



331 Treble Cove Road
North Billerica, MA 01862

800.362.2668
www.lantheus.com

September 5, 2012

United States Nuclear Regulatory Commission
Region I
ATTN: Raymond Lorson
Director, Division of Nuclear Materials Safety
2100 Renaissance Boulevard
Renaissance Park
King of Prussia, PA 19406

Q5
03038114

REC RGN1 SEP 06 12 AM 11:15

Re: Materials License No. 52-25361-02
Docket No. 030-38114
Control No. ~~144073~~

144276
New

Dear Mr. Lorson:

I am writing in response to your request for additional information concerning the financial assurance instrument for the above-referenced license.

Enclosed are signed and notarized documents establishing updated revised Standby Trust Agreement between Lantheus Medical Imaging, Inc. and Wells Fargo, N.A. This revised agreement reflects the correct NRC license for the Radiopharmacy operations in Puerto Rico.

It is our understanding that the original Standby Trust Agreement dated as of May 18, 2012 is hereby terminated and that, upon receipt of the enclosed agreement, you will return the original agreement to my attention at the following address:

Lantheus Medical Imaging, Inc.
331 Treble Cove Road
North Billerica, Massachusetts 01862
Attn: Francis Roy, Manager EHS

Please contact me at (978) 671-8242 if you require any additional information.

Sincerely,

Francis Roy
Francis (Skip) Roy, M.S.
Manager Environment, Health and Safety

cc: Betsy Ullrich, USNRC Region I, Commercial and R&D Branch, DNMS
Joel Cordero, Associate Director, Lantheus MI Radiopharmaceuticals, Inc.

144276

STANDBY TRUST AGREEMENT

TRUST AGREEMENT, the Agreement entered into as of August 27, 2012 by and between Lantheus MI Radiopharmaceuticals, Inc., a corporation organized under the laws of the Commonwealth of Puerto Rico, herein referred to as the "Grantor," and Wells Fargo Bank, a national banking association with offices located at 45 Broadway, 14th Floor, New York, NY, the "Trustee."

WHEREAS, the U.S. Nuclear Regulatory Commission (NRC), an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, has promulgated regulations in title 10, Chapter I, of the *Code of Federal Regulations, Part 30*. These regulations, applicable to the Grantor, require that a holder of, or an applicant for, a materials license issued pursuant to 10 CFR Part 30 provide assurance that funds will be available when needed for required decommissioning activities.

WHEREAS, the Grantor has elected to use a surety bond to provide all of such financial assurance for the facilities identified herein; and

WHEREAS, when payment is made under a surety bond, this standby trust shall be used for the receipt of such payment; and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee;

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

- (a) The term "Grantor" means the NRC licensee who enters into this Agreement and any successors or assigns of the Grantor.
- (b) The term "Trustee" means the trustee who enters into this Agreement and any successor trustee.

Section 2. Costs of Decommissioning. This Agreement pertains to the costs of decommissioning the materials and activities identified in License Number 52-25361-02 issued pursuant to 10 CFR Part 30, as shown in Schedule A.

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a standby trust fund (the Fund) for the benefit of NRC. The Grantor and the Trustee intend that no third party shall have access to the Fund except as provided herein.

Section 4. Payments Constituting the Fund. Payments made to the Trustee for the Fund shall consist of cash, securities, or other liquid assets acceptable to the Trustee. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the

NONNEGOTIABLE

Trustee are referred to as the "Fund," together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount of, or adequacy of the Fund, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by NRC.

Section 5. Payment for Required Activities Specified in the Plan. The Trustee shall make payments from the Fund to the Grantor upon presentation to the Trustee of the following:

- (a) A certificate duly executed by the Secretary of the Grantor attesting to the occurrence of the events, and in the form set forth in the attached Certificate of Events, and
- (b) A certificate attesting to the following conditions:
 - (1) that decommissioning is proceeding pursuant to an NRC-approved plan;
 - (2) that the funds withdrawn will be expended for activities undertaken pursuant to that plan; and
 - (3) that NRC has been given 30 days prior notice of Lantheus MI Radiopharmaceuticals, Inc.'s intent to withdraw funds from the trust fund.

No withdrawal from the Fund for a particular license can exceed 10 percent of the remaining funds available for that license unless NRC written approval is attached.

In addition, the Trustee shall make payments from the Fund as NRC shall direct, in writing, to provide for the payment of the costs of required activities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by NRC from the Fund for expenditures for required activities in such amounts as NRC shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as NRC specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 6. Trust Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge its duties with respect to the Fund solely in the interest of the beneficiary and with the care, skill, prudence and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims, except that:

- (a) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as

amended (15 U.S.C. 80a-2(a)), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

- (b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal government, and in obligations of the Federal government such as GNMA, FNMA, and FHLM bonds and certificates or State and Municipal bonds rated BBB or higher by Standard & Poor's or Baa or higher by Moody's Investment Services; and
- (c) For a reasonable time, not to exceed 60 days, the Trustee is authorized to hold uninvested cash, awaiting investment or distribution, without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

- (a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and
- (b) To purchase shares in any investment company registered under the Investment Company Act of 1940 (15 U.S.C. 80a-1 et seq.), including one that may be created, managed, underwritten, or to which investment advice is rendered, or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

- (a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale, as necessary to allow duly authorized withdrawals at the joint request of the Grantor and NRC or to reinvest in securities at the direction of the Grantor;
- (b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;
- (c) To register any securities held in the Fund in its own name, or in the name of a nominee, and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, to reinvest interest payments and funds from matured and redeemed instruments, to file proper forms concerning securities held in the Fund in a timely fashion with appropriate government agencies, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee or such depository with other securities deposited therein by another person, or to deposit or

arrange for the deposit of any securities issued by the U.S. Government, or any agency or instrumentality thereof, with a Federal Reserve Bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

- (d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal government; and
- (e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. After payment has been made into this standby trust fund, the Trustee shall annually, at least 30 days before the anniversary date of receipt of payment into the standby trust fund, furnish to the Grantor and to NRC a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days before the anniversary date of the establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and NRC shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to the matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting on the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing with the Grantor. (See Schedule C.)

Section 13. Successor Trustee. Upon 90 days notice to NRC and the Grantor, the Trustee may resign; upon 90 days notice to NRC and the Trustee, the Grantor may replace the Trustee; but such resignation or replacement shall not be effective until the Grantor has appointed a successor Trustee, the successor accepts the appointment, the successor is ready to assume its duties as trustee, and NRC has agreed, in writing, that the successor is an appropriate Federal or State government agency or an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency. The successor Trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. When the resignation or replacement is effective, the Trustee shall assign, transfer, and pay over to the successor Trustee the funds and properties then constituting the Fund. If for any reason the

Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor Trustee or for instructions. The successor Trustee shall specify the date on which it assumes administration of the trust, in a writing sent to the Grantor, NRC, and the present Trustee, by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are signatories to this Agreement or such other designees as the Grantor may designate in writing. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. If NRC issues orders, requests, or instructions to the Trustee these shall be in writing, signed by NRC or its designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or NRC hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or NRC, except as provided for herein.

Section 15. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and NRC, or by the Trustee and NRC if the Grantor ceases to exist. All amendments shall meet the relevant regulatory requirements of NRC.

Section 16. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 15, this trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and NRC, or by the Trustee and NRC if the Grantor ceases to exist. Upon termination of the trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor or its successor.

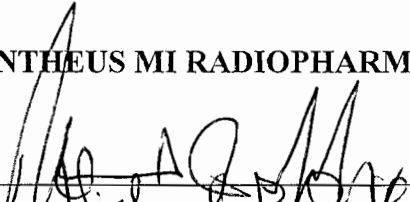
Section 17. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this trust, or in carrying out any directions by the Grantor or NRC issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the trust fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

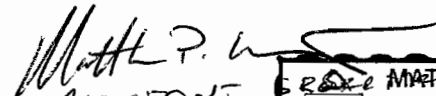
Section 18. Governing Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of Delaware.

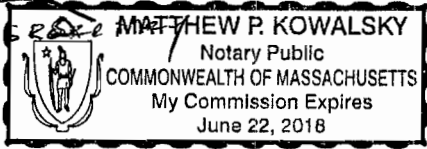
Section 19. Interpretation and Severability. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement. If any part of this Agreement is invalid, it shall not affect the remaining provisions which will remain valid and enforceable.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed by the respective officers duly authorized and the incorporate seals to be hereunto affixed and attested as of the date first written above.


LANTHEUS MI RADIOPHARMACEUTALS, INC., as Grantor

By: 
Name: Michael P. Wolfe
Title: Vice President and Secretary

ATTEST: 
[Title] Assistant



WELLS FARGO BANK, NATIONAL ASSOCIATION, as Trustee

By: 
Name: Martin Reed
Title: Vice President

ATTEST: 
[Title] Martin Reed
[Seal] Vice President

Schedule A

This Agreement demonstrates financial assurance for the following cost estimates or prescribed amounts for the following licensed activities:

U.S. NUCLEAR REGULATORY COMMISSION LICENSE <u>NUMBER(S)</u>	NAME AND ADDRESS OF <u>LICENSEE</u>	ADDRESS OF LICENSED <u>ACTIVITY</u>	COST ESTIMATES FOR REGULATORY ASSURANCES DEMONSTRATED BY <u>THIS AGREEMENT</u>
---	---	---	--

See attached license.

The cost estimates listed here were last adjusted and approved by NRC on March 15, 2010, which is the effective date of the surety bond.

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee

1. Lantheus Medical Imaging

3. License number 52-25361-02

2. 150 Federico Costa - Suite 1
San Juan, Puerto Rico 00918-1303

4. Expiration date November 30, 2019

5. Docket No. 030-38114
Reference No.

6. Byproduct, source, and/or special nuclear material

7. Chemical and/or physical form

8. Maximum amount that licensee may possess at any one time under this license

A. Fluorine 18

A. Any

A. 30 curies

B. Any byproduct material with atomic numbers 1 through 83

B. Incidentally Activated Products

B. 30 millicuries per radionuclide and 1 curie total

C. Manganese 54

C. Incidentally Activated Products

C. 200 millicuries

D. Cobalt 56

D. Incidentally Activated Products

D. 200 millicuries

E. Cobalt 60

E. Incidentally Activated Products

E. 100 millicuries

F. Zinc 65

F. Incidentally Activated Products

F. 100 millicuries

G. Any byproduct material permitted by 10 CFR 35.65(a)

G. Sealed Sources

G. 50 millicuries

9. Authorized use:

A. (1) For production, possession, handling, packaging and distribution of radiochemicals and sealed sources for transfer to persons authorized to receive the licensed material pursuant to the terms and conditions of specific licenses issued by the U.S. Nuclear Regulatory Commission or any Agreement State.

B. through F. For possession and storage only of byproduct materials incidental to radionuclide production.

G. Calibration and checking of the licensee's instruments.

CONDITIONS

10. Licensed material may be used or stored only at the licensee's facilities located at 150 Federico Costa, Suite 1, San Juan, PR.

11. The Radiation Safety Officer for this license is Eduardo Diaz-Montés.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET
CORRECTED COPY**

License Number
52-25361-02

Docket or Reference Number
030-38114

12. Licensed material shall be used by, or under the supervision of, César Blanco.
13. The licensee shall not use licensed material in or on human beings.
14.
 - A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed six months or at the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or under equivalent regulations of an Agreement State.
 - B. In the absence of a certificate from a transferor indicating that a leak test has been made within the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or under equivalent regulations of an Agreement State, prior to the transfer, a sealed source received from another person shall not be put into use until tested and the test results received.
 - C. Sealed sources need not be tested if they are in storage and are not being used; however, when they are removed from storage for use or transferred to another person and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.
 - D. The leak test shall be capable of detecting the presence of 0.005 microcurie (185 becquerels) of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie (185 becquerels) or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(c)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations.
 - E. Tests for leakage and/or contamination, including leak test sample collection and analysis, shall be performed by the licensee or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
15. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
16. The licensee shall conduct a physical inventory every six months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET
CORRECTED COPY**

License Number
52-25361-02

Docket or Reference Number
030-38114

17. Except for maintaining labeling as required by 10 CFR Part 20 or 71, the licensee shall obtain authorization from the U.S. Nuclear Regulatory Commission before making any changes in the sealed source, device, or source-device, combination that would alter the description or specification as indicated in the respective Registration certificates either by the Commission pursuant to 10 CFR 32.210 or by an Agreement State.
18. The licensee is authorized to hold byproduct material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal without regard to its radioactivity if the licensee:
- A. Monitors byproduct material at the surface before disposal and determines that its radioactivity cannot be distinguished from the background radiation level with an appropriate radiation detection survey meter set on its most sensitive scale and with no interposed shielding; and
 - B. Removes or obliterates all radiation labels, except for radiation labels on materials that are within containers and that will be managed as biomedical waste after they have been released from the licensee; and
 - C. Maintains records of the disposal of licensed materials for 3 years. The record must include the date of disposal, the survey instrument used, the background radiation level, the radiation level measured at the surface of each waste container, and the name of the individual who performed the disposal.
19. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

**MATERIALS LICENSE
SUPPLEMENTARY SHEET
CORRECTED COPY**

License Number
52-25361-02

Docket or Reference Number
030-38114

20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

- A. Application dated August 4, 2009 [ML092360240]
B. Letter dated October 20, 2009 [ML093090395]



For the U.S. Nuclear Regulatory Commission

Date May 24, 2010

By

Original signed by Elizabeth Ullrich

Elizabeth Ullrich
Commercial and R&D Branch
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

Monday, May 24, 2010 09:24:14

Schedule B

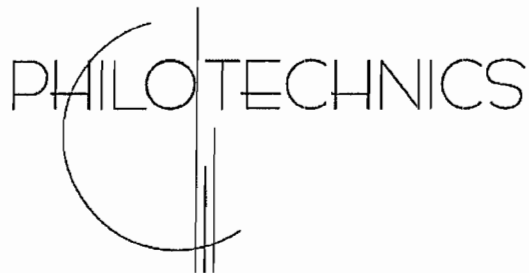
DOLLAR AMOUNT: \$572,604

AS EVIDENCED BY THE ATTACHED DECONTAMINATION AND DECOMMISSIONING
COST ESTIMATE DATED FEBRUARY 2012

**Decontamination and Decommissioning
Cost Estimate
for
Nuclear Pharmacy**

Lantheus Medical Imaging
150 Frederica Costa Street, Suite #1
San Juan, Puerto Rico

Prepared by:



Philotechnics, Ltd.
201 Renovare Boulevard
Oak Ridge, TN 37830

April, 2009

I. Executive Summary

Lantheus Medical Imaging (Lantheus) operates facilities in San Juan, Puerto Rico under the authority of U.S. Nuclear Regulatory Licenses 52-25361-01MD and 52-25361-02. To estimate future decommissioning costs, Lantheus contracted Philotechnics, Ltd. to develop facility decommissioning cost estimates in accordance with the guidance provided in NUREG 1757, "Consolidated NMSS Decommissioning Guidance". The facility consists of a nuclear pharmacy, 11 MeV cyclotron, and preparation and examination rooms.

Philotechnics had developed a detailed cost estimate in 2009. Because the facility configuration and authorized uses of radioactive materials are essentially unchanged since that time, this report describes only the process of updating the cost estimate. As such, this report should be used as an addendum to the detailed report developed in March 2009.

Major cost changes result from changes in labor rates and waste disposal costs.

Cost estimates were developed using conservative assumptions regarding likely extent and duration of remediation activities. Remediation was assumed to proceed to unrestricted release. Cost estimates were prepared in accordance with and in the format of NUREG 1757 "Consolidated NMSS Decommissioning Guidance"¹ Volume 3. Per NUREG 1757 a contingency of 25% is required to be added to decommissioning estimates to address unidentified and unanticipated conditions. The overall estimate for the San Juan facility is:

Estimate	25% Contingency	TOTAL
\$442,778	\$110,694	\$553,472

II. Cost Update Process

Cost estimates for decommissioning activities were based on the methodology contained in the US Nuclear Regulatory Commission's (NRC) NUREG 1757 and 10 CFR 30.35. This methodology was modified and supplemented as necessary to account for realities associated with project field implementation at the San Juan site.

Radioactive Waste Management

Philotechnics provides waste brokerage and decontamination and decommissioning (D&D) services throughout the nation. The estimated costs for packaging, transportation and disposal, as well as labor needs, are realistic

¹ "Consolidated NMSS Decommissioning Guidance", NUREG-1757, US Nuclear Regulatory Commission, September 2006, Washington, DC.

estimates based on experience and contractual arrangements with waste processors and disposal facilities.

Realistic assumptions were made concerning the likely extent and duration of necessary remedial activities. Remediation to unrestricted levels (i.e., the facility could be released for any future use without restrictions) was assumed, meaning there are no long term costs associated with site surveillance and monitoring following decommissioning.

The radioactive materials of concern at this site are primarily long-lived activation products. It is assumed decommissioning activities will begin within a few months after cyclotron operation ceases; short-lived activation products will have decayed to negligible levels. Waste processing activities, including Bulk Survey for Release (BSFR) are assumed to take place in Oak Ridge, Tennessee with final disposal of radioactive waste at US Ecology in Richland, Washington.

Decommissioning Labor Cost

Annual salaries reflect wages published in May 2010 by the U.S. Department of Labor, Bureau of Labor Statistics (BLS). This is the most recent data available. Specifically, the following labor categories and salaries are used:

	Value	Occupation Code, Location
Project Manager	\$59,120	11-9021, Puerto Rico
Shipper	\$30,530	53-1031, Puerto Rico
HP Technician	\$31,940	19-4099, Puerto Rico
Skilled Laborer	\$43,670	47-4041, Puerto Rico
Admin	\$20,610	43-6014, Puerto Rico

Living expenses used in this report reflect the average government per diem rate of \$323 per day for San Juan. Project management, supervision and technical staff are paid the daily living allowance since they are assumed to be from outside the local area. Radiation workers (laborers) and administrative support staff were assumed to be local hires and are not paid a living allowance. The daily living expenses were multiplied by 7 days per week then divided by 5 workdays per week to correctly incorporate living expenses into the daily wage rate.

This decommissioning plan will be evaluated at least every 3 years or more frequently if the amounts or types of material at the facility change, facility conditions or operations change, changes occur in expected decommissioning procedures, or to account for inflation.

3.4 FACILITY DECOMMISSIONING SUMMARY

Radioactive Material license numbers and types (i.e., Byproduct, Source):
U.S. Nuclear Regulatory Licenses 52-25361-01MD and 52-25361-02
Types and quantities of materials authorized under the licenses listed above:
The facility is in operation. Therefore, activation products are present in building materials, cyclotron components – especially in the vicinity of the targets, and on surfaces. Pharmacy areas may be contaminated; however, because any contamination present is F-18 or similar short-lived positron emitting radionuclides, the amount of contaminated material at the time of decommissioning is expected to be minimal
Description of how licensed materials are used:
Fluorine-18 is used for positron emission tomography. All other activation products are waste materials. Radioactive waste is disposed of regularly and does not accumulate more than a few drums.
Description of facility, including buildings, rooms, grounds, and description of where particular types of materials are used:
The facility consists of the Cyclotron room, maintenance area (including cooling system) and the radiochemistry/pharmacy labs. Negative ventilation takes suction from the cyclotron room and discharges on the roof through a high efficiency particulate air (HEPA) filter. Total area of these rooms is approximately 3500 square feet. The cyclotron room contains the RDS Eclipse cyclotron including spent target material, laboratory benches, and accumulated waste. The radiochemistry area contains laboratory benches and three hot cells.
Quantities of materials or waste accumulated before shipping or disposal
A few drums of high-activity, short lived waste are stored for several months (up to a year) to allow decay of (primarily) Co-56 to levels at which it can be safely handled. Additionally, a drum or two of low activity waste typically accumulate before shipping. Waste storage space is limited.

Use this table to summarize relevant features of the facility. Copy and complete the table as necessary for each room, laboratory, or area. Rooms laboratories, or areas with similar levels of contamination may be consolidated into one table.

Name of room, laboratory, or area: Cyclotron Vessel: Yoke and lead shielding			
Level of Contamination: Low; some activated equipment and structures			
Component	Number of Components	Dimensions of Component (specify units)	Total Dimensions (specify units)
Glove Boxes			ft3
Fume Hoods			ft3
Lab Benches			ft3
Sinks			ft3
Drains			ft3
Floors			ft2
Walls			ft2
Ceilings			ft2
Ventilation/Ductwork			ft3
Hot Cells			ft3
Equipment/Materials			22000 lb
Soil Plots			ft2
Storage Tanks			ft3
Storage Areas			ft3
Radwaste Areas			ft3
Scrap Recovery Areas			ft3
Maintenance Shop			ft3
Equipment Decon Areas			ft3
Concrete shields			lb
Concrete floor	5'x5'x2' deep for removal		50 ft3
		Feature/Equipment Mass	22000 lb
		Waste Fraction	1.00
		Waste Mass	22000 lb

Use this table to summarize relevant features of the facility. Copy and complete the table as necessary for each room, laboratory, or area. Rooms laboratories, or areas with similar levels of contamination may be consolidated into one table.

Name of room, laboratory, or area: Cyclotron Concrete shield blocks			
Level of Contamination: Low			
Component	Number of Components	Dimensions of Component (specify units)	Total Dimensions (specify units)
Glove Boxes			ft3
Fume Hoods			ft3
Lab Benches			ft3
Sinks			ft3
Drains			ft3
Floors			ft2
Walls			ft2
Ceilings			ft2
Ventilation/Ductwork			ft3
Hot Cells			ft3
Equipment/Materials			ft3
Soil Plots			ft2
Storage Tanks			ft3
Storage Areas			ft3
Radwaste Areas			ft3
Scrap Recovery Areas			ft3
Maintenance Shop			ft3
Equipment Decon Areas			ft3
Composite shielding			84620 lb
Lead Shielding			19380 lb
		Feature/Equipment Volume	104000 lb
		Waste Fraction	0.25
		Waste Volume	26000 lb

Use this table to summarize relevant features of the facility. Copy and complete the table as necessary for each room, laboratory, or area. Rooms laboratories, or areas with similar levels of contamination may be consolidated into one table.

Name of room, laboratory, or area: Balance of facility, minus cyclotron and shielding				
Level of Contamination: Low				
Component	Number of Components	Dimensions of Component (specify units)	Total Dimensions (specify units)	
Glove Boxes	2		48	ft3
Fume Hoods	4		600	ft3
Lab Benches/tables/casework	1		750	ft3
Sinks	2		6	ft3
Drains	1		3	ft3
Floors	0		3425	ft2
Walls	0		7250	ft2
Ceilings	0		3425	ft2
Ventilation/Ductwork	1		232	ft3
Hot Cells	3		244	ft3
Equipment/Materials			1000	ft3
Soil Plots	0		0	ft2
Storage Tanks			0	ft3
Storage Areas			0	ft3
Radwaste Areas			75	ft3
Scrap Recovery Areas			0	ft3
Maintenance Shop			0	ft3
Equipment Decon Areas			0	ft3
Concrete shields			0	lb
Concrete floor				ft3
Feature/Equipment Volume			2883	ft3
Waste Fraction			0.05	
Waste Volume			144.15	ft3
Density (lb/ft3)			15	
Waste Mass			2162.25	lb

3.6 PLANNING AND PREPARATION

(Work Days)

Estimate the number of workdays, by specific labor category, that will be required to complete planning and preparation activities. Include all labor categories, including Supervisor, Foreman, Craftsman, Technician, Health Physicist, Laborer, Clerical, and others as needed.

Activity	Project Mgr/Health Physicist		Shipper	HP Technician	Radiation Workers	Clerical
Preparation of Documentation for Regulatory Agencies	2		5			1
Submittal of Decommissioning Plan to NRC when required by 10 CFR 30.36(g)(1), 40.42(g)(1), or 70.38(g)(1)	2					0.5
Development of Work Plans	5			2		5
Procurement of Special Equipment	5					1
Staff Training	1		1	2	3	1
Characterization of Radiological Condition (including sampling, soil and tailings analysis, or groundwater analysis, if applicable)	1			2		
Other (specify) Mobilization	1		1	2		
TOTALS	17		7	8	3	8.5

3.7 DECONTAMINATION OR DISMANTLING OF RADIOACTIVE FACILITY COMPONENTS (Work Days)							
Estimate the number of workdays, by specific labor category, that will be required to complete decontamination and/or dismantling activities for each facility component. Copy and complete this table as necessary for each room, laboratory, or area. Rooms, laboratories, or areas with similar levels of contamination may be consolidated in one table.							
Name of room, laboratory, or area:							
Level of Contamination:		Low					
Component	Decon Method	Project Mgr/Health Physicist		Shipper	HP Technician	Radiation Workers	Clerical
Glove Boxes	Remove/Disp						
Fume Hoods	Remove/Disp	1		1	2	4	1
Lab Benches	Remove/Disp				2	4	0.1
Sinks	Remove/Disp	0.25			0.25	0.25	0.1
Drains	Remove/Disp				0.25	0.25	0.1
Floors	Scabble				1	2	0.1
Walls	Remove/Disp				1		0.1
Ceilings	Vac/Wipe				1		0.1
Ventilation/Ductwork	Remove/Disp	2		1	2	4	2
Hot Cells	Remove/Disp	3		2	6	12	3
Equipment/Materials	Sur/Rem/Disp	4		2	8	24	0.1
Soil Plots	Sample						
Storage Tanks	N/A						
Storage Areas	Remove/Disp						
Radwaste Areas	Remove/Disp	0.25		0.5	0.5	1	0.25
Scrap Recovery Areas	N/A						
Maintenance Shop	Remove/Disp						
Equipment Decontamination	Remove/Disp						
Shield blocks	Remove/Disp	2		5	4	8	2
Cyclotron	Remove/Disp	2		5	4	8	2
TOTALS		14.5		16.5	32	67.5	10.95

3.8 RESTORATION OF CONTAMINATED AREAS ON FACILITY GROUNDS
(Work Days)

Estimate the number of work days, by specific labor category, that will be required to restore contaminated areas on the facility grounds.						
Activity	Project Mgr/Health Physicist		Shipper	HP Technician	Radiation Workers	Clerical
Restore Floors	2		0.5	5	10	1
Restore Walls						
Restore Roof						
Restore Utilites						
TOTALS	2		0.5	5	10	1

3.9 FINAL RADIATION SURVEY

(Work Days)

Estimate the number of work days, by specific labor category, that will be required to conduct a final radiation survey.						
Activity	Project Mgr/Health Physicist		Shipper	HP Technician	Radiation Workers	Clerical
FSS Setup	1					1
Survey Packages	1					1
Class 1	5			10		1
Class 2	2.5			5		0.5
Class 3	2.5			5		0.5
TOTALS	12		0	20	0	4

3.10 SITE STABILIZATION AND LONG-TERM SURVEILLANCE

(Work Days)

Estimate the number of work days, by specific labor category, that will be required to complete site stabilization and long-term surveillance activities.

Activity	Project Mgr/Health Physicist		Shipper	HP Technician	Radiation Workers	Clerical
TOTALS	0		0	0	0	0

3.11 TOTAL WORK DAYS BY LABOR CATEGORY

Enter the total work days for each specific labor category from the applicable table above (i.e., from the bottom rows of Tables 3.6 through 3.10).

Task	Project Mgr/Health Physicist		Shipper	HP Technician	Radiation Workers	Clerical
Planning and Preparation (TOTALS from Table 3.6)	17		7	8	3	8.5
Decontamination and/or Dismantling of Radioactive Facility Components (Sum of TOTALS from all copies of Table 3.7)	14.5		16.5	32	67.5	10.95
Restoration of Contaminated Areas on Facility Grounds (TOTALS from Table 3.8)	2		0.5	5	10	1
Final Radiation Survey (TOTALS from Table 3.9)	12		0	20	0	4
Site Stabilization and Long-Term Surveillance (TOTALS from Table 3.10)	0		0	0	0	0

3.12 WORKER UNIT COST SCHEDULE

Estimate labor costs (including salary, fringe benefits, and corporate overhead). Include all appropriate labor categories, including Supervisor, Foreman, Craftsman, Technician, Health Physicist, Laborer, Clerical, and others as needed.

Labor Cost Component	Project Mgr/Health Physicist		Shipper	HP Technician	Radiation Workers	Clerical
Salary (\$/year)	\$59,120		\$30,530	\$31,940	\$43,670	\$20,610
Overhead Rate (%)	100%		100%	100%	100%	100%
Total Cost Per Year	\$118,240		\$61,060	\$63,880	\$87,340	\$41,220
Living Expenses (PD*7/5) ¹	\$452		\$452	\$452	0	0
Total Cost Per Work Day ²	\$907		\$687	\$698	\$336	\$159

¹ Per Diem Rate: \$323 per day.

² Based on 260 work days per year (e.g., 260).

3.13 TOTAL LABOR COSTS BY MAJOR DECOMMISSIONING TASK

Multiply the estimated work days for each specific labor category (from Table 3.11) by the total cost per work day for the corresponding labor category (from Table 3.12), and enter the results in the table below. Then, add across all labor categories to determine the total labor costs for each major decommissioning task.

Labor Cost Component	Project Mgr/Health Physicist	0	Shipper	HP Technician	Radiation Workers	Clerical	Total Labor Cost
Planning and Preparation	\$15,418	\$0	\$4,809	\$5,583	\$1,008	\$1,348	\$28,166
Decontamination and/or Dismantling of Radioactive Facility Components	\$13,151	\$0	\$11,336	\$22,333	\$22,675	\$1,736	\$71,231
Restoration of Contaminated Areas on Facility Grounds	\$1,814	\$0	\$344	\$3,489	\$3,359	\$159	\$9,165
Final Radiation Survey	\$10,884	\$0	\$0	\$13,958	\$0	\$634	\$25,476
Site Stabilization and Long-Term Surveillance	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**3.14 PACKAGING, SHIPPING, AND DISPOSAL OF RADIOACTIVE WASTES
(Excluding Labor Costs)**

(a) Packing Material Costs

Estimate the types and volumes of waste expected to be generated, along with the number and types of containers required for packaging the waste. Multiply the number of containers required by the unit cost per container.					
Waste Type	Volume (ft3)	Number of Containers	Type of Containers	Unit Cost of Container	Total Packaging Costs
DAW	75	1	B-25	\$2,200	\$2,200
Concrete	191	3	B-25	\$2,200	\$6,600
BSFR	1979	2	20' Sealand	\$1,000	\$2,000
Contaminated Lead	10	2	Drum	\$160	\$320
Metal	242	1	20' Sealand	\$1,000	\$1,000
TOTAL					\$12,120

(b) Shipping Costs

Estimate the types and volumes of waste expected to be generated, along with the number and types of containers required for packaging the waste. Multiply the number of containers required by the unit cost per container.

Waste Type	Number of Truckloads	Unit Cost (\$/mile/truckload)	Ocean Transport*	Overweight Charges(\$/mile)	Distance Shipped (miles)	Total Shipping Costs
DAW	0.33	\$2.00	1		3134	\$1,035
Concrete	0.33	\$2.00	1		3134	\$1,035
BSFR	1	\$2.00	1		865	\$867
Contaminated Lead	0.34	\$2.00	1		3134	\$1,066
Metal	1	\$2.00	1		3134	\$3,136
TOTAL	3					\$57,139

* Add \$50,000 to final transportation cost to account for ocean transport

(c) Waste Disposal Costs

Estimate the volume of waste to be disposed. Multiply the volume of waste disposed by the unit disposal cost (including any volume based surcharges). Add any surcharges that are based on the number of containers of waste along with the number and types of containers required for packaging the waste. Multiply the number of containers required by the unit cost per container.

Waste Type	Disposal Volume (ft3)	Density (lb/ft3)	Disposal Mass (lbs)	Unit Cost	Surcharges (\$/ft3 or \$/container)	Total Disposal Costs
DAW	75	15	1125	5.00	1	\$5,625
Concrete	191	90	17193	3.25	1	\$55,877
BSFR	1979	50	98931	0.45	1	\$44,519
Contaminated Lead	9.69	300	2907	5.00	1	\$14,535
Metal	242	100	24162.25	4.00	1	\$96,649
TOTAL	2496					\$217,205

3.15 EQUIPMENT/SUPPLY COSTS (Excluding Containers)

Estimate the quantity of equipment and supplies required for decommissioning and multiply that quantity by the appropriate unit costs.			
Equipment/Supplies	Quantity	Unit Cost	Total Equipment/Supply Cost
Protective Clothing	200	\$2	\$400
Respirators	10	\$20	\$200
Instrumentation	5	\$100	\$500
Air Fare (round trip)	5	\$700	\$3,500
Crane and Crew (days)	2	\$2,000	\$4,000
TOTAL			\$8,600

3.16 LABORATORY COSTS

If applicable, estimate the costs for analyses to be performed by an independent third party laboratory.			
Activity	Quantity	Unit Cost	Total Item Cost
Sampling & Analysis	20	\$200	\$4,000
Transport of Samples	20	\$10	\$200
Testing and Analysis			\$0
Other (specify)			
TOTAL			\$4,200

3.17 MISCELLANEOUS COSTS

Estimate any other applicable costs.	
Activity	Total Cost
License Fees (Reciprocity)	\$2,300
Insurance	\$4,986
Taxes	\$916
Other (specify): Security	\$1,274
TOTAL	\$9,476

3.18 TOTAL DECOMMISSIONING COSTS

Enter the total costs reported in Tables 3.13, 3.14(a)-(c), 3.15, 3.16, and 3.17 into the appropriate cells below, and add them to obtain a subtotal. Add to the subtotal a contingency allowance in the amount of 25 percent of the total decommissioning cost estimate. Also, calculate for each task/component the percentage it represents of the total.		
Task/Component	Cost	Percentage
Planning and Preparation (from Table 3.13)	\$28,166	6.4%
Decontamination and/or Dismantling of Radioactive Facility (From Table 3.13)	\$71,231	16.1%
Restoration of Contaminated Areas on Facility Grounds (From Table 3.13)	\$9,165	2.1%
Final Radiation Survey (From Table 3.13)	\$25,476	5.8%
Packing Material Costs (TOTAL from Table 3.14(a))	\$12,120	2.7%
Shipping Costs (TOTAL from Table 3.14(b))	\$57,139	12.9%
Waste Disposal Costs (TOTAL from Table 3.14(c))	\$217,205	49.1%
Equipment/Supply Costs (TOTAL from Table 3.15)	\$8,600	1.9%
Laboratory Costs (TOTAL from Table 3.16)	\$4,200	0.9%
Miscellaneous Costs (TOTAL from Table 3.17)	\$9,476	2.1%
SUBTOTAL	\$442,778	100.0%
25% Contingency	\$110,694	25.0%
TOTAL DECOMMISSIONING COST ESTIMATE	\$553,472	125.0%

Schedule C

Wells Fargo Bank, N.A.
45 Broadway, 14th Floor
New York, NY 10006
Attn: Corporate, Municipal and Escrow Solutions

Matthew Sherman, Vice President
Tel: (212) 515-1573
Email: matthew.sherman@wellsfargo.com

Trustee's fees shall be \$3,500 per Standby Trust Agreement per year.

Specimen Certificate of Events

Lantheus MI Radiopharmaceuticals, Inc.

Wells Fargo Bank, National Association
45 Broadway, 14th Floor
New York, NY 10006
Attention: Corporate, Municipal and Escrow Solutions

Gentlemen:

In accordance with the terms of the Agreement with you dated _____, I, _____, Secretary of Lantheus MI Radiopharmaceuticals, Inc., hereby certify that the following events have occurred:

1. Lantheus MI Radiopharmaceuticals, Inc. is required to commence the decommissioning of its facility located at [150 Federico Costa Street, Suite #1, San Juan, PR and/or 2525 Ave Eduardo Ruberte, Coliseo Shopping Center, Office #115, Ponce PR] (hereinafter called the decommissioning).
2. The plans and procedures for the commencement and conduct of the decommissioning have been approved by the United States Nuclear Regulatory Commission, or its successor, on _____ (copy of approval attached).
3. The Board of Directors of Lantheus MI Radiopharmaceuticals, Inc. has adopted the attached resolution authorizing the commencement of the decommissioning.

Secretary

Date

Specimen Certificate of Resolution

Lantheus MI Radiopharmaceuticals, Inc.

I, _____, do hereby certify that I am Secretary of Lantheus MI Radiopharmaceuticals, Inc., a corporation organized under the laws of the Commonwealth of Puerto Rico, and that the resolution listed below was duly adopted at a meeting of this Corporation's Board of Directors on _____.

IN WITNESS WHEREOF, I have hereunto signed my name and affixed the seal of this Corporation this day of _____.

Secretary

RESOLVED, that this Board of Directors hereby authorizes the President, or such other employee of the Company as he may designate, to commence decommissioning activities at [150 Federico Costa Street, Suite #1, San Juan, PR and/or 2525 Ave Eduardo Ruberte, Coliseo Shopping Center, Office #115, Ponce PR] in accordance with the terms and conditions described to this Board of Directors at this meeting and with such other terms and conditions as the President shall approve with and upon the advice of Counsel.

Letter of Acknowledgment

STATE OF _____

To Wit: _____

CITY OF _____

On this day of , before me, a notary public in and for the city and State aforesaid, personally appeared _____, and she/he did depose and say that she/he is the [*insert title*] of Wells Fargo Bank, National Association, Trustee, which executed the above instrument; that she/he knows the seal of said association; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the association; and that she/he signed her/his name thereto by like order.

[*Signature of notary public*]

My Commission Expires: _____
[*Date*]