



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

September 12, 2007

Docket No. 03005247  
Control No. 140989

License No. 29-00886-01

Richard Chalfant, C.I.H.  
Radiation Safety Officer  
E.I. duPont de Nemours and Company, Incorporated  
Administration Building Room #216  
Dupont Chambers Works  
Deepwater, NJ 08023

SUBJECT: E.I. DUPONT DE NEMOURS AND COMPANY, INCORPORATED, LICENSE  
AMENDMENT, CONTROL NO. 140989

Dear Mr. Chalfant:

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) 337-5239, so that we can provide appropriate corrections and answers.

An environmental assessment for this action is not required, since this action is categorically excluded under 10 CFR 51.22(c)(14).

Current NRC regulations and guidance are included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **Nuclear Materials; Medical, Academic, and Industrial Uses of Nuclear Material**; then **Regulations, Guidance, and Communications**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 7:00 a.m. to 8:00 p.m. EST, Monday through Friday (except Federal holidays).

Thank you for your cooperation.

Sincerely,

***Original signed by Jenny Johansen***

Jenny Johansen  
Health Physicist  
Materials Security and Industrial Branch  
Division of Nuclear Materials Safety

Enclosure:  
Amendment No. 73

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**SUNSI Review Complete: JJohansen**

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NAME	JJohansen/JMJ							
DATE	9/12/07							

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**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. E. I. duPont de Nemours and Company Incorporated</p> <p>2. Chambers Works Deepwater, New Jersey 08023</p>	<p>In accordance with the letter dated August 23, 2007,</p> <p>3. License number 29-00886-01 is amended in its entirety to read as follows:</p> <hr/> <p>4. Expiration date March 31, 2013</p> <hr/> <p>5. Docket No. 030-05247 Reference No.</p>
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<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Nickel 63</p> <p>B. Cesium 137</p> <p>C. Iron 55</p>	<p>7. Chemical and/or physical form</p> <p>A. Sealed source (Amersham Model NBCD and New England Nuclear Model NER-004P)</p> <p>B. Sealed source (Kay-Ray Model 7700-y; Ohmart Model A2102 and A2100; Amersham Model CDC.700, CDC.711, CDC.800, and CDC.93; 3M Model 4F6S and 4F6ST; Thermo-Measure Tech Model 57157C, 696833, and 696894)</p> <p>C. Sealed source (Amersham Model IEC.A1, and IEC.D1; New England Nuclear Model NER-460A; and Isotope Products Model XFB)</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. No single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State</p> <p>B. No single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State</p> <p>C. No single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State</p>
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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   |
| D. Cadmium 109  | D. Sealed source (Amersham Model CUC.D1, and CUC.D1N; New England Nuclear Model NER-460A; and Isotope Products Model XFB) | D. No single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State |
| E. Americium 241                                      | E. Sealed source (Amersham Model AMC.D2; New England Nuclear Model NER-478; and Isotope Products Model GFS, and XFB)      | E. No single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State |
| F. Curium 244   | F. Sealed source (Amersham Model CLCL, and Isotope Products Model XFB)  | F. No single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State |
| G. Cesium 137   | G. Sealed source (New England Nuclear Model NER-570-A)  | G. No single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State |

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## 9. Authorized use:

- A. To be used for sample analysis in compatible gas chromatography devices that have been registered either with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with a Commission or Agreement State specific license authorizing distribution to persons specifically authorized by a Commission or Agreement State license to receive, possess, and use the devices.
- B. through F. To be used, for flow measurements in fixed gauging devices that have been registered either with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with a Commission or Agreement State specific license authorizing distribution to persons specifically authorized by a Commission or Agreement State license to receive, possess, and use the devices.
- G. For use in a New England Nuclear Model 401B Gamma Source Assembly for instrument calibration.

**CONDITIONS**

10. Licensed material may be used or stored only at the licensee's facilities located at E.I. DuPont de Nemours and Company, Inc., Chamber Works, Route 130, Deepwater, New Jersey.
11. Licensed material shall be used by, or under the supervision of Richard Chalfant, or individuals who have received the training as described in letter dated January 24, 2003.
12. The Radiation Safety Officer for this license is Richard Chalfant.
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), 40.36(b), and 70.25(d) for establishing financial assurance for decommissioning.
14. A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed 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.

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- C. Sealed sources need not be tested if they contain only hydrogen-3; or they contain only a radioactive gas; or the half-life of the isotope is 30 days or less; or they contain not more than 100 microcuries of beta- and/or gamma-emitting material or not more than 10 microcuries of alpha-emitting material.
- D. 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.
- E. 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.
- F. Tests for leakage and/or contamination, limited to leak test sample collection, 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. The licensee is not authorized to perform the analysis; analysis of leak test samples must be performed by persons specifically licensed by U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
15. Sealed sources containing licensed material shall not be opened or sources removed from source holders by the licensee, except as specifically authorized.
16. The licensee shall conduct a physical inventory every 6 months, or at other interval approved by the U.S. Nuclear Regulatory Commission, to account for all sealed sources and/or devices received and possessed under the license.
17. A. Each gauge shall be tested for the proper operation of the on-off mechanism (shutter) and indicator, if any, at intervals not to exceed 6 months or at such longer intervals as specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or the equivalent regulations of an Agreement State.
- B. Notwithstanding the periodic on-off mechanism (shutter) and indicator test, the requirement does not apply to gauges that are stored, not being used, and have the shutter lock mechanism in a locked position. The gauges exempted from this periodic test shall be tested before use.
18. A. Installation, relocation, removal from service shall be performed only by Richard Chalfant or by individuals who have successfully completed the training as described in letters dated January 24, 2003, and March 3, 2003, or by persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

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- B. The following services shall not be performed by the licensee: dismantling, alignment, replacement, disposal of the sealed sources and non-routine maintenance or repair of components related to the radiological safety of the gauge. These services shall be performed only by persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
19. The licensee may initially mount a gauge if permitted by the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State and under the following conditions:
- A. The gauge must be mounted in accordance with written instructions provided by the manufacturer;
  - B. The gauge must be mounted in a location compatible with the "Conditions of Normal Use" and "Limitations and/or Other Considerations of Use" in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State;
  - C. The on-off mechanism (shutter) must be locked in the off position, if applicable, or the source must be otherwise fully shielded;
  - D. The gauge must be received in good condition (i.e., package was not damaged); and
  - E. The gauge must not require any modification to fit in the proposed location.
- Mounting does not include electrical connection, activation or operation of the gauge. The source must remain fully shielded and the gauge may not be used until it is installed and made operational by a person specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such operations.
20. A. The licensee may maintain, repair, or replace device components that are not related to the radiological safety of the device and that do not result in the potential for any portion of the body to come into contact with the primary beam or in increased radiation levels in accessible areas.
- B. The licensee may not maintain, repair, or replace any of the following device components: the sealed source, the source holder, source drive mechanism, on-off mechanism (shutter), shutter control, or shielding, or any other component related to the radiological safety of the device, except as provided otherwise by specific condition of this license.
21. Prior to initial use and after installation, relocation, dismantling, alignment, or any other activity involving the source or removal of the shielding, the licensee shall assure that a radiological survey is performed to determine radiation levels in accessible areas around, above, and below the gauge with the shutter open. This survey shall be performed only by persons authorized to perform such services by the U.S. Nuclear Regulatory Commission or an Agreement State.

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22. The licensee shall operate each device containing licensed material within the manufacturer's specified temperature and environmental limits such that the shielding and shutter mechanism of the source holder are not compromised.
23. The licensee shall assure that the shutter mechanism, for each device containing licensed material, is locked in the closed position during periods when a portion of an individual's body may be subject to the direct radiation beam. The licensee shall review and modify, as appropriate, its "lock-out" procedures whenever a new device is obtained to incorporate the device manufacturer's recommendations.
24. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
25. 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 December 19, 2002 (ML023610478)
  - B. Letter dated January 24, 2003 (ML030380312)
  - C. Letter dated March 3, 2003 (ML030700192)
  - D. Letter dated August 23, 2007 (ML072430353)

For the U.S. Nuclear Regulatory Commission

Date September 10, 2007

By ***Original signed by Jenny Johansen***

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Jenny Johansen  
Materials Security and Industrial Branch  
Division of Nuclear Materials Safety  
Region I  
King of Prussia, Pennsylvania 19406