

August 25, 1999

The Applied Radiant Energy Corporation
ATTN: James J. Myron, Ph.D.
Vice-President, Safety and Regulatory Affairs
Venture Drive/Forest Commercial Center
Forest, VA 24551

**SUBJECT: TRANSMITTAL AND EXPLANATION OF AMENDMENTS TO LICENSE NOS.
45-11498-01 AND 45-11498-02 (REFERENCE: MAIL CONTROL NOS. 258479;
258480; DOCKET NOS. 030-07099; 030-33087)**

Dear Dr. Peters:

Enclosed please find Amendment Nos. 20 and 02 to your NRC materials licenses. Changes to the licenses are printed in **BOLD** typeface.

Please review the enclosed documents carefully and be sure that you understand all conditions. If there are any errors or questions, please notify this office [ATTN: Ms. Diane Heim at (404) 562-4723] so that we can provide appropriate corrections and answers.

Unless your licenses have been terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC licenses, representations made in your license applications, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," 10 CFR 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Notify NRC, in writing, within 30 days:
 - a. when an authorized user or Radiation Safety Officer permanently discontinues performance of duties under the license or has a name change; or
 - b. when the licensee's mailing address changes.
3. In accordance with 10 CFR 30.36(d) and/or license conditions, notify NRC, promptly, in writing, and request amendment or termination of the licenses:
 - a. when you decide to terminate all activities involving materials authorized under the licenses; or
 - b. when you decide to terminate licensed activities in a separate building or outdoor area identified on your licenses.

4. Request and obtain a license amendment before you:
 - a. change Radiation Safety Officer;
 - b. order byproduct material in excess of the amount, or a different radionuclide or form other than authorized on the licenses;
 - c. add to or change the areas of use or address (or addresses) of use identified in the license applications or on the licenses; or
 - d. change ownership of your organization.

5. Submit a complete renewal application or termination request at least 30 days before the expiration date of your licenses. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your licenses expire is a violation of NRC regulations. Transfer of licensed materials must be consistent with 10 CFR 30.41, 40.51 or 70.42, as applicable. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signature on the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license applications and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a Notice of Violation, or imposition of a Civil Penalty, or an order suspending, modifying or revoking your license as specified in the most current version of the "General Statement of Policy and procedures for NRC Enforcement Actions," NUREG-1600. Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken against those who do not achieve the necessary attention to detail and standard of compliance expected of licensees.

Thank you for your cooperation.

Sincerely,


 Wade T. Loo, License Reviewer
 Division of Nuclear Materials Safety

- Enclosures: 1. Amendment Nos. 20 and 02,
 License Nos. 45-11496-01; 45-11496-02
 2. NRC Form 313

OFFICE	RII:DNMS	RII:DNMS				
SIGNATURE		<i>WTL</i>				
NAME	M. loc <i>CND</i>	TDecker				
DATE	8/24/99	8/24/99	8/ / 199	8/ / 199	8/ / 199	8/ / 199
COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY

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, 38, 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. Applied Radiant Energy Corporation Venture Drive/Forest Commercial Center</p> <p>2. P.O. Box 289 Forest, Virginia 24551</p>	<p>In accordance with the letter dated August 18, 1999</p> <p>3. License No. 45-11496-01 is amended in its entirety to read as follows:</p> <p>4. Expiration Date: February 28, 2007</p> <p>5. Docket No. 030-07099</p>
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<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Cobalt 60</p> <p>B. Cobalt 60</p>	<p>7. Chemical and/or physical form</p> <p>A. Sealed sources (BNL standard source strips or Neutron Products, Inc. sources encapsulated as described in letters dated July 3, 1968, February 5, 1981 and February 6, 1981 and/or Nordion International Model C-188 sources</p> <p>B. Nuclear Chicago Model RR-61</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. 14.81 terabecquerels (400,000 Curies) (See Item 9.A and Condition No. 19)</p> <p>B. 3.70 gigabecquerels (100 millicuries) (See Item 9.A and Condition No. 19)</p>
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9. Authorized Use:
- A. For use in the licensee's custom pool irradiator facility for underwater irradiation of materials, except those prohibited by 10 CFR 36.
 - B. For use in calibration of instruments.

CONDITIONS

- 10. Licensed material shall be used only in the licensee's pool irradiator facility located at 2432 Lakeside Drive, Lynchburg, Virginia.
- 11. The Radiation Safety Officer for this license is, James J. Myron, Ph.D. or in his absence, Rodney W. Bell, or Lawrence G. Barrett.

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**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License No.
45-11496-01Docket No.
030-07099

Amendment No.

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12. Licensed material shall be used by, or under the supervision of, Lawrence G. Barrett, James J. Myron, Rodney W. Bell or by other licensee employees who have been trained as specified in revised application for renewal dated November 14, 1996.
13. Sealed sources containing licensed material shall not be opened by the licensee.
14. A. (1) The source(s) specified in Item 7, shall be tested for leakage and/or contamination at intervals not to exceed 6 months. Any source received from another person which is not accompanied by a certificate indicating that a test was performed within 6 months before the transfer shall not be put into use until tested.
- (2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 3.70 megabecquerels [100 microcuries (μCi)] or less of beta and/or gamma emitting material or 370 kilobecquerels (10 μi) or less of alpha emitting material.
- B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another person, it shall be tested before use or transfer.
- C. The test shall be capable of detecting the presence of 185 becquerels (Bq) (0.005 μCi) of radioactive material on the test sample. If the test reveals the presence of 185 Bq (0.005 μCi) or more of removable contamination, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U. S. Nuclear Regulatory Commission, Region II, Division of Nuclear Materials Safety, Nuclear Material Licensing/Inspection Branch, 101 Marietta Street, Suite 2900, Atlanta, Georgia 30323. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission.
- D. 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.
- E. In lieu of the standard leak test, the licensee may perform the tests described in letter dated February 21, 1997. If any radioactivity above normal background is detected, the licensee shall determine if the radioactivity is due to a leaking source. Upon verifying a leaking source, the licensee shall immediately secure the irradiator, discontinue regular operations and promptly notify NRC by telephone and FAX. After consultation with the sealed source and irradiator manufacturer and after NRC written approval, the licensee shall cause the leaking source to be removed in accordance with procedures specifically approved by this license. Within five days after verifying positive test results, a written report of the leaking source shall be provided to the U. S. Nuclear Regulatory Commission, RII, Division of Nuclear Materials Safety, Materials Licensing/Inspection Branch, 61 Forsyth Street, S.W., Suite 23T85, Atlanta, Georgia 30303.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License No.
45-11496-01

Docket No.
030-07099

Amendment No.
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15. The licensee shall provide and require the use of written procedures for maintenance and servicing, and routine and emergency operations. These procedures shall conform to the sealed source and pool irradiator written specifications and to pertinent NRC rules, regulations and to the specific requirements of this license.
16. The licensee shall notify NRC, RII, in writing, at least 2 weeks before the anticipated receipt of a shipment of cobalt 60 capsules.
17. The licensee shall maintain financial assurance for decommissioning as specified in 10 CFR 30.35.
18. Except as specifically provide 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. Applications dated:

- 1) January 21, 1988 [Initial application for renewal-background information applicable to pool construction, facilities and equipment]
- 2) November 14, 1996 [Revised application for renewal]

B. Letters dated:

- 1) April 11, 1986 [applicable to licensee's training program only]
- 2) July 3, 1988, February 5, 1981, and February 6, 1981 (Description of Neutron products sealed sources, including drawings)
- 3) April 11, 1986 (Engineering contractor's pool construction evaluation report)
- 4) November 14, 1996 (Explanation of revised renewal application)
- 5) January 30, 1997 (Description of operations for heating pool water to improve polymerization reaction times)
- 6) February 21, 1997 (clarification of radiation safety and operational safety procedures involved in the licensee's product irradiation process)
- 7) August 18, 1999 [Request to delete Lic. Cond. No. 15 regarding RAM in the pool]

FOR THE U. S. NUCLEAR REGULATORY COMMISSION

WADE T. LOO

BY

Wade T. Loo
Region II, Division of Nuclear Materials Safety
61 Forsyth Street, S.W., Suite 23T85
Atlanta, Georgia 30303

DATE

AUG 25 1999

P. M. [unclear]
8/27/99