



Department of the Environment

RADIOLOGICAL HEALTH PROGRAM  
RADIOACTIVE MATERIAL LICENSE

Pursuant to the Maryland Radiation Act, 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 radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. The license is subject to all applicable rules, regulations and orders of the Maryland State Department of the Environment, now or hereinafter in effect and to any conditions specified below.

<p>1. Name: Ecology Services, Inc. 2. Address: 9135 Guilford Road, Suite 200 Columbia, Maryland 21046</p>	<p>3. License No.: MD-07-229-01 4. Amendment No.: 06; Code 03232 5. Expiration Date: April 30, 2019</p>	
<p>6. Radioactive material (element and mass number)</p> <p>A. Any radioactive material with atomic numbers from 1-98 and special nuclear material.</p> <p>B. Any radioactive material with atomic numbers from 1-98 and source or special nuclear material</p> <p>C. Any radioactive material with atomic numbers from 1-98 and source or special nuclear material</p> <p>D. Hydrogen-3</p> <p>E. Any radioactive material with atomic numbers from 1-98 and any source or special nuclear material</p> <p>F. Americium-241</p>	<p>7. Chemical and/or physical form</p> <p>A. Any organic and inorganic, mono and poly atomic solids, liquids, and gases/sealed sources</p> <p>B. Any organic and inorganic, mono and poly atomic solids, liquids, and gases/unsealed materials</p> <p>C. Any organic and inorganic, mono and poly atomic solids, liquids, and gases/unsealed sources and bulk</p> <p>D. Gas contained in "Exit" signs</p> <p>E. Sealed, plated or foil sources, depleted uranium, metal slab</p> <p>F. Sealed Sources contained in intact smoke detectors</p>	<p>8. Maximum amount of activity which licensee may possess at any one time</p> <p>A. 50 curies for Byproduct Material, 2 Curies for Transuranic Materials and 200g for Special Nuclear Materials</p> <p>B. 50 curies for Byproduct Material, 2 Curies for Transuranic Materials and 20,000 pounds for source materials and 200g for Special Nuclear Materials</p> <p>C. 50 curies for Byproduct Material, 2 Curies for Transuranic Materials and 20,000 pounds for source materials and 200g for Special Nuclear Materials</p> <p>D. 2,000 Curies</p> <p>E. 500 microcuries with no single source greater than 100 microcuries</p> <p>F. 50 millicuries</p>



Department of the Environment

RADIOLOGICAL HEALTH PROGRAM  
RADIOACTIVE MATERIAL LICENSE

License Number: MD-07-229-01

Amendment Number: 06

Conditions

8. Maximum amount of activity which licensee may possess at any one time, continued:

Special terms and conditions:

1. The licensee shall not possess special nuclear material, where the sum of the ratios in combination exceeds 1, as in the formula below:

$$\frac{175 \text{ (grams contained U-235)}}{350} + \frac{50 \text{ (grams U-233)}}{200} + \frac{50 \text{ (grams Pu)}}{200} = 1$$

2. The licensee shall not possess radioactive material of quantities of concern or ratios, thereof not to exceed unity, as described in United States Nuclear Regulatory Commission letter of November 13, 2005, listing quantities of concern as in "Category 2 Quantities, IAEA Safety Guide No. RS-G-1.9, Categorization of Radioactive Sources. August, 2005.)

9. Authorized Use(s):

A,B,C:

To pick up, receive and store pre-packaged licensed radioactive material from persons and companies authorized to possess and dispose of same. Storage time will not exceed 1 year for packages to be transferred to other processors or to licensed burial sites. Ecology Services, Incorporated will serve as a broker for the processing or disposal of radioactive waste. Brokerage services include storage, bulking/repackaging of outer containers, manual size reduction, solidification and/or absorption of liquid waste transporting or transferring licensed material to licensed processors, burial site, or returning the licensed material to the original generator for final monitoring and disposal; Ecology Services, Inc. is authorized to conduct such service for the client.

To provide decay-in-storage services for persons and companies authorized to dispose of licensed radioactive material by that method. This service will be limited to licensed material having a half-life of 88 days or less, with an on-site storage time of no longer than 2.5 years. After the appropriate storage period, the waste may be returned to the original generator for final monitoring and disposal. Ecology Services, Incorporated may perform final monitoring and disposal.

Licensee will package and prepare for transport, licensed material, sealed sources and devices containing licensed material, perform decontamination and decommissioning activities, at client's facilities, temporary job sites, and at the address in item 10. Licensee is authorized to possess equipment contaminated with residual amounts of activity incidental to providing services listed herein. Notification and approval will be required from the agency prior to commencement of work with specifically licensed radioactive material not currently authorized on the license, such as installing or uninstalling sealed sources for which procedures must be submitted.



Department of the Environment

RADIOLOGICAL HEALTH PROGRAM  
RADIOACTIVE MATERIAL LICENSE

**License Number:** MD-07-229-01

**Amendment Number:** 06

Conditions

9. Authorized Use(s): Continued:
  - D. Consolidation and subsequent shipment of intact Tritium Exit Signs for disposal.
  - E. Reference sources for instrument quality tests and operational checks.
  - F. Consolidation and subsequent shipment of intact smoke detectors for disposal.
10. Radioactive material shall be used only at 3520 Fairfield Road, Baltimore, Maryland 21226, and temporary job sites throughout Maryland and licensed facilities throughout Maryland. The licensee must notify the Radiological Health Program 30 days prior to vacating a permanent use address.
- 11A. The radiation protection program shall be under the supervision of Timothy Osborne
- 11B. Radioactive material shall be used by, or under the supervision of Tim Osborne, Colt Greer, Andy Armbrust, Don Hartje, Paul W. Marshall, Gregory E. Keck, Ashley Woodward or James Dean.
12. The licensee shall comply with all appropriate provisions of COMAR 26.12.01.01 "Regulations for Control of Ionizing Radiation," and shall possess a copy of these regulations.
13. All removable contamination, both in controlled and uncontrolled areas, shall be cleaned to at least 220 dpm/ 100 cm<sup>2</sup>. This condition supersedes any application statements.
14. Leak Testing of sealed sources shall be conducted in accordance with COMAR 26.12.01.01 § D.401.
15. Sealed sources containing radioactive material shall not be opened.
16. The licensee will be authorized on a case-by-case basis to provide radiation safety services to the non-routine inspection, removal, handling and packaging of sealed sources.
17. The licensee shall conduct a physical inventory every six (6) months to account for all sealed sources received and possessed under the license. The records of the inventories shall be maintained for three (3) years from the date of the inventory for inspection by the Department, and shall include the quantities and kinds of radioactive material, location of sealed sources, and the date of the inventory.
18. Food and beverage containers shall not be discarded in radioactive or normal trash containers in licensee's areas utilizing radioactive materials.
- 19A. The licensee shall not make any false statement, representation, or certification in any application, record, report, plan, or other document regarding radiation levels, tests performed or radiation safety conditions or practices. Additionally, the licensee shall not falsify, tamper with, or render inaccurate any monitoring device or method.
- 19B. Violation of any term, condition, or regulation could subject the licensee to administrative or civil penalty or criminal prosecution, as specified in Title 8, Radiation, of the Article Environment of the Annotated Code of Maryland.



Department of the Environment

RADIOLOGICAL HEALTH PROGRAM  
RADIOACTIVE MATERIAL LICENSE

**License Number:** MD-07-229-01

**Amendment Number:** 06

Conditions

20. The licensee shall not transfer ownership and/or control of this license to any person or entity without providing required information regarding the transfer for the Agency's review and without receiving written authorization for the transfer by the Agency.
21. This condition is specific to the applicant's initial receipt of this license. The licensee shall notify the Radiological Health Program's Radioactive Materials Inspection and Compliance Division, in writing, no later than 10 calendar days after the initial receipt of radioactive materials authorized on this license.
22. Transportation of radioactive material shall be done in accordance with COMAR 26.12.01.10, Section T.
23. The licensee's decommissioning funding plan with letters and attachments dated March 14, 2013 were reviewed and determined to be adequate by the Department of the Environment, in accordance with COMAR 26.12.01.01 C29.
24. The licensee's shall conduct licensed activities in accordance with the March 14, 2013 Decommissioning Funding Plan (DFP) submitted to the Agency pursuant to COMAR 26.12.01.01C.29(d).
  - (a) At intervals not to exceed forty-two (42) months, the licensee shall re-evaluate the DFP and resubmit the plan to the Agency, with adjustments as necessary, to account for changes in costs and the extent of contamination, and also allowing for a 25% contingency. If following the above evaluation, the amount of financial assurance is adjusted downward, the licensee may not change its financial instrument until approved, in writing, by the Agency. The resubmitted DFP must update the information submitted with the original or prior approved plan, and must specifically reconsider the effect of the following events on decommissioning costs:
    - (i) Spills of radioactive material producing additional residual radioactivity in onsite subsurface material;
    - (ii) Waste inventory increasing above the amount previously estimated;
    - (iii) Waste disposal costs increasing above the amount previously estimated;
    - (iv) Facility modifications;
    - (v) Changes in authorized possession limits;
    - (vi) Actual remediation costs that exceed the previous cost estimate;
    - (vii) Onsite disposal; and
    - (viii) Use of a settling pond.



Department of the Environment

RADIOLOGICAL HEALTH PROGRAM  
RADIOACTIVE MATERIAL LICENSE

**License Number:** MD-07-229-01

**Amendment Number:** 06

Conditions

- (b) Any future licensee submittal of a financial instrument to the Agency shall include the licensee's name, license number, and the name, address, and other contact information of the issuer, and; if a trust is used, the trustee. When any of the foregoing information changes, the licensee shall, within 30 days, submit, to the Agency, a financial instrument reflecting such changes. The financial instrument submitted must be a signed original or signed original duplicate, except where a copy of the signed original is specifically permitted.
- (c) The licensee shall use financial assurance funds only for decommissioning activities and shall monitor the balance of funds held to account for market variations. The licensee shall replenish the funds, and report such actions to the Agency, as follows:
  - (i) If, at the end of a calendar quarter, the fund balance is below the amount necessary to cover the cost of decommissioning, but is not below 75 percent of the cost, the licensee must increase the balance to cover the cost, and must do so within 30 days after the end of the calendar quarter.
  - (ii) If, at any time, the fund balance falls below 75 percent of the amount necessary to cover the cost of decommissioning, the licensee must increase the balance to cover the cost, and must do so within 30 days of the occurrence.
  - (iii) Within 30 days of taking the actions required by the above, the licensee must provide a written report of such actions to the Program Manager, Radiological Health Program, Air and Radiation Management Administration, Maryland Department of the Environment, and report the new balance of the fund.
- (d) Any surety method or insurance must be open-ended or, if written for a specified term, such as five years, must be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the Agency, the beneficiary, and the licensee of its intention not to renew. The surety method or insurance must also provide that the full face amount be paid to the beneficiary automatically prior to the expiration. Or the licensee must provide a replacement acceptable to the Agency within 30 days after receipt of notification of cancellation.
- (e) The licensee shall insure that the surety method or insurance remains in effect until the Agency has terminated the license.



Department of the Environment

RADIOLOGICAL HEALTH PROGRAM  
RADIOACTIVE MATERIAL LICENSE

License Number: MD-07-229-01

Amendment Number: 06

Conditions

25. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material authorized by this license in accordance with statements representations, and procedures contained in:
- Application dated January 20, 2011, with attachments.
  - Letter with attachments received June 24, 2011
  - Letter with attachments dated October 19, 2011
  - Letter with attachments dated November 11, 2011
  - Letter dated January 23, 2012
  - Letter with attachments dated January 27, 2012
  - Electronic mail dated February 8, 2012
  - Facsimile date March 12, 2012
  - Letter dated March 19, 2012, with attachments, requesting: 1) atomic numbers added to items 6B, 6C & 6E; 2) removal of the-then Condition 16; 3) the addition of Tim Osborne, Colt Greer, Andy Armbrust, Don Hartje as authorized users
  - Letter dated March 31, 2012, with attachments, requesting approval of packaging procedures for a 750 millicurie Cobalt-60 source.
  - Letter with attachments dated June 27, 2012, adding James Dean as an Authorized User.
  - Letter dated March 14, 2013, updating the Decommissioning Funding Plan. Letter can be found in the Decommissioning Funding Plan binder.
  - Letters dated February 28, 2013 and April 29, 2013, with attachments, requesting permission to take possession of steel yoke housing pieces from an Azimuthally Varying Field Cyclotron for free release, pursuant to the documentation provided with letter dated April 29, 2013.
  - **Letter dated October 11, 2013, with attached procedures, requesting the addition of services to dispose/recycle sealed sources contained in liquid scintillation counters and Gas chromatographs Electron Capture Devices.**

COMAR 26.12.01.01 "Regulations for Control of Ionizing Radiation" shall govern the licensee's statements in applications or letters, unless the statements are more restrictive than the regulations.

FOR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Roland G. Fletcher, Program Manager IV  
Radiological Health Program  
Air and Radiation Management Administration

November 8, 2013

DKM DM 11/8/13