

# The Applied Radiant Energy Corporation

Manufacturer of Gammapar X-ray Wand Irradiators

2200 Peachtree Industrial Center  
P.O. Box 100000  
Atlanta, Georgia 30308

Telephone: (404) 525-4400

March 20, 1997

Mr. Earl Wright  
Senior License Reviewer  
Div. of Nuclear Materials Safety  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, GA 30323-0199

Dear Mr. Wright:

ARECO recently received a renewal of its Materials License (45-11496-01) from your office. Upon reviewing it, we feel the need to request some changes in a number of the license conditions. These changes are as follows:

- **CONDITION 10:** This condition limits the use of the Cobalt-60 sources to 2432 Lakeside Drive. As you may know, ARECO has plans to move to a new irradiator facility that is located about six miles from the present one in the latter part of 1997. We wish to have the option of transferring the Cobalt-60 from Lakeside Drive to this new site at that time.
- **CONDITION 11:** This condition names the Radiation Protection Officer (RPO) and his "alternates" and lists G. Middaugh as such an alternate. Although a brief summary of Mr. Middaugh's radiation related experience and training was given in our November 14, 1996, renewal application, because he is responsible to a significant degree for Radiation Safety, we did not mean for him to be made a Radiation Protection Officer. We may make such a request in the future, but ask that he not be a RPO at the present time.
- **CONDITION 12:** G. Middaugh is also named in this condition as a user of the licensed material. He is a user because he is a trained employee as specified in revised application for renewal dated November 14, 1996, and so he need not be named specifically in this section.
- **CONDITION 15:** This new condition prohibits ARECO personnel from performing numerous operations involving the sealed sources. It appears that some of the specifics of this item concern panoramic irradiators rather than our underwater irradiator. While we do not wish to repair or dispose of any sealed sources, we do want to be able to relocate, store and install them within our facilities as we have done many times in the past. Therefore, we need to have this condition replaced or amended to give us permission to carry out such procedures.

It should be noted in connection with the last sentence of this condition that ARECO is the manufacturer of its irradiator.

*Received  
4/11/97*

*DL-032097-03*

*4/11/97*

*Responded by phone  
4/1/97*

*Needs corrected  
copy of cond 11/12  
+ clarifying letter  
for cond 10, 15, 16  
sent 17 4/1/97*

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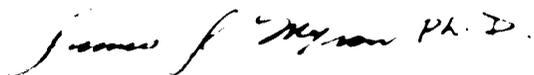
- **CONDITION 16:** Here, also, wording appropriate to panoramic irradiators has been used. We have always performed radiation surveys before and after the installation of new radioactive sources in our irradiator and have sent the results to the NRC. This type of survey scans numerous strategic points in the irradiator pool room as is appropriate. Condition 16 should be changed to address this situation.
- **CONDITION 17:** This deals with written procedures for various types of operations. We have no sealed source and irradiator manufacturer written specifications to refer to when writing such procedures and we ask that reference to conformance to these items be deleted.

ARECO is pleased by the issuance of the license renewal and we are sure that the various changes that are requested above will not compromise the safety of our irradiation operations in any way.

If you have any questions regarding this matter, please contact me at 804-385-5300.

Yours truly,

THE APPLIED RADIANT ENERGY CORPORATION



James J. Myron, Ph.D.  
Vice President  
Safety & Regulatory Affairs

JJM dek (F460)

MATERIAL LICENSE

Pursuant to Atomic Energy Act of 1954... Federal Register... Code of Federal Regulations... 10 CFR 30.11... special nuclear material... conditions specified in Sections of the Atomic Energy Act...

In accordance with application dated November 14, 1996 (Revised)

Licensee: Applied Radiant Energy Corporation

45-11496-01

is revised in its entirety to read as follows

Venture Drive/Forest Commercial Center
P.O. Box 289
Forest, Virginia 24551

February 28, 2007

Expiration Date:

030-07-09

Serial or Reference No.

6. Byproduct, Source, and/or Special Nuclear Material

Chemical Form

Maximum Amount that Licensee May Possess at Any One Time Under This License

A. Cobalt 60

A. Sealed sources (BNI 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 for Nordion International Model C-188 sources

A. 400,000 Curies (See Item 9.A and Condition No. 19)

B. Cobalt 60

B. Nuclear Chicago Model RR 61

B. 100 millicuries (See Item 9.A and Condition No. 19)

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 Protection Officer for this license is, James J. Myron, Ph.D. or in his absence, Rodney W. Bell, or Lawrence G. Barrett or Gregory J. Middaugh.

License Number 45-11496-01

Tracker Reference Number (7)(F)

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

Amendment No. 19

**CONDITIONS**

Continued

12. Licensed material shall be used by, or under the supervision of, Lawrence G. Barrett, James J. Myron, Rodney W. Bell, Gregory J. Middaugh 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 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries 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 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, 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, 101 Marietta Street, N.W., Suite 2900, Atlanta, GA 30323.
15. The licensee is prohibited from removing, replacing, and/or disposing of sealed sources from the irradiator pool. In addition, the licensee shall not perform repairs and/or alterations on the irradiator, its control console and safety systems, its shielding or any other mechanism that might affect the containment integrity of the sealed irradiator sources, the irradiator "on-off" mechanism or the physical security of the irradiation room. Unless otherwise specified in writing by the Commission, these services shall be performed only by the irradiator manufacturer or other persons specifically licensed by the Commission or an Agreement State to perform these services.

License Number 45-11496-01

Docket or Reference Number 030-07099

**MATERIALS LICENSE  
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Amendment No. 19

**CONDITIONS**

Continued

16. Before initiation of irradiator operations and after reloading of sources and before resuming operations, the licensee shall ensure that a radiation survey is conducted of all accessible locations outside the irradiation room (including: around, above and below [when appropriate]) with the sources in both the shielded and operate positions. Not more than thirty days after the survey is conducted, the results shall be sent to the U.S. Nuclear Regulatory Commission at the address specified in condition 14.E.
  
17. 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 irradiator manufacturer's written specifications and to pertinent NRC rules, regulations and to the specific requirements of this license.
  
18. The licensee shall notify NRC, RII, in writing, at least 2 weeks before the anticipated receipt of a shipment of cobalt 60 capsules.
  
19. The licensee shall maintain records of information important to safe and effective decommissioning at the licensee's address specified in Item 2 pursuant to the provisions of 10 CFR 30.35(g) until this license is terminated by the Commission
  
20. The licensee shall maintain financial assurance for decommissioning as specified in 10 CFR 30.35
  
21. 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 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]

License Number

45-11496-01

Packet of Reference Number **030-07099**

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

Amendment No. 19

CONDITIONS

22.(cont.)

B. Letters dated:

- (1) April 11, 1986 [applicable to licensee's training program only]
- (2) July 3, 1968, 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)

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

LARRY G. WRIGHT

Date \_\_\_\_\_

By \_\_\_\_\_  
Division of Nuclear Materials Safety  
101 Marietta Street, N.W., Suite 2000  
Atlanta, GA 30323

N. LICENSE 45-11496-R19