



**CANONSBURG
GENERAL HOSPITAL**

WEST PENN ALLEGHENY HEALTH SYSTEM

100 MEDICAL BOULEVARD, CANONSBURG, PA 15317

724-745-6100

FAX: 724-873-5876

December 20, 2005

U.S. Nuclear Regulatory Commission
NMS Branch 1
Region 1
475 Allendale Road
King of Prussia, Pennsylvania 19406

J-9

03013169

RE: License # 37-17688-01
Mail Control# 138004

RECEIVED
DEC 21 2005
NRC

To Whom This May Concern:

We request the following amendments to be made to our license.

We wish to add the following physicians to our license approved under Human Use Isotope Group 35.400.

1. Steven Anolik, M.D.
2. Youssef Arshoun, M.D.
3. Athanasios Colonias, M.D.
4. Russell Fuhrer, M.D.
5. Steven Katlovits M.D.
6. David Parda, M.D.
7. Vinod Shaw, M.D.
8. Berry Tepperman, M.D.
9. Mark Trombetta, M.D.

Enclosed is a copy of documentation stating that these physicians are authorized users for materials in 10 CFR 35.400 and are on the NRC licenses.

The radiation Safety Committee has unanimously approved the addition of brachytherapy to the procedures performed at Canonsburg General Hospital.

We wish to modify our license for the use of isotopes 10 CFR 35.400. Specifically we wish to add the use of I-125 as sealed sources in seeds to our license for any manual brachytherapy procedure. A possession limit of 1 curie total for the isotope requested. The seeds will be implanted in the patient in the hospital operating room ,(OR).

138004
NMSO/RONI MATERIALS-002

The amount to be ordered will be determined and stated in a written directive by the Radiation Oncologist (authorized user). We will implement the model procedure outlined in NUREG 1556, Volume 9, Appendix S.

The materials will be received by the Nuclear Medicine Department and stored in a secured area until needed for use in the OR. The seeds will be taken to the OR by the Radiation Oncologist (authorized user) or his/her "Designee". At Canonsburg General Hospital, the "Designee" may be the Medical Physicist, Certified Medical Dosimetrist, or an ARRT Radiation Therapist with proper training and appropriately assigned by the Radiation Oncologist (authorized user) to handle brachytherapy sources. Current procedures and documentation of order and receipt of packages containing brachytherapy sources will be modified as needed for compliance with appropriate sections of 10 CFR 20 and 35.

We will expand our training program to include radiation safety concerns specific use of 10 CFR 35.400 radioactive materials. All personnel will receive training before assuming duties with or in the vicinity of these materials.

Procedures for inventory and leak tests of seeds will be developed to comply with 10 CFR 20.35 regulations. Seeds not used will be returned to the supplier or held for decay in storage.


Upon completion of the procedure, a survey will be conducted to locate any missing radioactive material. We will use a survey meter with a GM pancake detector or other equivalent instrument. The instrument will be capable of detecting the type and energy of the radiation emitted.

In the event that a patient must be hospitalized, they will be kept in a private room and a survey will be kept in a private room and a survey will be performed with the survey meter noted above to ensure the radiation dose is in compliance with 10 CFR 20 regulations.

Patients receiving permanent implants will be released according to revised 10 CFR 35.75 requirements as outlined in NUREG 1556, Volume 9, Appendix U. These requirements will be also included in our training program.

Enclosed is documentation in support of this request.

Sincerely,


Kim Malinky, President and CEO
Canonsburg General Hospital

NRC FORM 374

U.S. NUCLEAR REGULATORY COMMISSION

PAGE 1 OF 3 PAGES
Amendment No. 58

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.

<p style="text-align: center;">Licensee</p> <p>1. Conemaugh Valley Memorial Hospital</p> <p>2. 1086 Franklin Street Johnstown, Pennsylvania 15905-4398</p>	<p>In accordance with the letter dated September 2, 2004,</p> <p>3. License number 37-01873-01 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date, June 30, 2011</p> <hr/> <p>5. Docket No. 030-03011 Reference No. 37-05272-02</p>
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<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Any byproduct material permitted by 10 CFR 35.100</p> <p>B. Any byproduct material permitted by 10 CFR 35.200</p> <p>C. Any byproduct material permitted by 10 CFR 35.300</p> <p>D. Any byproduct material permitted by 10 CFR 35.400</p>	<p>7. Chemical and/or physical form</p> <p>A. Any</p> <p>B. Any</p> <p>C. Any</p> <p>D. Sealed Sources</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. As needed</p> <p>B. As needed</p> <p>C. 2 curies</p> <p>D. 2 curies</p>
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<p>9. Authorized use:</p> <p>A. Any uptake, dilution and excretion study permitted by 10 CFR 35.100.</p> <p>B. Any imaging and localization study permitted by 10 CFR 35.200.</p> <p>C. Any diagnostic study or therapy procedure permitted by 10 CFR 35.300.</p> <p>D. Any manual brachytherapy procedure permitted by 10 CFR 35.400.</p>
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CONDITIONS

10. Licensed material may be used or stored only at the licensee's facilities located at 1086 Franklin Street, Johnstown, Pennsylvania and at the Good Samaritan Hospital, 1020 Franklin Street, Johnstown, Pennsylvania.

NRC FORM 374A

U.S. NUCLEAR REGULATORY COMMISSION

PAGE 2 OF 3 PAGES**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
37-01873-01Docket or Reference Number
030-03011/37-05272-02

Amendment No. 58

11. The Radiation Safety Officer for this license is Gregory A. Hay, M.S.

Gregory A. Hay, MS

12. Licensed material is only authorized for use by, or under the supervision of:

A. Individuals permitted to work as an [authorized user, authorized nuclear pharmacist, and/or authorized medical physicist] in accordance with 10 CFR 35.13 and 35.14.

B. The following individuals are authorized users for medical use as indicated:

Authorized UsersMaterial and Use

Jonathan I. Abrahams, M.D.

35.100; 35.200; 35.300

Lawrence M. McNiesh, M.D.

35.100; 35.200, Iodine-131 sodium iodide for imaging and localization studies

Harold L. Ringler, Jr., M.D.

35.100; 35.200; 35.300

Howard I. Forman, M.D.

35.100; 35.200, Iodine-131 sodium iodide for imaging and localization studies

Anthony J. Scuderi, M.D.

35.100; 35.200; 35.300

Anwar Hussain, M.D.

35.200; Iodine-131 sodium iodide for imaging and localization studies

Gary Scott Kramer, M.D.

35.100; 35.200; Iodine-131 sodium iodide for imaging and localization studies

Charles Oswald, M.D.

35.100; 35.200, Iodine-131 sodium iodide for imaging and localization studies

Robert Piroli, M.D.

35.400

G. Gordon McCormack, M.D.

35.400

Barry Tepperman, M.D.

35.400

13. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.

14. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

NRC FORM 374A

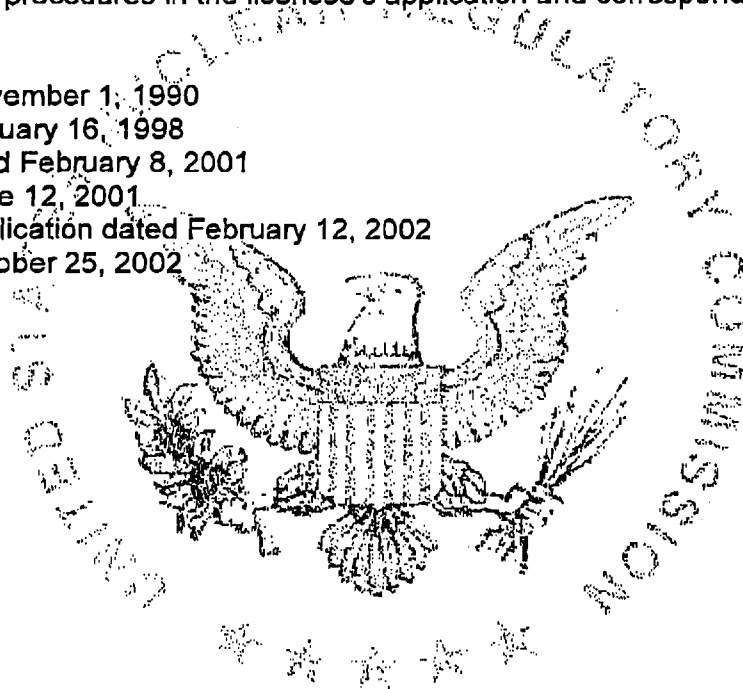
U.S. NUCLEAR REGULATORY COMMISSION

PAGE 3 OF 3 PAGES**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
37-01873-01Docket or Reference Number
030-03011/37-05272-02

Amendment No. 58

15. 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. This license condition applies only to those procedures that are required to be submitted in accordance with the regulations. Additionally, this license condition does not limit the licensee's ability to make changes to the radiation protection program as provided for in 10 CFR 35.26. 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. Letter dated November 1, 1990
- B. Letter dated January 16, 1998
- C. Application dated February 8, 2001
- D. Letter dated June 12, 2001
- E. Amendment application dated February 12, 2002
- F. Letter dated October 25, 2002



For the U.S. Nuclear Regulatory Commission

Date September 20, 2004

By

Tara L. Weidner
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

84336050

ALLEGHENY GENERAL HOSPITAL RADIOACTIVE MATERIAL USE PERMIT

This permit grant Russell Fuhrer, M.D. Authorized User status and is authorized to receive, possess, transfer, and ship radioactive material of the type(s) listed below. The Authorized User is expected to comply with 1) the *Authorized User Responsibilities and Duties Form*, 2) applicable sections from Title 10, Code of Federal Regulations, 3) applicable sections from Title 25, Pennsylvania Code, and 4) any additional requirements mandated by the Radiation Safety Committee. Radioactive isotopes stated below may only be used at 320 East North Ave., Pittsburgh, PA 15212 or 3290 William Pitt Way, Building 9, Pittsburgh, PA 15238. Any reason to use or transfer radioactive material to a location other than those listed must be approved by the Radiation Safety Committee.

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|---|--|
| 1. <u>Russell Fuhrer, M.D.</u>
Authorized User | 2. <u>58</u>
Permit Number |
| 3. <u>Radiation Oncology</u>
Department or Section | 4. <u>August 22, 2000</u>
Approval Date |
| 5. <u>Human Use Isotope Group 35.400 and depleted U-235 shielding</u>
Authorized Use | |
| 6. <u> </u> Group III <u> </u> Group II <u> </u> Group I | |

Group III isotopes (low radiotoxicity): beta < 100 keV E_{avg} ; gamma < 100 keV
H-3, C-14, S-35, Ca-45, Ru-103

Group II isotopes (medium radiotoxicity): beta < 300 keV E_{avg} ; gamma < 300 keV
Cr-51, Co-57, Tc-99m, I-123, I-125, Xe-133, Ce-141, Tl-201

Group I isotopes (high radiotoxicity): beta \geq 300 keV E_{avg} ; gamma \geq 300 keV
P-32, Ga-67, Rb-86, Sr-89, I-131

Approval Signatures:

G. H. Isaacs
Gilbert Isaacs, M.D.
Chairman, Radiation Safety Committee
Allegheny General Hospital

8/22/00
Date

J. G. Och
Joseph G. Och, M.S.
Radiation Safety Officer
Allegheny General Hospital

8/22/00
Date

ALLEGHENY GENERAL HOSPITAL RADIOACTIVE MATERIAL USE PERMIT

This permit grant David Parda, M.D. Authorized User status and is authorized to receive, possess, transfer, and ship radioactive material of the type(s) listed below. The Authorized User is expected to comply with 1) the *Authorized User Responsibilities and Duties* Form, 2) applicable sections from Title 10, Code of Federal Regulations, 3) applicable sections from Title 25, Pennsylvania Code, and 4) any additional requirements mandated by the Radiation Safety Committee. Radioactive isotopes stated below may only be used at 320 East North Ave., Pittsburgh, PA 15212 or 3290 William Pitt Way, Building 9, Pittsburgh, PA 15238. Any reason to use or transfer radioactive material to a location other than those listed must be approved by the Radiation Safety Committee.

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| 1. <u>David Parda, M.D.</u>
Authorized User | 2. <u>51</u>
Permit Number |
| 3. <u>Radiation Oncology</u>
Department or Section | 4. <u>August 22, 2000</u>
Approval Date |
| 5. <u>Human Use Isotope Group 35.400 and depleted U-235 shielding</u>
Authorized Use | |

6. Group III Group II Group I

Group III isotopes (low radiotoxicity): beta < 100 keV E_{avg} ; gamma < 100 keV
H-3, C-14, S-35, Ca-45, Ru-103

Group II isotopes (medium radiotoxicity): beta < 300 keV E_{avg} ; gamma < 300 keV
Cr-51, Co-57, Tc-99m, I-123, I-125, Xe-133, Ce-141, Tl-201

Group I isotopes (high radiotoxicity): beta \geq 300 keV E_{avg} ; gamma \geq 300 keV
P-32, Ga-67, Rb-86, Sr-89, I-131

Approval Signatures:

G. H. Isaacs
Gilbert Isaacs, M.D.
Chairman, Radiation Safety Committee
Allegheny General Hospital

8/22/00
Date

Joseph G. Och
Joseph G. Och, M.S.
Radiation Safety Officer
Allegheny General Hospital

8/22/00
Date

ALLEGHENY GENERAL HOSPITAL RADIOACTIVE MATERIAL USE PERMIT

This permit grants Stephen Michael Karlovitis, M.D. Authorized User status and is authorized to receive, possess, transfer, and ship radioactive material of the type(s) listed below. The Authorized User is expected to comply with 1) the *Authorized User Responsibilities and Duties* Form, 2) applicable sections from Title 10, Code of Federal Regulations, 3) applicable sections from Title 25, Pennsylvania Code, and 4) any additional requirements mandated by the Radiation Safety Committee. Radioactive isotopes stated below may only be used at 320 East North Ave., Pittsburgh, PA 15212. Any reason to use or transfer radioactive material to a location other than those listed must be approved by the Radiation Safety Committee.

1. Stephen Michael Karlovitis, M.D.
Authorized User
2. 60
Permit Number
3. Radiation Oncology
Department or Section
4. July 10, 2001
Approval Date
5. Human Use Isotope Group 35.400 and depleted U-235 shielding
Authorized Use

6. Group III Group II Group I

Group III isotopes (low radiotoxicity): beta < 100 keV E_{avg} ; gamma < 100 keV
H-3, C-14, S-35, Ca-45, Ru-103

Group II isotopes (medium radiotoxicity): beta < 300 keV E_{avg} ; gamma < 300 keV
Cr-51, Co-57, Tc-99m, I-123, I-125, Xe-133, Ce-141, Tl-201

Group I isotopes (high radiotoxicity): beta \geq 300 keV E_{avg} ; gamma \geq 300 keV
P-32, Ga-67, Rb-86, Sr-89, I-131

Approval Signatures:

G. N. Isaacs
Gilbert Isaacs, M.D.
Chairman, Radiation Safety Committee
Allegheny General Hospital

July 19, 2001
Date

J. G. Och
Joseph G. Och, M.S.
Radiation Safety Officer
Allegheny General Hospital

July 19, 2001
Date

ALLEGHENY GENERAL HOSPITAL RADIOACTIVE MATERIAL USE PERMIT

This permit grants Athanasios Colonias, M.D. Authorized User status and is authorized to receive, possess, transfer, and ship radioactive material of the type(s) listed below. The Authorized User is expected to comply with 1) the *Authorized User Responsibilities and Duties* Form, 2) applicable sections from Title 10, Code of Federal Regulations, 3) applicable sections from Title 25, Pennsylvania Code, and 4) any additional requirements mandated by the Radiation Safety Committee. Radioactive isotopes stated below may only be used at 320 East North Ave., Pittsburgh, PA 15212. Any reason to use or transfer radioactive material to a location other than those listed must be approved by the Radiation Safety Committee.

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|---|--|
| 1. <u>Athanasios Colonias, M.D.</u>
Authorized User | 2. <u>59</u>
Permit Number |
| 3. <u>Radiation Oncology</u>
Department or Section | 4. <u>July 10, 2001</u>
Approval Date |
| 5. <u>Human Use Isotope Group 35.400 and depleted U-235 shielding</u>
Authorized Use | |

6. Group III Group II Group I

Group III isotopes (low radiotoxicity): beta < 100 keV E_{avg} ; gamma < 100 keV
H-3, C-14, S-35, Ca-45, Ru-103

Group II isotopes (medium radiotoxicity): beta < 300 keV E_{avg} ; gamma < 300 keV
Cr-51, Co-57, Tc-99m, I-123, I-125, Xe-133, Ce-141, Tl-201

Group I isotopes (high radiotoxicity): beta \geq 300 keV E_{avg} ; gamma \geq 300 keV
P-32, Ga-67, Rb-86, Sr-89, I-131

Approval Signatures:

G. H. Isaacs
Gilbert Isaacs, M.D.
Chairman, Radiation Safety Committee
Allegheny General Hospital

July 19, 2001
Date

J. G. Och
Joseph G. Och, M.S.
Radiation Safety Officer
Allegheny General Hospital

July 19, 2001
Date

ALLEGHENY GENERAL HOSPITAL RADIOACTIVE MATERIAL USE PERMIT

This permit grants Steven Lee Anolik, M.D. Authorized User status and is authorized to receive, possess, transfer, and ship radioactive material of the type(s) listed below. The Authorized User is expected to comply with 1) the *Authorized User Responsibilities and Duties Form*, 2) applicable sections from Title 10, Code of Federal Regulations, 3) applicable sections from Title 25, Pennsylvania Code, and 4) any additional requirements mandated by the Radiation Safety Committee. Radioactive isotopes stated below may only be used at 320 East North Ave., Pittsburgh, PA 15212. Any reason to use or transfer radioactive material to a location other than those listed must be approved by the Radiation Safety Committee.

- | | |
|---|--|
| 1. <u>Steven Lee Anolik, M.D.</u>
Authorized User | 2. <u>52</u>
Permit Number |
| 3. <u>Radiation Oncology</u>
Department or Section | 4. <u>July 10, 2001</u>
Approval Date |
| 5. <u>Human Use Isotope Group 35.400 and depleted U-235 shielding</u>
Authorized Use | |
| 6. <u> </u> Group III <u> </u> Group II <u> </u> Group I | |

Group III isotopes (low radiotoxicity): beta < 100 keV E_{avg} ; gamma < 100 keV
H-3, C-14, S-35, Ca-45, Ru-103

Group II isotopes (medium radiotoxicity): beta < 300 keV E_{avg} ; gamma < 300 keV
Cr-51, Co-57, Tc-99m, I-123, I-125, Xe-133, Ce-141, Tl-201

Group I isotopes (high radiotoxicity): beta \geq 300 keV E_{avg} ; gamma \geq 300 keV
P-32, Ga-67, Rb-86, Sr-89, I-131

Approval Signatures:

Gilbert Isaacs
Gilbert Isaacs, M.D.
Chairman, Radiation Safety Committee
Allegheny General Hospital

July 19, 2001
Date

Joseph G. Och
Joseph G. Och, M.S.
Radiation Safety Officer
Allegheny General Hospital

July 19, 2001
Date

ALLEGHENY GENERAL HOSPITAL RADIOACTIVE MATERIAL USE PERMIT

This permit grants Vinod Shah, M.D. Authorized User status under NRC license 37-01317-01 and PA license PA-0031 and is authorized to receive, possess, transfer, and ship radioactive material of the type(s) listed below. The Authorized User is expected to comply with 1) the *Authorized User Responsibilities and Duties* Form, 2) applicable sections from Title 10, Code of Federal Regulations, 3) applicable sections from Title 25, Pennsylvania Code, and 4) any additional requirements mandated by the Radiation Safety Committee. Radioactive isotopes stated below may only be used at 320 East North Ave., Pittsburgh, PA 15212. Any reason to use or transfer radioactive material to a location other than those listed must be approved by the Radiation Safety Committee.

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|---|--|
| 1. <u>Vinod Shah, M.D.</u>
Authorized User | 2. <u>63</u>
Permit Number |
| 3. <u>Radiation Oncology</u>
Department or Section | 4. <u>February 11, 2003</u>
Approval Date |

5. **Human Use Isotope Group**

35.100 35.200 35.300 35.400 35.500 35.600
 35.1000 (Endovascular) depleted U-235 shielding

6. **Authorized Use**

Group I Group II Group III

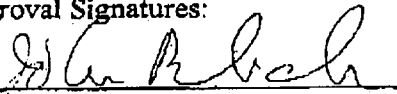
Group I isotopes (high radiotoxicity): beta \geq 300 keV E_{γ} ; gamma \geq 300 keV
 P-32, Ga-67, Rb-86, Sr-89, I-131

Group II isotopes (medium radiotoxicity): beta $<$ 300 keV E_{γ} ; gamma $<$ 300 keV
 Cr-51, Co-57, Tc-99m, I-123, I-125, Xe-133, Ce-141, Tl-201

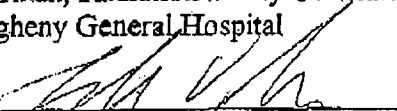
Group III isotopes (low radiotoxicity): beta $<$ 100 keV E_{γ} ; gamma $<$ 100 keV
 H-3, C-14, S-35, Ca-45, Ru-103

7. **Restrictions:** NONE

Approval Signatures:


 John Rehder, M.D.
 Chairman, Radiation Safety Committee
 Allegheny General Hospital

2-11-03
 Date


 Joseph G. Och, M.S.
 Radiation Safety Officer
 Allegheny General Hospital

2/11/03
 Date

ALLEGHENY GENERAL HOSPITAL RADIOACTIVE MATERIAL USE PERMIT

This permit grants Youssef Arshoun, M.D. Authorized User status under NRC license 37-01317-01 and PA license PA-0031 and is authorized to receive, possess, transfer, and ship radioactive material of the type(s) listed below. The Authorized User is expected to comply with 1) the *Authorized User Responsibilities and Duties* Form, 2) applicable sections from Title 10, Code of Federal Regulations, 3) applicable sections from Title 25, Pennsylvania Code, and 4) any additional requirements mandated by the Radiation Safety Committee. Radioactive isotopes stated below may only be used at 320 East North Ave., Pittsburgh, PA 15212. Any reason to use or transfer radioactive material to a location other than those listed must be approved by the Radiation Safety Committee.

- | | |
|---|---|
| 1. <u>Youssef Arshoun, M.D.</u>
Authorized User | 2. <u>64</u>
Permit Number |
| 3. <u>Radiation Oncology</u>
Department or Section | 4. <u>March 11, 2003</u>
Approval Date |
5. **Human Use Isotope Group**
- 35.100 35.200 35.300 35.400 35.500 35.600
 35.1000 (ENDOVASCULAR THERAPY) depleted U-235 shielding

6. **Authorized Use**

Group I Group II Group III

Group I isotopes (high radiotoxicity): beta ≥ 300 keV E_{avg} ; gamma ≥ 300 keV
P-32, Ga-67, Rb-86, Sr-89, I-131

Group II isotopes (medium radiotoxicity): beta < 300 keV E_{avg} ; gamma < 300 keV
Cr-51, Co-57, Tc-99m, I-123, I-125, Xe-133, Ce-141, Tl-201

Group III isotopes (low radiotoxicity): beta < 100 keV E_{avg} ; gamma < 100 keV
H-3, C-14, S-35, Ca-45, Ru-103

7. **Restrictions:** NONE

Approval Signatures:

John Rehder
John Rehder, M.D.
Chairman, Radiation Safety Committee
Allegheny General Hospital

3/24/03
Date

Joseph G. Och
Joseph G. Och, M.S.
Radiation Safety Officer
Allegheny General Hospital

3/24/03
Date

ALLEGHENY GENERAL HOSPITAL RADIOACTIVE MATERIAL USE PERMIT

This permit grants Mark Trombetta, M.D. Authorized User status and is authorized to receive, possess, transfer, and ship radioactive material of the type(s) listed below. The Authorized User is expected to comply with 1) the Authorized User Responsibilities and Duties Form, 2) applicable sections from Title 10, Code of Federal Regulations, 3) applicable sections from Title 25, Pennsylvania Code, and 4) any additional requirements mandated by the Radiation Safety Committee. Radioactive isotopes stated below may only be used at 320 East North Ave., Pittsburgh, PA 15212 or 3290 William Pitt Way, Building 9, Pittsburgh, PA 15238. Any reason to use or transfer radioactive material to a location other than those listed must be approved by the Radiation Safety Committee.

- 1. Mark Trombetta, M.D.
Authorized User
- 2. 57
Permit Number
- 3. Radiation Oncology
Department or Section
- 4. August 22, 2000
Approval Date
- 5. Human Use Isotope Group 35,400 and depleted U-235 shielding
Authorized Use
- 6. Group III Group II Group I

Group III isotopes (low radiotoxicity): beta < 100 keV E_{avg} ; gamma < 100 keV
H-3, C-14, S-35, Ca-45, Ru-103

Group II isotopes (medium radiotoxicity): beta < 300 keV E_{avg} ; gamma < 300 keV
Cr-51, Co-57, Tc-99m, I-123, I-125, Xe-133, Ce-141, Tl-201

Group I isotopes (high radiotoxicity): beta \geq 300 keV E_{avg} ; gamma \geq 300 keV
P-32, Ga-67, Rb-86, Sr-89, I-131

Approval Signatures:

G. N. Isaacs
Gilbert Isaacs, M.D.
Chairman, Radiation Safety Committee
Allegheny General Hospital

8/22/00
Date

J. G. Och
Joseph G. Och, M.S.
Radiation Safety Officer
Allegheny General Hospital

8/22/00
Date