

MATERIALS LICENSE

Amendment No. 05

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.

OFFICIAL RECORD COPY

Licensee

1. MDS Nordion Incorporated

2. 447 March Road
Kanata, Ontario, Canada K2K 1X8

In accordance with application dated
December 20, 1996,
3. License Number 54-28275-01 is amended in
its entirety to read as follows:

4. Expiration Date September 30, 2004

5. Docket or
Reference No. 030-307886. Byproduct, Source, and/or
Special Nuclear Material7. Chemical and/or Physical
Form8. Maximum Amount that Licensee
May Possess at Any One Time
Under This License

A. Cesium 137

A. Sealed sources
(AECL/Nordion or ORNL)

A. See Condition 10

B. Cobalt 60

B. Sealed sources
(AECL/Nordion)

B. See Condition 10

9. Authorized use

A. and B. For storage and/or possession in U.S. Department of Transportation or U.S. Nuclear Regulatory Commission approved shipping containers, AECL/Nordion irradiators, or AECL/Nordion source drawers incident to the performance of the activities specified below involving AECL/Nordion irradiators specified in Condition 10 of this license.

- (1) Distribution to persons who are authorized to receive the licensed material pursuant to terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or any Agreement State.
- (2) Installation into and/or removal from irradiators and packaging for shipment.
- (3) Radiation surveys of irradiators and facilities.
- (4) Leak testing of sealed sources.
- (5) Decontamination of irradiators and facilities.
- (6) Installation, relocation, removal, repair, maintenance, and operational testing of irradiator units.
- (7) Instruction of personnel in the operation of irradiator units.

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number

54-28275-01

Docket or Reference Number

030-30788

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CONDITIONS

10. A. The activities authorized by this license are applicable to the following irradiator units and specifications:

<u>AECL/Nordion Irradiator Unit Model Numbers</u>	<u>Isotope</u>	<u>Sealed Source Model Number</u>	<u>Maximum Permissible Activity Per Unit (curies)</u>
Any wet-source-storage irradiator	Cobalt 60	C-188	Not to exceed 14,250 curies per source and as per regulatory approval on design capacity
Gammabeam 100A, 100B or 100C	Cobalt 60	C-230	1,570
Gammabeam 150A, 150B or 150C	Cobalt 60	C-174A or C-174B	6,600
Gammabeam 650	Cobalt 60	C-252	50,000
Gammacell 10 (formerly Radiation Machinery Model 50 or 50B)	Cesium 137	ORNL-RAMCO-50	400
Gammacell 20	Cesium 137	C-161, Type 4	2,300
Gammacell 40	Cesium 137	C-161, Type 8	4,200
Gammacell 100	Cobalt 60	C-170 or C-171	1,000
Gammacell 200	Cobalt 60	C-170, C-171 C-199 or C-200	10,000
Gammacell 220	Cobalt 60	C-166, C-167 C-185 or C-198	26,400
Gammacell 1000 Model A	Cesium 137	ORNL-RAMCO-50 ISO-1000	828 720
Gammacell 1000 Model B	Cesium 137	ORNL-RAMCO-50 ISO-1000	1632 1440
Gammacell 1000 Model C	Cesium 137	ORNL-RAMCO-50 ISO-1000	2448 2160
Gammacell 1000 Model D (formerly Radiation Machinery Model M.)	Cesium 137	ORNL-RAMCO-50 ISO-1000	3264 2880

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License Number 54-28275-01

Docket or Reference Number 80-30788

Amendment No. 05

(10. Continued)

CONDITIONS

10. B. The activities authorized by this license are applicable to the following irradiator units and specifications:

<u>AECL/Nordion Irradiator Unit Model Numbers</u>	<u>Isotope</u>	<u>Sealed Source Model Number</u>	<u>Maximum Permissible Activity Per Unit (curies)</u>
Gammacell 1000 Elite Model A	Cesium 137	ISO-1000, C-1000, and C-1001	720
Gammacell 1000 Elite Model B	Cesium 137	ISO-1000, C-1000, and C-1001	1440
Gammacell 1000 Elite Model C	Cesium 137	ISO-1000, C-1000, and C-1001	2160
Gammacell 1000 Elite Model D	Cesium 137	ISO-1000	2880
Gammacell 1000 Elite-Type I	Cesium 137	C-3000 and C-3001	1524
Gammacell 1000 Elite-Type II	Cesium 137	C-3000 and C-3001	3048
Gammacell 3000 Elan-A	Cesium 137	C-1000 and C-1001	720
Gammacell 3000 Elan-B	Cesium 137	C-1000 and C-1001	1440
Gammacell 3000 Elan-C	Cesium 137	C-1000 and C-1001	2160
Gammacell 3000 Elan-Type I	Cesium 137	C-3000 and C-3001	1524
Gammacell 3000 Elan-Type II	Cesium 137	C-3000 and C-3001	3048

11. Licensed material may be used only at temporary job sites of the licensee anywhere in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material.

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(Continued)

CONDITIONS

12. A. Licensed material shall be used by, or under the supervision and in the physical presence of anyone designated by R. G. McKinnon or D. T. Tran in accordance with the experience and training requirements specified in the licensee application dated February 22, 1994 and letter dated September 14, 1994. The licensee shall maintain a list of all designated individuals, and records of their training. Designated individuals at temporary job sites shall have copies of their authorization certificate at the site and available for inspection.
- B. The Radiation Safety Officer for this license is D. T. Tran.
13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
14. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.
- B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.
- C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.
- E. Sealed sources and detector cells need not be leak tested if:
- (i) they contain only hydrogen-3; or
 - (ii) they contain only a radioactive gas; or
 - (iii) the half-life of the isotope is 30 days or less; or
 - (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
 - (v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer 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 or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

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(14. Continued)

CONDITIONS

- F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.
- G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.
15. Written instructions contained in the Appendices to the application dated February 22, 1994, and in the AECL/Nordion (Isomedix) Instruction Manuals for the Gammacell 10 and/or the Gammacell 1000, and in the AECL/Nordion Instruction Manual for the Gammacell 1000, as appropriate, shall be followed and a copy of these instructions shall be made available to each individual using or having responsibility for licensed material. Any changes in these instructions shall have the prior approval of the U.S. Nuclear Regulatory Commission, Region I, Nuclear Materials Section, 475 Allendale Road, King of Prussia, Pennsylvania 19406.
16. After installation of the irradiator and/or Cobalt 60 or Cesium 137 source(s) and prior to initiation of the irradiation program, a radiation survey shall be conducted to determine the maximum radiation levels in each area adjoining the irradiation room. For wet-source-storage irradiators, the survey specifications contained in Appendix 12 (Nordion specification DS0418, Revision C) of the application dated February 22, 1994, shall be followed.
17. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

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CONDITIONS

18. 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 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 February 22, 1994
- B. Letter dated September 14, 1994

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Date _____

For the U.S. Nuclear Regulatory Commission

Original Signed By:

Eric H. Reber

By

Nuclear Materials Safety Branch
Region I

King of Prussia, Pennsylvania 19406

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Mr. D.T. Tran
Radiation Safety Officer
MDS Nordion Incorporated
447 March Road
Kanata, Ontario, Canada K2K 1X8

Dear Mr. Tran:

This refers to your license amendment request. Enclosed with this letter is the amended license.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

Original Signed By:
Eric H. Reber

Eric H. Reber
Division of Nuclear Materials Safety

License No. 54-28275-01
Docket No. 030-30788
Control No. 124058

Enclosure:
Amendment No. 05

DOCUMENT NAME: R:\WPS\MLTR\15428275.01

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