



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

RM

SEP 05 2000

Janet Grappin
Radiation Safety Officer
Dow Chemical Company
H & ES, Industrial Hygiene Laboratory
1803 Building
Midland, MI 48674

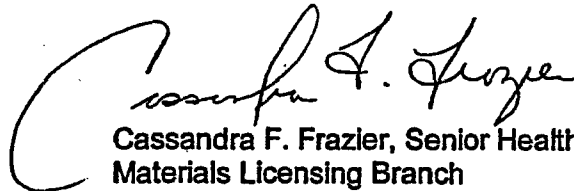
Dear Ms. Grappin:

Enclosed is Amendment No. 66 to your NRC Material License No. 21-00265-06 in accordance with your request. Please note that the changes made to your license are printed in **bold font**.

In addition, note that we have not amended your license to allow Maintenance on your devices that contain generally licensed sealed sources and custom gauges. As stated in our earlier cover letter dated April 28, 2000, in order to amend your license you must provide a more detailed description of your Maintenance program. See NUREG 1556, Vol. 1, "Consolidated Guidance About Materials License, Program Specific Guidance About Fixed Gauges Licenses (See Appendix N) and NUREG 1556, Vol. 4, "Consolidated Guidance About Materials Licenses, Program Specific Guidance About Portable Gauge License" (See Appendix G). These guides (provided with April 28, 2000 letter) will assist you with information needed for non-routine maintenance.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

Sincerely,



Cassandra F. Frazier, Senior Health Physicist
Materials Licensing Branch

License No. 21-00265-06
Docket No. 030-04783

Enclosure: Amendment No. 66

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 2
FOIA- 2005-0292

H/B

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.

PC 03610

306581

<p>Licensee</p> <ol style="list-style-type: none"> The Dow Chemical Company H&ES, Industrial Hygiene Laboratory 1803 Building Midland, MI 48674 	<p>In accordance with letter dated February 3, 2000</p> <ol style="list-style-type: none"> License number 21-00265-06 is amended in its entirety to read as follows: Expiration date September 30, 2007 Docket No. 030-04783 Reference No.
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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
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NUCLEAR REGULATORY COMMISSION

<p>C. Hydrogen-3</p> <p>D. Krypton-85</p> <p>E.</p>	<p>C. Sealed sources (which have been evaluated and registered with the NRC or an Agreement State)</p> <p>D. Sealed sources (which have been evaluated and registered with the NRC or an Agreement State)</p>	<p>C. No single source to exceed 10 curies; 50 curies total</p> <p>D. No single source to exceed 2 curies; 20 curies total</p>
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EX 2

EX 2

7

MATERIALS LICENSE SUPPLEMENTARY SHEET

License Number 21-00265-06

Docket or Reference Number 030-04783

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

7. Chemical and/or physical form

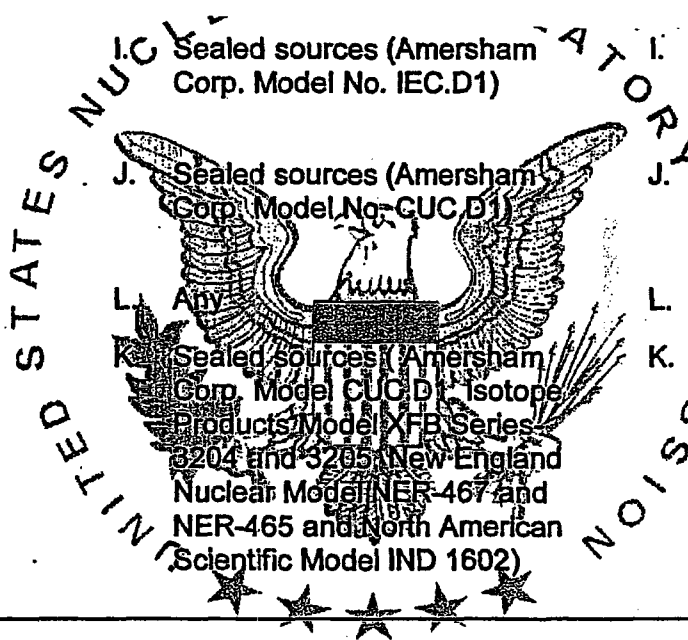
8. Maximum amount that licensee may possess at any one time under this license

up to 2

Ex 2

F. G. H. I. J. K.

Iron-55
Cadmium-109
Thorium
Cadmium-109



I. Sealed sources (Amersham Corp. Model No. IEC.D1)
J. Sealed sources (Amersham Corp. Model No. CUC.D1)
L. Any
K. Sealed sources (Amersham Corp. Model CUC.D1, Isotope Products Model XFB Series 3204 and 3205, New England Nuclear Model NER-467 and NER-465 and North American Scientific Model IND 1602)

I. No single source to exceed 45 millicuries; 180 millicuries total
J. No single source to exceed 5 millicuries; 20 millicuries total
L. Not to exceed 90 pounds
K. No single source to exceed 50 millicuries.

9. Authorized Use:

- A. To be used for research and development as defined in 10 CFR Part 30, Section 30.4, including animal studies.
- B. through F. To be used in source housings which have been evaluated and registered with the NRC or an Agreement State or in Dow Chemical, Inc. custom devices in accordance with the statements, representations and procedures contained in application dated September 11, 1984.
- G. To be used in an instrument calibrator for instrument calibration.
- H. and I. For use in Texas Nuclear Corporation Model 9200 Series metallurgist X-ray Analyzer for metal alloy analysis.
- J. For research and development of thorium containing catalyst.

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K. For use in Niton Model 700 Series X-ray Fluorescence Analyzer.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at Central Research Campus, Midland, Michigan, [Midland, Michigan, Dow Michigan Division, Ex 2
Midland, Michigan, and Michigan Division, Bay City, Michigan. Ex 2
11. A. Licensed material shall only be used by, or under the supervision of, individuals designated by the Radiation Safety Committee, Stanley L. Dombrowski, Chairperson. The licensee shall maintain records of individuals designated as users for 3 years after the individual's last use of licensed material.
- B. Licensed material authorized for use in Item 9.H. and I. above, may be stored at the licensee's facilities located in [] and may be used 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. Ex 2
- C. Licensed material authorized for use in Item 9.K. above, may be stored at the licensee's facilities located in [] and may be used 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. Ex 2
- D. The Radiation Safety Officer for this license is Janet Grappin.
12. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.
- 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 3 months.
- C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- D. Sealed sources 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

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- (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 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 or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.
- E. The leak 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 in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, Illinois 60532-4351, ATTN: Chief, Nuclear Materials Safety Branch. The report shall specify the source involved, the test results, and corrective action taken.
- F. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
13. Licensed material shall not be used in or on human beings.
14. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
15. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:
- A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
- B. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
- C. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 days (as described in letter dated July 7, 1997) for decay-in-storage before disposal in ordinary trash provided:
- (i) Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

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- (ii) Before disposal as ordinary trash, radioactive waste shall be surveyed (as described in letter dated July 7, 1997) to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated, unless incinerated.

16. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
17. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
18. A. Pursuant to 10 CFR 20.1302 and 10 CFR 20.2002, the licensee is authorized to dispose of licensed material by incineration provided the gaseous effluent from incineration does not exceed the limits specified for air in Appendix B, Table II, 10 CFR Part 20.
- B. Pursuant to 10 CFR 20.2002, the licensee may dispose of incinerator ash containing radioactive materials with Atomic Nos. 1-83, other than those isotopes listed below, as ordinary waste in a landfill, provided the concentrations of the isotopes, expressed in μCi per gram of ash, at the time of disposal, do not exceed the numerical values listed in Table II, Column 2, 10 CFR 20, Appendix B. Isotopes not included are hydrogen-3, carbon-14, aluminum-26, chlorine-36, silver-108m, niobium-94, iodine-129, technetium-99, and thallium-201, for which the concentrations must not exceed 10 percent of the values listed in Table II, Column 2, 10 CFR Part 20, Appendix B.
- C. This license does not authorize the commercial incineration of byproduct, source or special nuclear material. However, the licensee is authorized to incinerate byproduct material waste from the Dow Chemical Company divisions and subsidiaries (as described in letter dated July 7, 1997).
19. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

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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 October 6, 1995; and

B. Letters dated July 7, 1997 (excluding Appendix No. 6 and Tab No. 8, Storage of Radioactive Material, of Appendix No. 9), February 4, 1999, February 3, 2000 (excluding Item 5) and June 2, 2000.



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

SEP 05 2000

Date _____

By _____

Cassandra F. Frazier
Materials Licensing Branch
Region III