-14	
16. TOTAL PACKAGE ACTIVITY MBq mCi		17. LSA/SCO CLASS		18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE			
1.0730E-02 (2.9000E-04)		NA		74 LBS; 4 FT3		HP-1			
FOR CONSIGNEE USE ONLY				20.					

FORM 540		UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER		5. SHIPPER -- NAME AND FACILITY Cold Regions Research Engineering Lab 72 Lyme Road Hanover, NH 03755		SHIPPER ID NUMBER COE 2010-001-TOXCO <input type="checkbox"/> COLLECTOR <input type="checkbox"/> PROCESSOR <input checked="" type="checkbox"/> GENERATOR TYPE (Specify) G TELEPHONE NUMBER (Include Area Code) 803-507-1529		7. FORM 540 AND 540A FORM 541 AND 541A FORM 542 AND 542A ADDITIONAL INFORMATION PAGE 1 OF 1 1 PAGE(S) 1 PAGE(S) None PAGE(S) None PAGE(S)		8. MANIFEST NUMBER (Use this number on all continuation pages) COE 2010-001-TOXCO	
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) 865-482-3896				T-TN063-L10		SHIPMENT NUMBER COE 2010-001-TOXCO		9. CONSIGNEE - Name and Facility TOXCO-MMC 109 Flint Road Oak Ridge, TN 37830		CONTACT Richard Low TELEPHONE (Include Area Code) 865-482-5532 DATE	
ORGANIZATION Visionary Solutions				CONTACT Richard Thatcher		6. CARRIER -- Name and Address Visionary Solutions/Interstate Ventures 111-B Union Valley Road Oak Ridge, TN 37830		EPA ID NUMBER		SIGNATURE -- Authorized consignee acknowledging waste receipt	
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 =====		EPA MANIFEST NUMBER		CONTACT Lisa Hyde		SHIPPING DATE 09/10/2010		10. CERTIFICATION This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.	
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number =====		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		EPA MANIFEST NUMBER		SIGNATURE -- Authorized carrier acknowledging waste receipt		TELEPHONE (Include Area Code) 865-482-8670		DATE 9/10/10	
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	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910				NA		NA		Solid Oxides		C-14	
16. TOTAL PACKAGE ACTIVITY MBq mCi				17. LSASCO CLASS		18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE			
9.6755E+00 (2.6150E-01)				NA		34 LBS; 1.5 FT3		HT-1			
FOR CONSIGNEE USE ONLY				20. TN RADIOACTIVE WASTE LICENSE-FOR-DELIVERY T-TN063-L10 Richard Low							

NRC FORM 540 (8-2010)			U.S. NUCLEAR REGULATORY COMMISSION UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER			5. SHIPPER - NAME AND FACILITY US Army Cold Regions Research Labs (USACRREL) 72 Lyme Road Hanover, NH 03755-4281		SHIPPER I.D. NUMBER NH6570096846 <input type="checkbox"/> COLLECTOR <input type="checkbox"/> PROCESSOR <input checked="" type="checkbox"/> GENERATOR TYPE (Specify) 1		7. NRC FORM 540 AND 540A PAGE 1 OF 1 PAGE(S) NRC FORM 541 AND 541A 1 PAGE(S) NRC FORM 542 AND 542A None PAGE(S) ADDITIONAL INFORMATION None PAGE(S)		8. MANIFEST NUMBER (Use this number on all continuation pages) 000697173VES												
1. EMERGENCY TELEPHONE NUMBER (877)818-0087 (Include Area Code)			USER PERMIT NUMBER T-NJ011-G13		SHIPMENT NUMBER DSSI-13-003		CONTACT John Hebert		TELEPHONE NUMBER (Include Area Code) 603-646-4281		9. CONSIGNEE - Name and Facility Address DIVERSIFIED SCI. SERV. INC. (DSSI) 657 GALLAGHER ROAD KINGSTON, TN 37763		CONTACT JOE CRIDER TELEPHONE NUMBER (Include Area Code) 865-376-0084											
ORGANIZATION ER Service Contracted by VESTS			3. CARRIER - Name and Address		EPA ID Number		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 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.													
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		Transporter #1 Veolia ES 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		Ship Date: 1-25-13 Telephone #1: 973-347-7111 #2: 856-769-2741		AUTHORIZED SIGNATURE <i>[Signature]</i> TITLE Sr. Waste Broker DATE 1/25/13													
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number			EPA MANIFEST NUMBER 000697173VES		SIGNATURE - Authorized carrier acknowledging waste receipt #1 <i>[Signature]</i> Date 1-25-13 #2 _____ Date _____		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)		17. LSA/SCO CLASS		18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE	
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		NA		180 LBS; 4.09 FT3		EP166859800 0-001-01-0		
FOR CONSIGNEE USE ONLY																								

Note 1: Container Description Codes. For containers/waste requiring disposal in approved structural overpacks the numerical code must be followed by "OP."		NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)		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.																																																									
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. Demineralizer 10. Gas Cylinder 11. Bulk Unpackaged Waste 12. Unpackaged Components 13. High Integrity Container 19. Other Describe in Item 6 or additional page		20. Charcoal 21. Incinerator Ash 22. Soil 23. Gas 24. Oil 25. Aqueous Liquid 26. Filter Media 27. Mechanical Filter 28. EPA or State Hazardous		29. Demolition Rubble 30. Cation Ion-exchange Media 31. Anion Ion-exchange Media 32. Mixed Bed Ion-exchange Media 33. Contaminated Equipment 34. Organic Liquid (except oil) 35. Glassware or Labware 36. Sealed Source/Device 37. Paint or Plating		38. Evaporator Bottoms/Sludges/Condensates 39. Compactible Trash 40. Noncompactible Trash 41. Animal Carcass 42. Biological Material (except animal carcass) 43. Activated Material 59. Other Describe in item 11, or additional page		<table border="1"> <thead> <tr> <th colspan="4">Sorption</th> <th colspan="4">Solidification</th> </tr> </thead> <tbody> <tr> <td>60. Speedi Dri</td> <td>64. Safe T Sorb</td> <td>69. Chemsil 30</td> <td>74. Petroset</td> <td>89. Other</td> <td>90. Cement</td> <td>94. Vinyl Ester Styrene</td> <td></td> </tr> <tr> <td>61. Celetom</td> <td>65. Safe N Dri</td> <td>70. Chemsil 50</td> <td>75. Petroset II</td> <td rowspan="3">Describe in item 13, or additional page</td> <td>91. Concrete</td> <td>99. Other. Describe</td> <td></td> </tr> <tr> <td>62. Floor Dry/ Superfine</td> <td>66. Florco</td> <td>71. Chemsil 3030</td> <td>76. Aquaset II</td> <td colspan="2">(encapsulation) in item 13, or additional page</td> <td></td> </tr> <tr> <td>63. Hi Dri</td> <td>67. Florco X</td> <td>72. Dicapert HP200</td> <td>77. Aquaset II</td> <td>92. Bitumen</td> <td>100. None Required</td> <td></td> </tr> <tr> <td></td> <td>68. Solid A Sorb</td> <td>73. Dicapert HP500</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						Sorption				Solidification				60. Speedi Dri	64. Safe T Sorb	69. Chemsil 30	74. Petroset	89. Other	90. Cement	94. Vinyl Ester Styrene		61. Celetom	65. Safe N Dri	70. Chemsil 50	75. Petroset II	Describe in item 13, or additional page	91. Concrete	99. Other. Describe		62. Floor Dry/ Superfine	66. Florco	71. Chemsil 3030	76. Aquaset II	(encapsulation) in item 13, or additional page			63. Hi Dri	67. Florco X	72. Dicapert HP200	77. Aquaset II	92. Bitumen	100. None Required			68. Solid A Sorb	73. Dicapert HP500					
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Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		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 (USACRREL) 72 LYME ROAD HANOVER, NH 03755-4281		Generator's Site Address (if different than mailing address) SAME			
Generator's Phone 603 646-4281					
6. Transporter 1 Company Name VEOLIA ES TECHNICAL SOLUTIONS		U.S. EPA ID Number NJ D 0 8 0 6 3 1 3 6 9			
7. Transporter 2 Company Name TRANSPORTATION CO INC.		U.S. EPA ID Number NJ D 0 7 1 6 2 9 9 7 6			
8. Designated Facility Name and Site Address DIVERSIFIED SCI SERV INC - DSSI 657 GALLAHER ROAD KINGSTON, TN 37763		U.S. EPA ID Number TN D 9 8 2 1 0 9 1 4 2			
9. Hazardous Waste Description (including Proper Shipping Name, Hazard Class, ID Number, and DOT label code (if any))		10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.
1. UNCLAS. WASTE ARTICLES, EXPLOSIVE, n.o.s., (CYCLOTRIMETHYLENETRINITRAMINE), 1.4E (7), II, DOT-SP 13481, LIMITED QUANTITY RADIOACTIVE		1 F M		180	P
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, packaged, 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 Official Printed/Typed Name DONALD HEBERT		Signature <i>[Signature]</i>		Month Day Year 11/25/13	
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 ROGER A. FORTIN		Signature <i>[Signature]</i>		Month Day Year 11/25/13	
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:					
18b. Alternate Facility (or Generator) U.S. EPA ID Number					
Facility's Phone:					
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)					
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	



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

Safety and Environmental
Management Office

December, 19 2013

MEMORANDUM FOR RECORD:

Subject: NRC License No. 28-07946-08 Closeout Survey

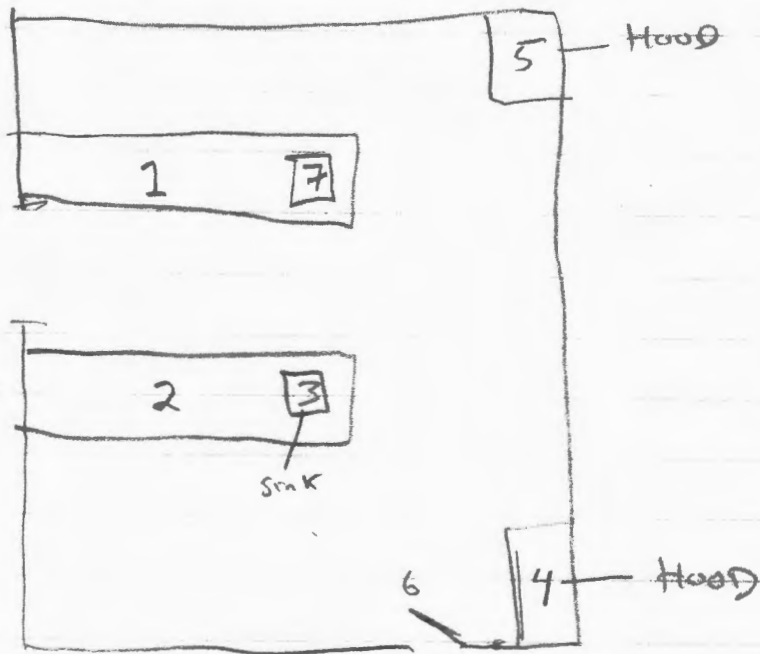
1. A close-out survey for NRC License No. 28-07946-08 was performed by Colin O'Connor on November 20, 2013. The survey included a scan survey of all areas where NRC Lic No. 28-07946-08 materials were known to be historically used and wipe tests of representative areas including drains, fume hoods and lab counters. No evidence of contamination from materials used in association with NRC License No. 28-07946-08 was identified during the survey.
2. A scan Survey of the following locations was performed by Colin O'Connor on November 20, 2013: Main Lab Rooms 140, 48, 178, 181 and 186 at the Cold Regions Research And Engineering Laboratory (CRREL), 72 Lyme Road, Hanover, NH. The survey was performed using a Ludlum Model 3 Survey Meter with a Ludlum Model 44-9 Pancake Probe. The meter was calibrated on 3 September 2013. No readings above background levels were detected.
3. 32 wipe tests were performed and were analyzed for Carbon 14 and Cesium 137. The wipe tests were performed by Colin O'Connor on November 20, 2013. Attachment 1 includes sampling locations and sampling maps. Wipe tests were submitted to the US Army TMDE Activity Radiation Standards Lab in Redstone Arsenal, AL. Attachment 2 contains the wipe test results.
4. Point of Contact is the undersigned at 603-646-4860 or colin.f.oconnor@us.army.mil.

Colin O'Connor
Safety Specialist
Safety and Environmental Management Office

Attachment 1

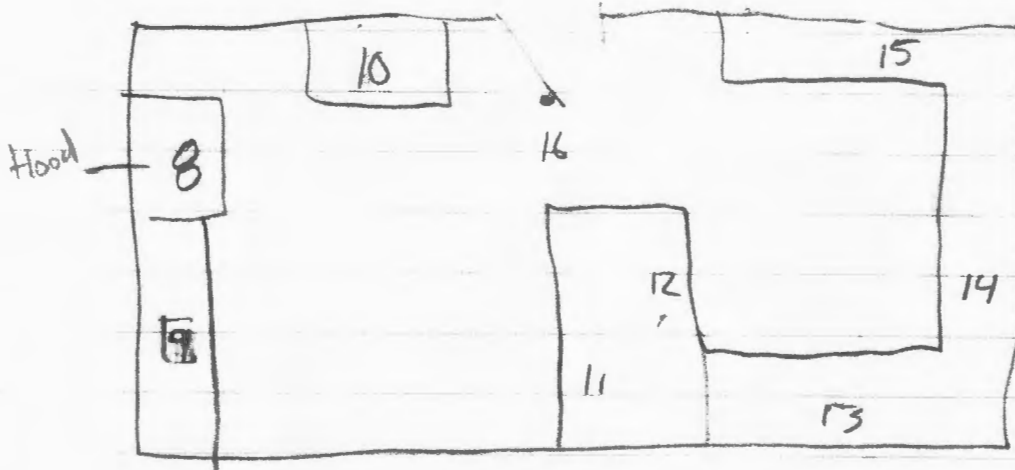
Sample No.	Description	Isotope	Date Sampled
1	Room 181 Experiment Area	Cs 137, C 14	11/20/2013
2	Room 181 Experiment Area	Cs 137, C 14	11/20/2013
3	Room 181 Sink	Cs 137, C 14	11/20/2013
4	Room 181 Hood	Cs 137, C 14	11/20/2013
5	Room 181 Hood	Cs 137, C 14	11/20/2013
6	Room 181 Door	Cs 137, C 14	11/20/2013
7	Room 181 Sink	Cs 137, C 14	11/20/2013
8	Room 186 Hood	Cs 137, C 14	11/20/2013
9	Room 186 Sink	Cs 137, C 14	11/20/2013
10	Room 186 Counter	Cs 137, C 14	11/20/2013
11	Room 186 Counter	Cs 137, C 14	11/20/2013
12	Room 186 Counter	Cs 137, C 14	11/20/2013
13	Room 186 Desk	Cs 137, C 14	11/20/2013
14	Room 186 Desk	Cs 137, C 14	11/20/2013
15	Room 186 Desk	Cs 137, C 14	11/20/2013
16	Room 186 Door	Cs 137, C 14	11/20/2013
17	Room 178 Disposal Sink	Cs 137, C 14	11/20/2013
18	Room 178 Fridge	Cs 137, C 14	11/20/2013
19	Room 178 Hood	Cs 137, C 14	11/20/2013
20	Room 178 Sink	Cs 137, C 14	11/20/2013
21	Room 178 Door	Cs 137, C 14	11/20/2013
22	Room 178 Door	Cs 137, C 14	11/20/2013
23	Room 178 Counter	Cs 137, C 14	11/20/2013
24	Room 140 Former LSC Site	Cs 137, C 14	11/20/2013
25	Room 140 Sink	Cs 137, C 14	11/20/2013
26	Room 140 Counter	Cs 137, C 14	11/20/2013
27	Room 140 Door	Cs 137, C 14	11/20/2013
28	Room 140 Door	Cs 137, C 14	11/20/2013
29	Room 48 Former Hood Site	Cs 137, C 14	11/20/2013
30	Room 48 Door	Cs 137, C 14	11/20/2013
31	Room 48 Door	Cs 137, C 14	11/20/2013
BLANK	FIELD BLANK	Cs 137, C 14	11/20/2013

Room 181



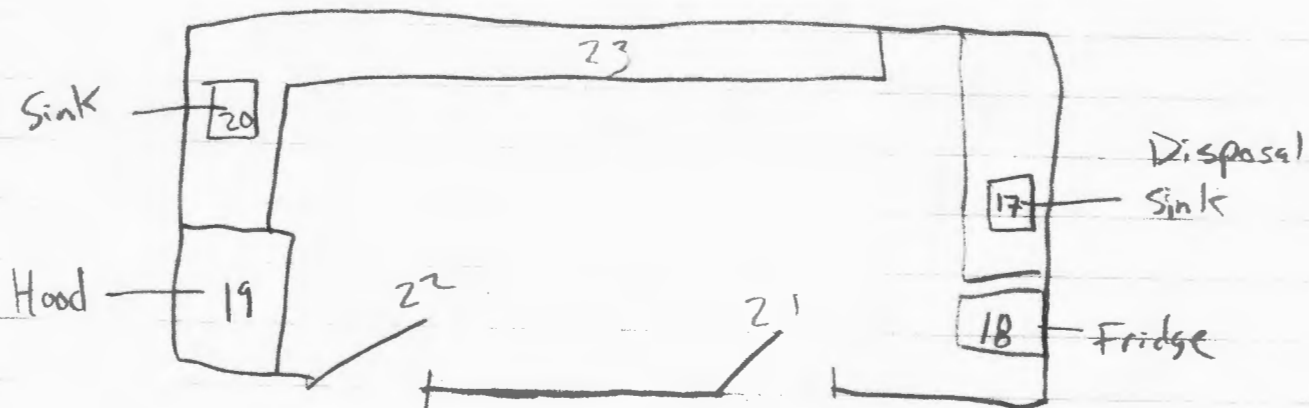
- | | | |
|----|----------|-----|
| 1- | Exp Area | C14 |
| 2- | Exp Area | C14 |
| 3- | Sink | C14 |
| 4- | Hood | C14 |
| 5- | Hood | C14 |
| 6- | Door | C14 |
| 7- | Sink | C14 |

Room 186



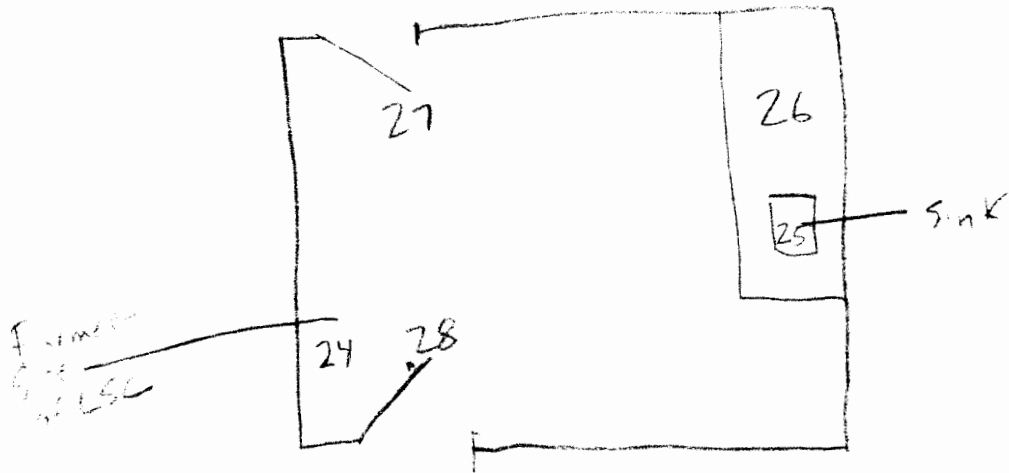
- 8 - Hood - C14 Exp
- 9 - Sink
- 10 - Counter
- 11 Counter
- 12 Counter
- 13 Desk
- 14 Desk
- 15 Desk
- 16 Door

Room 178



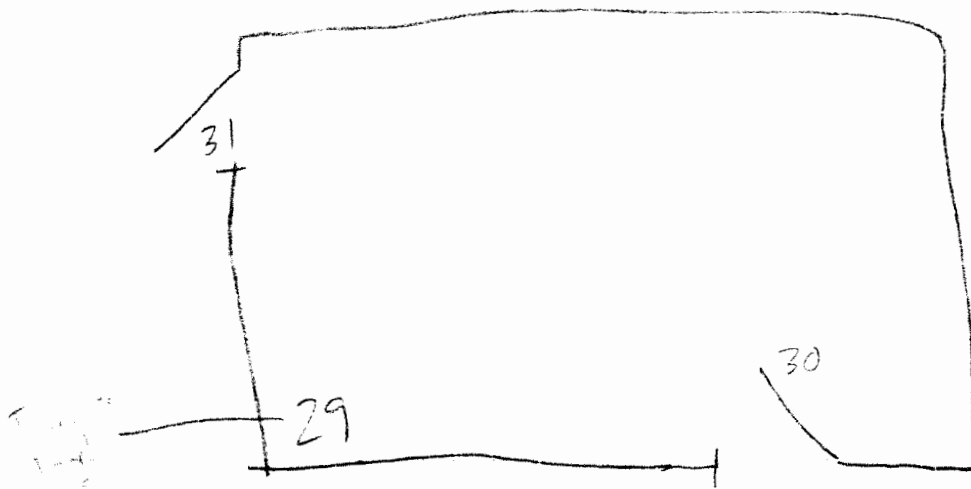
- 17 - Disposal Sink - Disposal to sanitary sewer
- 18 - Fridge
- 19 - Hood
- 20 - Sink
- 21 - Door
- 22 - Door
- 23 - Counter

Room 140



- 24 - LSC Former LSC
- 25 - Sink
- 26 - Counter
- 27 - Door
- 28 - Sink

Room 4A - Current Stamp Room



29 - Former Hall size
30 - Room
31 - Door

Attachment 2

**US ARMY TMDE ACTIVITY
Radiation Standards Laboratory
WIPE/LEAK TEST ANALYSIS RESULTS**

Report Date 11 Dec 2013

Page 1 of 3

FROM US Army Aviation and Missile Command
AMSAM-TMD-SR-C
Bldg 5417 Nuclear Counting
Redstone Arsenal AL 35898-5400

TO Cold Regions Research and Engineering Laboratories
72 Lyme Rd
Hanover NH 03755-1290

PHONE 256-876-7666/3839

DSN 746-7666/3839

E-MAIL redstone.nuclear.counting@conus.army.mil

PHONE 603-646-4860

DSN

E-MAIL colin.f.oconnor@us.army.mil

Submission ID E 13338- P6 1333801 L Descr
Counting System LSC-E

Isotope C-14

Analysis Completed 11 Dec 2013

Sample Identification	Sample Date	DPM BETA	Microcuries (μCi) BETA
01	20 Nov 2013	4 0	0 000002
02	20 Nov 2013	0 0	0 000000
03	20 Nov 2013	5 0	0 000002
04	20 Nov 2013	6 0	0 000003
05	20 Nov 2013	0 0	0 000000
06	20 Nov 2013	0 0	0 000000
07	20 Nov 2013	8 0	0 000004
08	20 Nov 2013	4 0	0 000002
09	20 Nov 2013	5 0	0 000002
10	20 Nov 2013	0 0	0 000000
11	20 Nov 2013	7 0	0 000003
12	20 Nov 2013	0 0	0 000000
13	20 Nov 2013	0 0	0 000000
14	20 Nov 2013	4 0	0 000002
15	20 Nov 2013	4 0	0 000002
16	20 Nov 2013	4 0	0 000002
17	20 Nov 2013	0 0	0 000000
18	20 Nov 2013	6 0	0 000003
19	20 Nov 2013	5 0	0 000002
20	20 Nov 2013	0 0	0 000000
Limit of Detection		6 8	0 000003

Report Date 11 Dec 2013

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**US ARMY TMDE ACTIVITY
Radiation Standards Laboratory
WIPE/LEAK TEST ANALYSIS RESULTS**

Report Date 11 Dec 2013
Page 2 of 3

Submission ID E 13338- P6 1333801 L		Descr	Isotope C-14	Analysis Completed 11 Dec 2013
Counting System LSC E				
Sample Identification	Sample Date	DPM BETA	Microcuries (µCi) BETA	
21	20 Nov 2013	5 0	0 00000	
22	20 Nov 2013	4 0	0 00000	
23	20 Nov 2013	4 0	0 00000	
24	20 Nov 2013	5 0	0 00000	
25	20 Nov 2013	0 0	0 00000	
26	20 Nov 2013	4 0	0 00000	
27	20 Nov 2013	7 0	0 00000	
28	20 Nov 2013	0 0	0 00000	
29	20 Nov 2013	5 0	0 00000	
30	20 Nov 2013	4 0	0 00000	
31	20 Nov 2013	0 0	0 00000	
BLANK	20 Nov 2013	6 0	0 00000	
Limit of Detection		6 8	0 000003	

Report Date 11 Dec 2013
Page 2 of 3

**US ARMY TMDE ACTIVITY
Radiation Standards Laboratory
WIPE/LEAK TEST ANALYSIS RESULTS**

Report Date 11 Dec 2013

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Submission ID E 13338 P6 1333801 L

REMARKS

Traceability to NIST is provided by the standard(s)/source(s) identified below

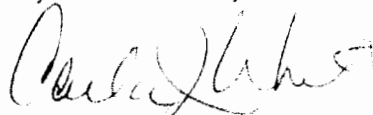
Carbon-14 SN 90 last calibrated date 07 Jan 2009

These sample analyses were accomplished in accordance with RSL SOP NC 01, Leak/Wipe Test Analysis Operations using a liquid scintillation counter calibrated with NIST traceable sources. Supporting documentation relative to NIST traceability is on file and is available for examination upon audit or request. The combined expanded measurement uncertainty for Iron-55 has not been officially determined. This applies only to the samples analyzed and cannot be used to infer future results of similar samples.

Environmental conditions in the laboratory at the time of measurement were within acceptable ranges: 22 +/- 3 degrees C, 35-70% relative humidity.

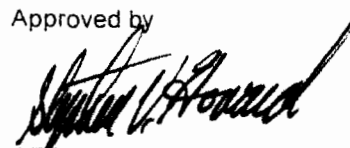
These analyses are accredited to ISO/IEC 17025:2005 by the American Association for Laboratory Accreditation (A2LA Certificate No. 1256.01) and fully comply with the provisions of ANSI/NCSL Z540-1:1994. In addition, the quality system of the Army Primary Standards Laboratory is registered to ISO 9001:2008. This report shall not be reproduced except in full without written permission of the Radiation Standards Laboratory.

Analysis Performed by



CARLA J. WHITE
Engineering Technician,
Nuclear Counting

Approved by



STEPHEN V. HOWARD, CHP
Chief, US Army Radiation
Standards Laboratory



The following isotopes are A2LA accredited:

Am-241, Sr-90 / Y-90, Cs-137, Co-60, H-3, Ni-63

Report Date 11 Dec 2013

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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

Safety and Environmental
Management Office

20 NOV 2013

MEMORANDUM:

To: Chief, USAMC, ATTN: AMSAM-TMD-SR (Nuclear Counting), BLDG 5417, Redstone Arsenal, AL 35898-5000

Subject: Request for Wipe Test analysis for NRC Lic No. 28-07946-08 Closeout Survey

1. Request that the enclosed 32 samples be analyzed for Cesium 137 and Carbon 14. The wipe tests were performed by Colin O'Connor on 20 NOV 2013 as part of a close-out survey for NRC Lic No. 28-07946-08.
2. Results should be emailed to colin.f.oconnor@us.army.mil and mailing address above if needed. If there are any questions please give me a call 603-646-4860.
3. Point of Contact is the undersigned.

Colin O'Connor
Safety Specialist
Safety and Environmental Management Office

NOV 26 2013	
13338012	
32	
TO	BU

Sample No.	Description	Isotope	Date Sampled
1	Room 181 Experiment Area	Cs 137, C 14	11/20/2013
2	Room 181 Experiment Area	Cs 137, C 14	11/20/2013
3	Room 181 Sink	Cs 137, C 14	11/20/2013
4	Room 181 Hood	Cs 137, C 14	11/20/2013
5	Room 181 Hood	Cs 137, C 14	11/20/2013
6	Room 181 Door	Cs 137, C 14	11/20/2013
7	Room 181 Sink	Cs 137, C 14	11/20/2013
8	Room 186 Hood	Cs 137, C 14	11/20/2013
9	Room 186 Sink	Cs 137, C 14	11/20/2013
10	Room 186 Counter	Cs 137, C 14	11/20/2013
11	Room 186 Counter	Cs 137, C 14	11/20/2013
12	Room 186 Counter	Cs 137, C 14	11/20/2013
13	Room 186 Desk	Cs 137, C 14	11/20/2013
14	Room 186 Desk	Cs 137, C 14	11/20/2013
15	Room 186 Desk	Cs 137, C 14	11/20/2013
16	Room 186 Door	Cs 137, C 14	11/20/2013
17	Room 178 Disposal Sink	Cs 137, C 14	11/20/2013
18	Room 178 Fridge	Cs 137, C 14	11/20/2013
19	Room 178 Hood	Cs 137, C 14	11/20/2013
20	Room 178 Sink	Cs 137, C 14	11/20/2013
21	Room 178 Door	Cs 137, C 14	11/20/2013
22	Room 178 Door	Cs 137, C 14	11/20/2013
23	Room 178 Counter	Cs 137, C 14	11/20/2013
24	Room 140 Former LSC Site	Cs 137, C 14	11/20/2013
25	Room 140 Sink	Cs 137, C 14	11/20/2013
26	Room 140 Counter	Cs 137, C 14	11/20/2013
27	Room 140 Door	Cs 137, C 14	11/20/2013
28	Room 140 Door	Cs 137, C 14	11/20/2013
29	Room 48 Former Hood Site	Cs 137, C 14	11/20/2013
30	Room 48 Door	Cs 137, C 14	11/20/2013
31	Room 48 Door	Cs 137, C 14	11/20/2013
BLANK	FIELD BLANK	Cs 137, C 14	11/20/2013

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

11/24/14, and to inform you that the initial processing which includes an administrative review has been performed.

☒ **Termination (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** 583130.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.