



April 29, 2008

US Nuclear Regulatory Commission Region IV  
Nuclear Materials Licensing Branch  
611 Ryan Plaza Drive  
Suite 400  
Arlington, Texas 76011-8064

RECEIVED

MAY 6 2008

DNMS

**RE: Amendment for Radioactive Materials License #49-00152-02**

Dear Sir or Madam:

The subject license authorizes, in part, the uses under 35.400 for manual brachytherapy. Under item 7.D. are listed various sealed sources. We would request that the license be amended as followings:

7.D. to include: **Theragenics Corporation Model 200** (containing  $^{103}\text{Pd}$ .)

Palladium has been in use under the previous regulations which were not subject to NRC licensing. The receipt use and disposal of this material will be handled in accordance with our policies for safe handling, in effect for all radioactive materials.

For further information, please contact me at our Radiation Safety Officer's number: (307) 233-4751 or fax (307) 233-4700.

Sincerely,



Alan G. Douglas, MS  
Radiation Safety Officer  
Wyoming Medical Center  
1233 E. 2<sup>nd</sup> Street  
Casper, WY 82601

## Source Specifications for TheraSeed $^{103}\text{Pd}$

### Source Information

Model Name: Model 200

Manufacturer: Theragenics Corporation, Buford, GA

Half-life: 16.99 days

Air kerma conversion: 1.293 U/mCi

### Reference Material:

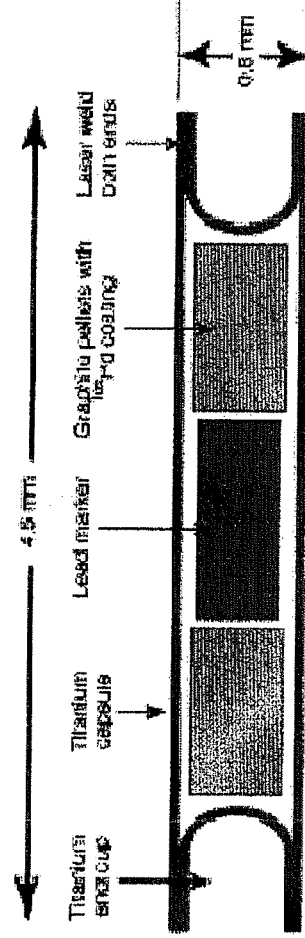
Dose Rate Constant, L

NIST 2000 WAFAC calibration

0.686 cGy $h^{-1}U^{-1}$

0.887 cGy $h^{-1}mCi^{-1}$

M.J. Rivard, et al., "Update of AAPM Task Group No. 43 Report: A revised AAPM protocol for brachytherapy dose calculations," Med. Phys. **31**, 633-674 (2004).



**Source Specifications for TheraSeed <sup>103</sup>Pd**

**Radial Dose Function**

Line Source Approximation

r (cm)	g(r)
0.10	0.911
0.15	1.210
0.25	1.370
0.30	1.380
0.40	1.360
0.50	1.300
0.75	1.150
1.00	1.000
1.50	0.749
2.00	0.555
2.50	0.410
3.00	0.302
3.50	0.223
4.00	0.163
5.00	0.0887
6.00	0.0482
7.00	0.0262
10.00	0.00615

Point Source Approximation

r (cm)	g(r)
0.10	0.494
0.15	0.831
0.25	1.154
0.30	1.220
0.40	1.269
0.50	1.248
0.75	1.137
1.00	1.000
1.50	0.755
2.00	0.561
2.50	0.415
3.00	0.306
3.50	0.226
4.00	0.165
5.00	0.0900
6.00	0.0489
7.00	0.0266
10.00	0.00624

## Source Specifications for TheraSeed <sup>103</sup>Pd

F(r,θ) θ (degrees)	Anisotropy r (cm)								
	0.25	0.5	0.75	1	2	3	4	5	7.5
0	0.619	0.694	0.601	0.541	0.526	0.504	0.497	0.513	0.547
1	0.617	0.689	0.597	0.549	0.492	0.505	0.513	0.533	0.580
2	0.618	0.674	0.574	0.534	0.514	0.517	0.524	0.538	0.568
3	0.620	0.642	0.577	0.538	0.506	0.509	0.519	0.532	0.570
5	0.617	0.600	0.540	0.510	0.499	0.508	0.514	0.531	0.571
7	0.579	0.553	0.519	0.498	0.498	0.509	0.521	0.532	0.568
10	0.284	0.496	0.495	0.487	0.504	0.519	0.530	0.544	0.590
12	0.191	0.466	0.486	0.487	0.512	0.529	0.544	0.555	0.614
15	0.289	0.446	0.482	0.490	0.523	0.540	0.556	0.567	0.614
20	0.496	0.442	0.486	0.501	0.547	0.568	0.585	0.605	0.642
25	0.655	0.497	0.524	0.537	0.582	0.603	0.621	0.640	0.684
30	0.775	0.586	0.585	0.593	0.633	0.654	0.667	0.683	0.719
40	0.917	0.734	0.726	0.727	0.750	0.766	0.778	0.784	0.820
50	0.945	0.837	0.831	0.834	0.853	0.869	0.881	0.886	0.912
60	0.976	0.906	0.907	0.912	0.931	0.942	0.960	0.964	0.974
70	0.981	0.929	0.954	0.964	0.989	1.001	1.008	1.004	1.011
75	0.947	0.938	0.961	0.978	1.006	1.021	1.029	1.024	1.033
80	0.992	0.955	0.959	0.972	1.017	1.035	1.046	1.037	1.043
85	1.007	0.973	0.960	0.982	0.998	1.030	1.041	1.036	1.043
Φ <sub>an</sub> (r)	1.130	0.880	0.859	0.855	0.870	0.884	0.895	0.897	0.918

MAY 19 2008

DATE

This is to acknowledge the receipt of your letter/application dated 4-29-08, and to inform you that the initial processing, which includes an administrative review, has been performed.

There were no administrative omissions. Your application will be assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

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

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The action you requested is normally processed within 90 days.

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

Your action has been assigned **Mail Control Number** 471807.  
When calling to inquire about this action, please refer to this mail control number.  
You may call me at 817-860-8103.

Sincerely,



Licensing Assistant

BETWEEN:

License Fee Management Branch, ARM  
and  
Regional Licensing Sections

LICENSE FEE TRANSMITTAL

(FOR LEADS USE)  
INFORMATION FROM LTS  
-----  
: Program Code: 02120  
: Status Code: 0  
: Fee Category: 7C  
: Exp. Date: 20150531  
: Fee Comments:  
: Decom Fin Assur Reqdt: N  
: .....

A. REGION

1. APPLICATION ATTACHED

Applicant/Licensee: WYOMING MEDICAL CENTER  
Received Date: 20080506  
Docket No.: 3003495  
Control No.: 471807  
License No.: 49-00152-02  
Action Type: Amendment

2. FEE ATTACHED

Amount: \_\_\_\_\_  
Check No.: \_\_\_\_\_

3. COMMENTS

Signed Allen P. ...  
Date 5-19-08

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /  )

1. Fee Category and Amount: \_\_\_\_\_


2. Correct Fee Paid. Application may be processed for:

Amendment \_\_\_\_\_  
Renewal \_\_\_\_\_  
License \_\_\_\_\_

3. OTHER

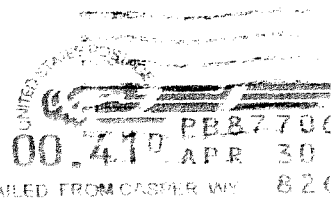
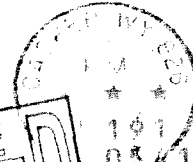
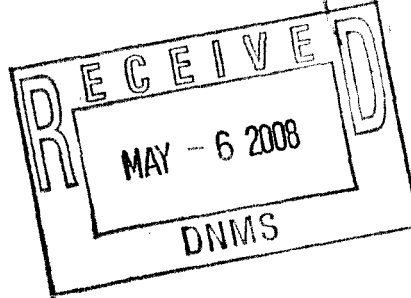
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Signed \_\_\_\_\_  
Date \_\_\_\_\_

Alan Douglas, RSO

  
Wyoming  
Medical  
Center

# RADIOLOGY

1233 East Second Street  
Casper, Wyoming 82601  
Address Service Requested



US Nuclear Regulatory Commission Region IV  
Nuclear Materials Licensing Branch  
611 Ryan Plaza Drive  
Suite 400  
Arlington, Texas 76011-8064

7601184005 C024

