



MannKind Corporation

One Casper Street
Danbury, CT 06810
Main: 203-798-8000
Fax: 203-798-7740
www.mannkindcorp.com

April 5, 2011

Licensing Assistant Section c/o Control #574639
Nuclear Materials Safety Branch
Nuclear Regulatory Commission, Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

MS 16
J-6

03035937

RECEIVED
REGION 1
2011 APR - 9 AM 11:13

Re: Request for Additional Information - Termination of Mannkind Corp. License 06-30720-01

Dear Mr. Lawyer,

I am responding to your March 23, 2011 "Request for Additional Information" letter addressing Mannkind Corp. request to terminate our radioactive materials license.

Please note my responses to you inquiries below;

1. Enclosed please find NRC Form 314 signed by Juergen A. Martens Ph.D. , Vice President Technical Operations and Chief Technical Officer indicating he has reviewed the termination application package along with supporting documentation and that he concurs with the statements and representations therein;
2. As requested please find enclosed a copy of the December 21, 2004 Release Survey and supporting documents for the Original Radioactive Waste Storage Area, as you will note no contamination was found;
3. Also, enclosed please find the MKC package receipt records and waste disposal manifest for 2.0 mCi of solidified tritium through Radiac Inc. of NY and then provided to Duratek for ultimate disposal by burial at the Envirocare Low Level Radioactive Waste disposal site in Clive, Utah;
 - a. At no time did Mannkind Corp. dispose of any tritium via sanitary sewer system or incineration. Additionally this was the only disposal method for the 2.0 mCi of tritium we used. No scintillation cocktail liquid or animal carcasses waste was generated at our site;
 - b. Please note there is no history of any radioactive contamination in any of the authorized areas at our site and per our conversation the NRC has historical Financial Assurance documentation to support our request for license termination.

Please do not hesitate to contact me (203-796-3556) if you have any questions or need any additional information.

Thank you in advance for your time.

Regards,

John B. Grimardi, MS, CHMM
Associate Director Environmental Health and Safety
MannKind Corporation

574639
NMSS/RGN1 MATERIALS-002

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.

CERTIFICATE OF DISPOSITION OF MATERIALS

LICENSEE NAME AND ADDRESS

Mannkind Corporation
1 Casper Street
Danbury, Ct 06810

LICENSE NUMBER

06-30720-01

DOCKET NUMBER

03035937

LICENSE EXPIRATION DATE

03/31/2012

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:
Decay in Storage of I 125 waste - please see attached decay in storage dates, records and survey at time of disposal.
 - 2. By licensed disposal site:
 - 3. By waste contractor:
Radiac Research Corporation - please see attached disposal manifests.
261 Kent Avenue
Brooklyn, NY 11211
 - 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 John B. Grimardi	TITLE Associate Director EHS	TELEPHONE (Include Area Code) 203-796-3556	E-MAIL ADDRESS jgrimardi@mannkindcorp.com
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Mail all future correspondence regarding this license to:
1 Casper Street, Danbury, CT 06810

C. CERTIFYING OFFICIAL

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

PRINTED NAME AND TITLE

Juergen A. Martens, VP Technical Operations and CTO

SIGNATURE

DATE

4/15/2011

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.



MannKind BioPharmaceuticals

A Division of MannKind Corporation

One Casper Street
Danbury, CT 06810
Main: 203-798-8000
Fax: 203-798-7740
www.mannkindcorp.com

December 29, 2004

Mr. Sattar Lodhi
Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Subject: Reconfiguration of Waste Storage Room

Dear Mr. Lodhi,

Per our conversation on September 21, 2004, I am submitting this letter to detail the reconfiguration of MannKind Corporation's (MKC) Danbury, CT facility's radioactive waste room.

MKC is presently not using radioactive materials nor do we have any material on site except for a small amount of decay in storage waste which will be ready for disposal in January 2005.


With the goal of making more efficient use of space at our facility we have reconfigured our waste room. MKC has completed the construction of a wall with a locking door creating an ancillary room within the original waste room. Please see the attached room diagram showing the placement of the new wall.

Once this construction was completed the waste was moved from its original location to this new area for storage. All appropriate safety signage has been posted for this new room and a complete survey of the original waste area was conducted to ensure there was no residual contamination present. The survey entailed both direct reading measurements and detailed swipes analyzed by liquid scintillation counting. The area was found to be free of any contamination.

The old storage area has been removed from our Monthly Survey Program and the new waste storage room has been added to the program.

If you have any questions, please do not hesitate to contact me at 203-796-3556.

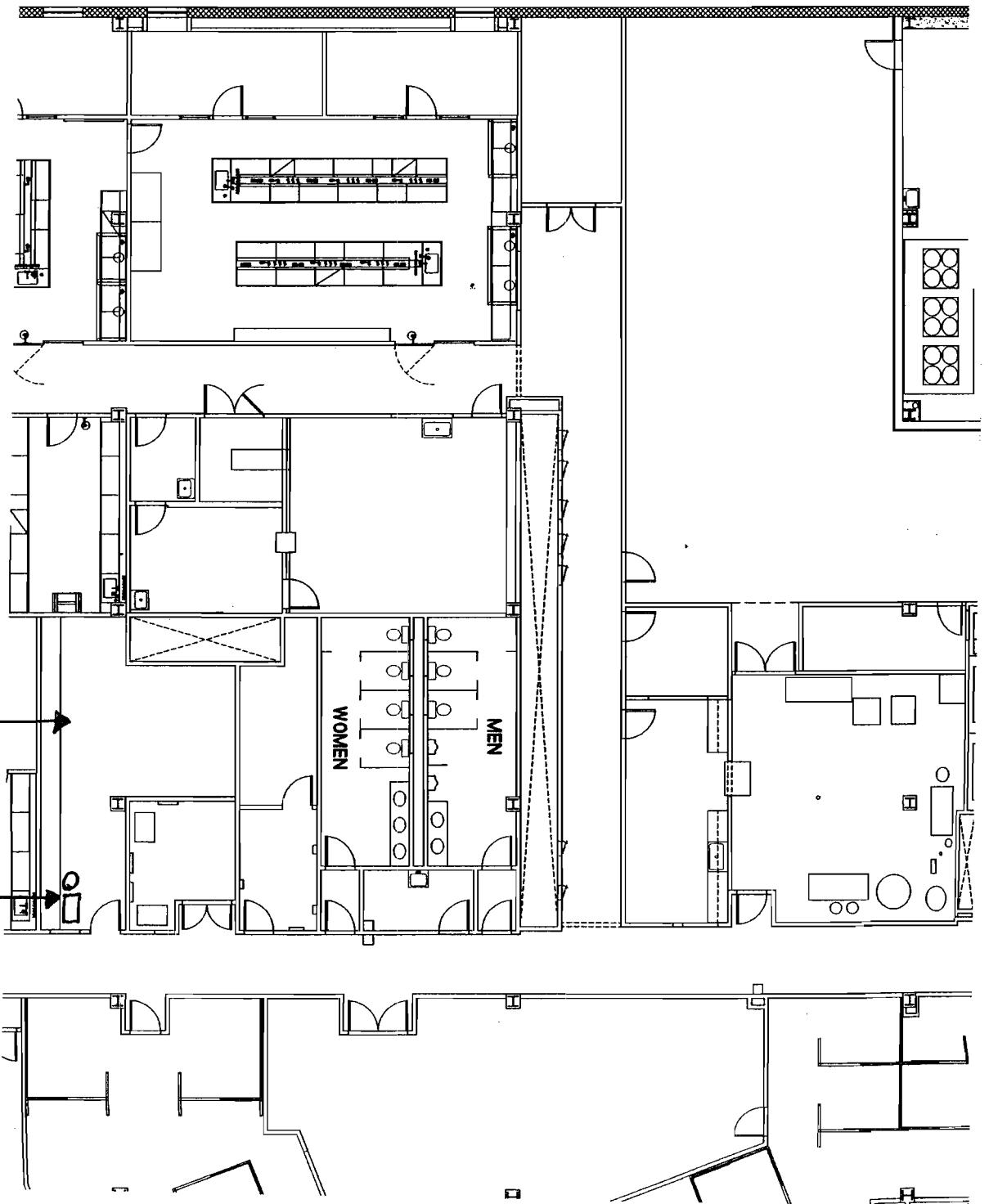
Regards,


John B. Grimardi
Manager, Environmental Health and Safety
Enclosure (1)

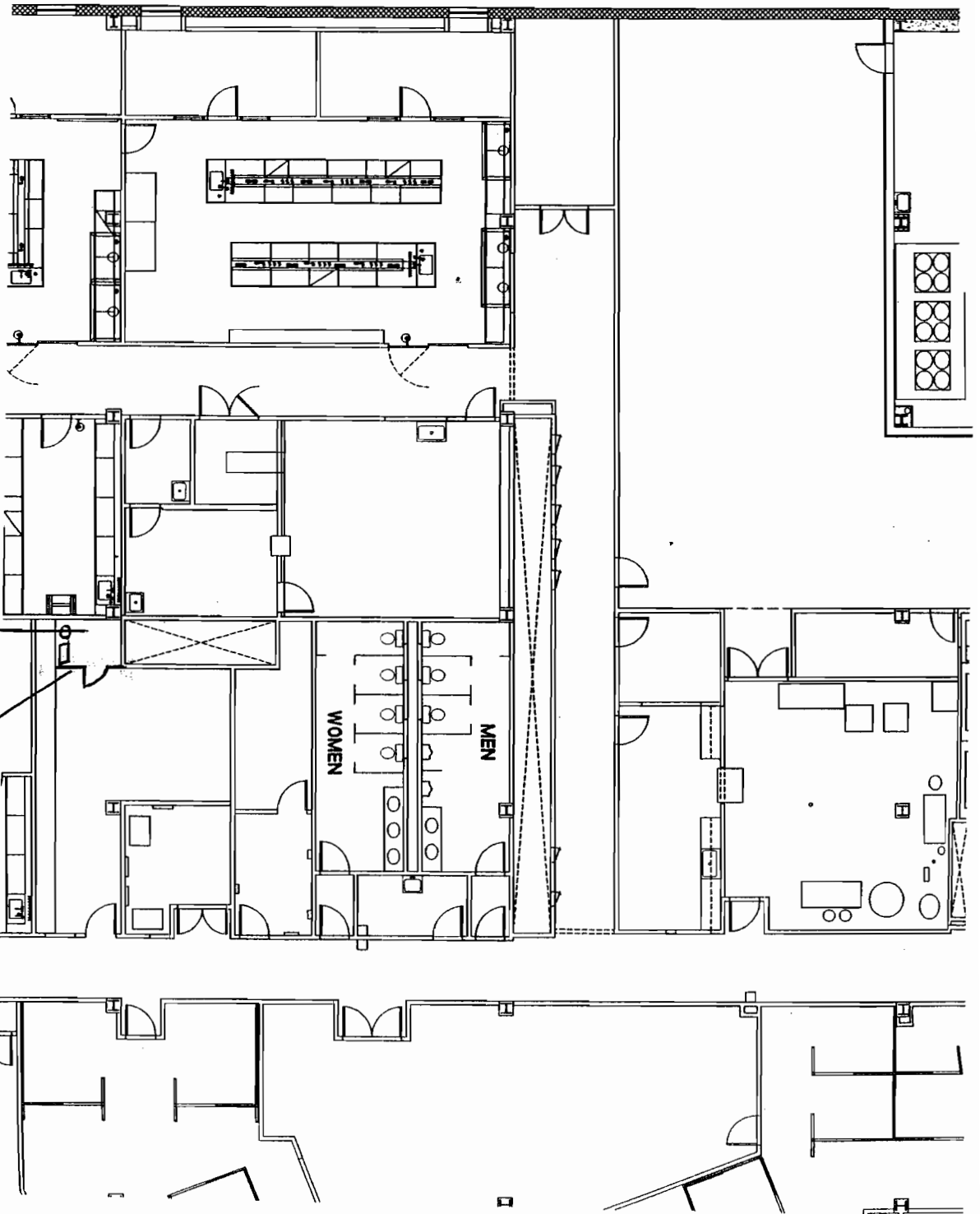
Original Waste Room Configuration

Waste
Storage
Room

Waste
Containers



*New Waste Room Configuration
Addition of one wall with Locking door*



New Waste Room

*New Wall
with locking door*



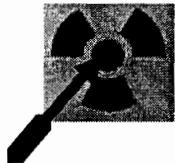
**Antkowiak and Mahoney
Enterprises, Inc.**

**Release Survey
for
MannKind Corp.
Danbury, CT**

Radioactive Waste Storage Area

December 2004

Prepared by



**Antkowiak and Mahoney
Enterprises, Inc.**

3 Valley Court
Chester, NY 10918
845 406-1917



**Antkowiak and Mahoney
Enterprises, Inc.**

**Release Survey
for
MannKind Corp.
Danbury, CT**

Radioactive Waste Storage Area

December 2004

Survey Date: December 21, 2004

Survey performed by:

Joel Antkowiak

Report prepared by:

Robert Mahoney

Joel Antkowiak
Digitally signed by Joel Antkowiak
DN: CN = Joel Antkowiak, C = US
Date: 2004.12.30 14:26:54 -0500

Reviewed and Approved by: _____ Date: _____



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Approval	
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I. Introduction

This report has been prepared by Antkowiak & Mahoney Enterprises, Inc. for MannKind Corp. to summarize the results of the monthly radiation safety surveys performed in the radioactive materials use areas at the facility in Danbury, Connecticut. The purpose of the survey was to identify and define the extent of fixed and removable radioactive contamination in the former radioactive waste room so that any contamination could be cleaned and the area released for unrestricted use.

The survey was performed on December 21, 2004 by Joel Antkowiak.

II. Survey Instrumentation

Table 2-1 provides a description of the instrumentation used to perform the routine monthly surveys.

Instrument	Use	Serial Number	Calibration Date
Ludlum Model 12 W/Model 43-68 probe	Direct measurements for beta and gamma radiation.	195030 PR 178541	07/21/04
Beckman Model 5000TD Liquid Scintillation Analyzer	Liquid scintillation counting of samples for removable radioactive contamination	7040372	At time of use.

All meters and instrumentation used for this survey have been calibrated within the past twelve months to standards traceable to the National Institute of Standards and Testing (NIST). The hand held meters response to a dedicated check source was verified prior to use. The liquid scintillation counter was calibrated prior to use by running the manufacturer's calibration protocol, allowing the machine to adjust the gain.

Minimum Detectable Activity Calculations

Equation

$$MDA = \frac{2.71 + 4.65\sqrt{Br \times t}}{t \times E \times A/100}$$

where:

- MDA = activity in dpm/100 cm²
- Br = background rate in counts per minute
- t = counting time in minutes
- E = detector efficiency in counts per disintegration (4π)
- A = probe area or area wiped in cm²



II. Survey Instrumentation (cont)

Table 2-2 provides the lower limits of detection for the instrumentation used to perform the surveys. The MDA for the Ludlum survey meter uses a background count rate of 600 cpm and an efficiency of 7.1 % for carbon-14.

Instrument	Serial Number	Minimum Detectable Activity
Ludlum Model 12 W/Model 43-68 probe	195030 PR178541	1,281 dpm/100 cm ²
Beckman Model 5000TD Liquid Scintillation Analyzer	7040372	Channel 1: 102 dpm/sample Channel 2: 46 dpm/sample Channel 3: 33 dpm/sample

III. Survey Methodology

Wipe samples were obtained by wiping at least 100 cm² with a 4.25 cm diameter, dry filter paper. The samples were placed directly into plastic 7 milliliter vials in an LSC rack labeled with a unique identification number. Upon returning to the AME laboratory, 5 milliliters of an ecologically safe liquid scintillation cocktail were added to each vial. The vial was then capped, shaken, and returned to the rack. All vials were allowed to sit for at least 15 minutes before counting was initiated so that any chemical reactions that may occur will progress to completion. Wipes exhibiting activity above the MDA were recounted for five minutes and the results reported herein as the best estimate of removable radioactivity.

Locations of the wipe samples are indicated on the room diagrams contained in this report. Analytical results are presented with each diagram. Results are reported as less than the Minimum Detectable Activity (MDA) of the instruments where appropriate. The method used to calculate these values is included in the report.

The results of the liquid scintillation analyses are presented by channel number. Channel 1 is set for optimum tritium efficiency (0-19 kev); channel 2 is set for optimum carbon-14 efficiency (19-156 kev) and channel 3 is set for all other higher energy beta emitters (156-1000 kev).

Benchtops, sinks, equipment, and hood sashes were scanned with a 100 cm² gas proportional detector using the audio output to identify areas of elevated radioactivity. Contaminated areas are identified as areas greater than twice background. Each contaminated area is identified on the corresponding room diagram along with the results of an integral measurement. The reported results have been corrected for background, and are based on the meters' efficiency to Carbon-14.



IV. Summary of Survey Results

The following summary includes all removable and fixed contamination found to be greater than the MDA.

Removable Activity

Room	Wipe #	Channel 1 (dpm/100 cm ²)	Channel 2 (dpm/100 cm ²)	Channel 3 (dpm/100 cm ²)
None	N/A	N/A	N/A	N/A

Direct Activity

Room	Location	(cpm/100 cm ²)
None	N/A	N/A

No residual radioactive contamination was found in the low level radioactive waste area of the hazardous waste storage room.



**Antkowiak and Mahoney
Enterprises, Inc.**

V. List of Rooms Surveyed

Radioactive Waste Area



**Antkowiak and Mahoney
Enterprises, Inc.**

Appendix

Diagrams of Areas Surveyed and Smear Results



PHARMACEUTICAL DISCOVERY CORPORATION

RADIOACTIVE MATERIAL INVENTORY AND UTILIZATION LOG

D007

Date Received: 10/31/02 P.O. Number: 005136 Vendor: Perkin Elmer
Isotope: 3H Initial Activity: 1.0 mCi uCi Description / Catalog Number: estradiol / NET317 Number Of Vials: 1

Table with columns: Date Used, Amount (Activity) In Inventory, Amount (Activity) Used, Amount (Activity) Remaining, Location Material Was Used, Final Disposal Method (Sanitary Sewer, Decay In Storage, RADIAL NDL Waste Drum), Work Area Surveyed For Contamination?, Any Problems?, Lab Technician. Includes handwritten entries for dates 10/31/02 and 03-16-04.



DELIVER TO:

ORDER NUMBER: 04-3361624
 CUSTOMER P.O. NUMBER: [blank]
 SHIP TERMS: [blank] VIA: [blank] PAID COL: [blank]
 SHIPPING POINT: [blank]

OLD TO:

GENERAL OPERATIONAL INSTRUCTIONS
 [faded text]

NO. 04-3361624

CUSTOMER NUMBER	SHIPMENT		TECH REP	CSR	LICENSE NUMBER	INSPECTOR	PKG
	COMPLETE	PARTIAL					
ENTRY DATE	SCHEDULED DATE	SHIPPING DATE	AR NUMBER	TAX LOCATION	TAX CLASS	REN	SALES CLASS

LINE NO.	QUANTITY ORDERED	QUANTITY SHIPPED	PART NUMBER	DESCRIPTION	PACKAGE SIZE	LOT/SERIAL NUMBER
1	3	3	NET337	ESD14AD10 (1254.6.7-301100)-	001601	37MB0

Received 10/31/02
 [Signature]

D007



PHARMACEUTICAL DISCOVERY CORPORATION

RADIOACTIVE MATERIAL INVENTORY AND UTILIZATION LOG

D006

Date Received: 10/31/02 P.O. Number: 005136 Vendor: Perkin Elmer
Isotope: 3H Initial Activity: 1.0 mCi uCi Description / Catalog Number: Mannitol / NET101 Number Of Vials: 1

Table with columns: Date Used, Amount (Activity) In Inventory, Amount (Activity) Used, Amount (Activity) Remaining, Location Material Was Used, Final Disposal Method (Sanitary Sewer, Decay In Storage, RADIA NDL Waste Drum), Work Area Surveyed For Contamination?, Any Problems?, Lab Technician.



DELIVER TO: [Faded address information]
 ATTN: [Faded name]

ORDER NUMBER [Faded]
 CUSTOMER P.O. NUMBER [Faded]
 SHIP TERMS [Faded] VIA [Faded] PAID CC [Faded]
 SHIPPING POINT [Faded]

OLD TO:

IS NO. 04-3361624

CUSTOMER NUMBER	SHIPMENT		TECH REP	CSR	LICENSE NUMBER	INSPECTOR	PKC
	COMPLETE	PARTIAL					
[Faded]	[Faded]	[Faded]	[Faded]	[Faded]	[Faded]	[Faded]	[Faded]
ENTRY DATE	SCHEDULED DATE	SHIPPING DATE	AR NUMBER	TAX LOCATION	TAX CLASS	REN	SALES CLASS
[Faded]	[Faded]	[Faded]	[Faded]	[Faded]	[Faded]	[Faded]	[Faded]

LINE NO.	QUANTITY ORDERED	QUANTITY SHIPPED	PART NUMBER	DESCRIPTION	PACKAGE SIZE	LOT/SERIAL NUMBER
[Faded]	[Faded]	[Faded]	[Faded]	[Faded]	[Faded]	[Faded]
<div style="border: 1px solid black; border-radius: 50%; padding: 20px; display: inline-block;"> <p>Received 10/31/02 <i>[Signature]</i></p> </div>						<p><u>D006</u></p>

ANY QUESTIONS REGARDING THIS ORDER CALL 800-841-3000

Radiac

FORM 540 UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER		RADIAC RESEARCH CORP. 5. SHIPPER - NAME AND FACILITY MANNKIND BIO PHARMACEUTICAL 1 CASPER STREET DANBURY, CT 06810		SHIPMENT I.D. NUMBER NA		7. FORM 540 AND 540A PAGE 1 OF 1 PAGE(S) FORM 541 AND 541A 1 PAGE(S) FORM 542 AND 542A None PAGE(S) ADDITIONAL INFORMATION None PAGE(S)		8. MANIFEST NUMBER (Use this number on all continuation pages) 76087	
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) (800) 424-9300		Permit #: NA SHIPMENT NUMBER NA		GENERATOR TYPE (Specify) M		9. CONSIGNEE - Name and Facility Address RADIAC RESEARCH CORP. 261 KENT AVENUE BROOKLYN, NY 11211		CONTACT JOSEPH SPEKTOR TELEPHONE NUMBER (Include Area Code) 718 963 - 2233 x 205	
ORGANIZATION CHEMTREC		CONTACT RODRIGO LAUREANO		TELEPHONE NUMBER (Include Area Code) 203-796-3482		SIGNATURE: <i>[Signature]</i>		DATE: 3/18/04	
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST 1		6. CARRIER - Name and Address RADIAC RESEARCH CORP. 261 KENT AVE. BROOKLYN, NY 11211 Truck #: Trailer #:		EPA I.D. NUMBER NYD049178296		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 NA		CONTACT ARTHUR GREEN		TELEPHONE NUMBER (Include Area Code) 718 963 - 2233		AUTHORIZED SIGNATURE <i>[Signature]</i>	
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, UN2910		NA		NA		Solid Asbestos Solidified Liquid		H-3	
16. TOTAL PACKAGE ACTIVITY mCi		17. LSA/SCO CLASS		18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE			
7.4000E+01		2.0000E+00		NA		20. LBS; 5. GAL		76087-01	
FOR CONSIGNEE USE ONLY				20. Certification is hereby made to Radiac Reseach Corp., that this shipment of low - level radioactive waste is accurately described in the above manifest. The waste described above has been prepared in accordance with current "RADIAC Acceptance Criteria", federal and state regulations, including those of the NRC, DOT, EPA and applicable agreement state agencies. Unless specifically included or excluded in writing, the shipper authorizes RADIAC to select the "best authorized treatment and / or disposal method". Date: 3/16/04 Signature: <i>[Signature]</i> Telephone: 203-798-8000					

FORM 541 RADIAC RESEARCH CORP. 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 76087				
	NUMBER OF PACKAGES/ DISPOSAL CONTAINERS		NET WASTE VOLUME		NET WASTE WEIGHT		SPECIAL NUCLEAR MATERIAL (grams)					
							U-233	U-235	Pu	TOTAL		
	1		m3 0.0189		kg 9.0718		NP	NP	NP	NP		
			lb 0.6684		20.0000							
							ACTIVITY					
		ALL NUCLIDES		TRITIUM		C-14	Tc-99	I-129		SOURCE		
		MBq		7.4000E+01		7.4000E+01		NP	NP	NP	(kgs) NA	
		mCi		2.0000E+00		2.0000E+00		NP	NP	NP	(lbs) NA	
									SHIPMENT ID NUMBER NA			

DISPOSAL CONTAINER DESCRIPTION				WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER										18. WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C	
5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER	6. CONTAINER DESCRIPTION (See Note 1) PROCESS REQUESTED (See Note 1A) BURIAL/DISPOSITION (See Note 2A)	7. VOLUME (m3) (l3)	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)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION			
					ALPHA	BETA-GAMMA				CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT F>0.1%	INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL, OR TOTAL ACTIVITY AND RADIONUCLIDE PERCENT			RADIONUCLIDES
76087-01/MBP <i>E</i>		0.0189	9.0718	<5.0000E-03	<3.3400E-06	<3.3400E-06	59-SOLIDIFIED LIQUID IN 'PLASTIC BOTTLE'	0.0189	100	NP <i>Solidified liquid</i>	NP	H-3	7.4000E+01	2.0000E+00	AU
		0.8884	20.0000	<5.000E-01	<2.000E+02	<2.000E+03		0.8684				Subtotal	7.4000E+01	2.0000E+00	
Shipment Totals		0.0189	9.0718										7.4000E+01	2.0000E+00	
		0.6684	20.0000												

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	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 1A: Process Requested

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

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 2A: Burial/Disposition Site

B. Bamwell Waste Management Facility
E. Envirocare
R. Richland, WA
PR. Process and Return
O. Other

Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume. For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S" and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED.)

Solidification	
90. Cement	94. Vinyl Ester Styrene
91. Concrete	99. Other. Describe in Item 13, or additional page
92. Bitumen (encapsulation)	
93. Vinyl Chloride	100. None Required.

Monday, April 19, 2004

Arthur F. Green
Radiac Research Corp.
261 Kent Avenue
Brooklyn, NY 11211

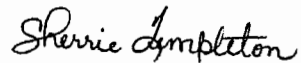
Dear Mr. Green:

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

<u>Manifest Number</u>	<u>Date Received</u>
1735-04-DRTK-1	04/19/2004

Thank you for your business.

Sincerely,



Shipping and Receiving

cc: Manifest File
Shipping and Receiving file

FORM 540A

**UNIFORM LOW-LEVEL RADIOACTIVE
WASTE MANIFEST
SHIPPING PAPER (CONTINUATION)**

Duratek, Inc. - Commercial Processing

8. MANIFEST NUMBER
(Use this number on all continuation pages)
04-DRTK-1

PAGE 9 OF 15 PAGE(S)

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY MBq mCi		17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, excepted package-articles, 7, UN2910 / COMPACTIBLE TRASH	NA	NA	Solid WATCH PARTS	H-3	9.0650E+03	(2.4500E+02)	NA	16. LBS; 0.68 FT3	76081-1
Radioactive material, excepted package-articles, 7, UN2910 / COMPACTIBLE TRASH	NA	NA	Solid WATCH PARTS	H-3	9.0650E+03	(2.4500E+02)	NA	15. LBS; 0.68 FT3	76081-2
Radioactive material, excepted package-limited quantity of material, 7, UN2910 / PLASTIC JAR WITH SOLIDIFIED LIQUID	NA	NA	Solid SOLIDIFIED LIQUID	C-14 Co-60	9.3240E+00	(2.5200E-01)	NA	7. LBS; 0.68 FT3	76085A-01
Radioactive material, excepted package-limited quantity of material, 7, UN2910 / PLASTIC JAR WITH SOLIDIFIED LIQUID	NA	NA	Solid SOLIDIFIED LIQUID	H-3	7.4000E+01	(2.0000E+00)	NA	7. LBS; 0.68 FT3	76087-01
Radioactive material, excepted package-limited quantity of material, 7, UN2910 / COMPACTIBLE TRASH	NA	NA	Solid PAPER PLASTIC GLASS	C-14 H-3 I-125 P-32	1.4553E+02	(3.9333E+00)	NA	103. LBS; 7.5 FT3	76088-01
Radioactive material, low specific activity, n.o.s., 7, UN2912 / COMPACTIBLE TRASH	NA	NA	Solid Thorium Fluoride	Th-232	1.4800E+01	(4.0000E-01)	LSA-II	216. LBS; 7.5 FT3	76089-01
Radioactive material, low specific activity, n.o.s., 7, UN2912 / COMPACTIBLE TRASH	NA	NA	Solid SOLIDIFIED Thorium Fluoride	Th-232	1.1100E+01	(3.0000E-01)	LSA-II	466. LBS; 7.5 FT3	76089-02
Radioactive material, low specific activity, n.o.s., 7, UN2912 / COMPACTIBLE TRASH	NA	NA	Solid Thorium Fluoride	Th-232	4.0700E+01	(1.1000E+00)	LSA-II	190. LBS; 11.3 FT3	76089-03
Radioactive material, low specific activity, n.o.s., 7, UN2912 / COMPACTIBLE TRASH	NA	NA	Solid Thorium Fluoride	Th-232	4.4400E+00	(1.2000E-01)	LSA-II	157. LBS; 7.5 FT3	76089-04
Radioactive material, low specific activity, n.o.s., 7, UN2912 / COMPACTIBLE TRASH	NA	NA	Solid Thorium Fluoride	Th-232	2.7750E+00	(7.5000E-02)	LSA-II	90. LBS; 7.5 FT3	76089-05
Radioactive material, low specific activity, n.o.s., 7, UN2912 / COMPACTIBLE TRASH	NA	NA	Solid Thorium Fluoride	Th-232	6.6600E+01	(1.8000E+00)	LSA-II	144. LBS; 7.5 FT3	76089-06
Radioactive material, low specific activity, n.o.s., 7, UN2912 / COMPACTIBLE TRASH	NA	NA	Solid Thorium Fluoride	Th-232	2.2200E+01	(6.0000E-01)	LSA-II	111. LBS; 7.5 FT3	76089-07
Radioactive material, low specific activity, n.o.s., 7, UN2912 / COMPACTIBLE TRASH	NA	NA	Solid Thorium Fluoride	Th-232	2.2200E+00	(6.0000E-02)	LSA-II	161. LBS; 7.5 FT3	76089-08

FORM 540A (10-96)

**UNIFORM LOW-LEVEL RADIOACTIVE
WASTE MANIFEST
CONTAINER AND WASTE DESCRIPTION (CONTINUATION)**

Duratek, Inc. - Commercial Processing

2. MANIFEST NUMBER
04-DRTK-1

3. PAGE **7** OF **26** PAGE(S)

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/GENERATOR ID NUMBER	6. CONTAINER DESCRIPTION (See Note 1) PROCESS REQUESTED (See Note 1A) BURIAL/DISPOSITION (See Note 2A)	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/100cm2)		11. PHYSICAL DESCRIPTION		12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION		15. RADIOLOGICAL DESCRIPTION			
					ALPHA	BETA-GAMMA	WASTE DESCRIPTOR (See Note 2)	WEIGHT % CHELATING AGENT IF > 0.1%			INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL, OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT					
											RADIONUCLIDES	MBq	mCi			
76080-134872/SUNY-ST BROOK NY	4 C E	0.2124	51.7095	<5.0000E-03	<3.3400E-06	<3.3400E-05	39		0.2124	100	PAPER PLASTIC GLASSNP	NP	H-3	2.1460E+01	5.8000E-01	AU
		7.5000	114.0000	<5.0000E-01	<2.0000E+02	<2.0000E+03							Subtotal	2.1460E+01	5.8000E-01	
76080-141730/SUNY-ST BROOK NY	4 C E	0.2124	53.0703	<5.0000E-03	<3.3400E-06	<3.3400E-05	39		0.2124	100	PAPER PLASTIC GLASSNP	NP	H-3	3.1080E+00	8.4000E-02	AU
		7.5000	117.0000	<5.0000E-01	<2.0000E+02	<2.0000E+03							Subtotal	3.1080E+00	8.4000E-02	
76081-1/RW NY	3 C E	0.0193	7.2575	<5.0000E-03	<3.3400E-06	<3.3400E-05	39		0.0193	100	WATCH PARTSNP	NP	H-3	9.0650E+03	2.4500E+02	AU
		0.6800	16.0000	<5.0000E-01	<2.0000E+02	<2.0000E+03							Subtotal	9.0650E+03	2.4500E+02	
76081-2/RW NY	3 C E	0.0193	6.8039	<5.0000E-03	<3.3400E-06	<3.3400E-05	39		0.0193	100	WATCH PARTSNP	NP	H-3	9.0650E+03	2.4500E+02	AU
		0.6800	15.0000	<5.0000E-01	<2.0000E+02	<2.0000E+03							Subtotal	9.0650E+03	2.4500E+02	
76085A-01/NYCBOE WBHS NY	3 C E	0.0193	3.1751	<5.0000E-03	<3.3400E-06	<3.3400E-05	59-SOLIDIFIED LIQUID IN 'PLASTIC JUG'		0.0193	100	SOLIDIFIED LIQUIDNP	NP	C-14	9.2500E+00	2.5000E-01	AU
		0.6800	7.0000	<5.0000E-01	<2.0000E+02	<2.0000E+03							Co-60	7.4000E-02	2.0000E-03	
76087-01/MBP@D CT	3 C E	0.0193	3.1751	<5.0000E-03	<3.3400E-06	<3.3400E-05	59-SOLIDIFIED LIQUID IN 'PLASTIC JUG'		0.0193	100	SOLIDIFIED LIQUIDNP	NP	H-3	7.4000E+01	2.0000E+00	AU
		0.6800	7.0000	<5.0000E-01	<2.0000E+02	<2.0000E+03							Subtotal	7.4000E+01	2.0000E+00	
76088-01/VA-NYC NY	4 C E	0.2124	46.7200	<5.0000E-03	<3.3400E-06	<3.3400E-05										AU
		7.5000	103.0000	<5.0000E-01	<2.0000E+02	<2.0000E+03										
VA-NYC NY							39		0.2115	100	PAPER PLASTIC GLASSNP	NP	C-14	8.4268E+00	2.2775E-01	
									7.4700				H-3	5.3669E+01	1.4505E+00	
													I-125	1.8500E-01	5.0000E-03	
													P-32	7.4000E+01	2.0000E+00	
													Subtotal	1.3628E+02	3.6833E+00	

Customer #: 1735
Radiac Research Corp./Brooklyn, NY
261 Kent Avenue
Brooklyn, NY 11211
Contact: Arthur F. Green

For Shipments between 01/01/2004 and 12/31/2004

Manifest Number	Date Received	Generator Name	Shipment Number	Date Shipped	Manifest Line Item	Volume Returned/Buried (cu. ft.)	Reported Activity Returned/Buried (mCi.)	Adjusted Activity Returned/Buried(mCi)
1735-04-DRTK-1	04/19/2004	Mankind Biopharmaceutical/Danbury, CT	T042854	07/15/2004	76087-01	1.80000	2.0000	0.0000
						1.80000	2.0000	0.0000