U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 58

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.

Licensee	In accordance with letter dated December 22, 2010
1. University of Alaska Fairbanks Environmental Health, Safety, and Risk Management	3. License number 50-02430-07 is amended in its entirety to read as follows:
2. 1855 Marika Road P.O. Box 758145 Fairbanks, Alaska 99775-8145	4. Expiration date August 31, 2020
	5. Docket No. 030-01179 Reference No.

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
A. As specified in 10 CFR 33.100, Schedule A (Type B Broad Scope)	A. Any	A. See Condition 12
B. Cobalt-60	B. Sealed source (ICN Chemical and Radioisotope Division)	B. 100 microcuries total
C. Hydrogen-3	C. Foils contained in electron capture detectors	C. 200 millicuries total
D. Nickel-63	D. Foils contained in electron capture detectors	D. 100 millicuries total
E. Cesium-137	E. Sealed source (Campbell Pacific Nuclear CPN-131)	E. 10 millicuries per source and 10 millicuries total.
F. Americium-241	F. Sealed source (Campbell Pacific Nuclear CPN-131)	F. 50 millicuries per source and 50 millicuries total.
G. Americium-241	G. Sealed source (Mount Sorpris Model GC375)	G. 1 curie total
H. Cesium-137	H. Sealed source (Mount Sorpris Model GC375)	H. 5 millicuries total
I. Radium-226	I. Solid	I. 150 milligrams total
J. Radium-226	J. Sealed source (U.S. Radium Lab-598-1 or Nuclear Chicago Drawing 184321)	J. 4.5 millicuries per source and 4.5 millicuries total.

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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
K. Cesium-137	K. Sealed source (Isotope Products Laboratories Model HEG-137-30)	K. 30 millicuries per source and 60 millicuries total.

9. Authorized Use:

A. Research and development as defined in 10 CFR 30.4. In vitro and in vivo studies in plants and animals.

B. For calibration of the licensee's survey instruments.

C. and D. For use in gas chromatographs for sample analysis.

E. and F. To be used in a CPN International, Inc., portable gauging device for measuring physical properties of materials.

G. through I. For storage only pending disposal.

J. Portable nuclear gauge Texas Nuclear (Division of Nuclear Chicago Corporation) Model 5901 in storage only pending disposal.

K. For calibration of the licensee's survey instruments and for physics laboratory demonstrations.

CONDITIONS

10. A. Licensed material shall be used only at the licensee's facilities located at:

1. University of Alaska, Fairbanks Campus, Fairbanks, Alaska
2. University of Alaska, Seward Marine Center, 201 Railway Avenue, Seward, Alaska
3. Large Animal Research Station, Mile 1, Yankovich Road, Fairbanks, Alaska
4. Toolik Lake Field Station, Mile 284.5 Dalton Highway, North Slope Borough, Alaska
5. Reindeer Research Station, Cantwell, Alaska (for decommissioning only)
6. Lena Point Fisheries Facility, 17101 Point Lena Loop Road, Juneau, Alaska

B. Licensed material described in Items 6.C. and 6.D. may also be used anywhere in the State of Alaska and at temporary job sites of the licensee where the U.S. Nuclear Regulatory Commission maintain jurisdiction for regulating the use of licensed material under the following conditions:

1. Specific approval is given by the University of Alaska Fairbanks Radiation Safety Officer.

2. The licensee obtains written permission to use radioactive materials at the proposed site from the appropriate authorities (or persons) who maintain administrative control over the property.

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3. Carbon-14 may be used at the Toolik Lake Field Station, North Slope Borough, Alaska, in accordance with letters dated June 27, 2000, April 16, 2001, and December 1, 2001.

4. Hydrogen-3 may be used on St. Paul Island and Bogoslof Island, Alaska, in accordance with the letter dated March 21, 2005.

5. The incinerator for hydrogen-3 and carbon-14 located at the Arctic Health Research Building as described in Appendix F to letter dated March 10, 2000, has been taken out of service pending dismantlement and decommissioning of the incinerator.

6. Hydrogen-3 and carbon-14 may be used at Revine Creek Kennels, Mile 228.9 George Parks Highway, Denali, Alaska as described in application dated April 5, 2010 and July 15, 2010 for *ex vivo* uptake measurements in sarcolemmal vesicles isolated form biopsied sled dog muscle.

11. A. Licensed materials shall only be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Officer.

B. The Radiation Safety Officer for this license is Tracey Martinson, Ph.D.

12. For Item 8.A, if only one radionuclide is possessed, the possession limit is the quantity specified for that radionuclide in 10 CFR 33.100, Schedule A, Column 1. If two or more radionuclides are possessed, the possession limit is determined as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in 10 CFR 33.100, Schedule A, Column 1, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.

13. This license does not authorize disposal of licensed material at sea.

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.

C. Sealed sources need not be leak 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 no 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.

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E. The leak test shall be capable of detecting the presence of 0.005 microcuries (185 becquerels) of radioactive material on the test sample. If the test reveals the presence of 0.005 microcuries (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. 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 IV, 612 E. Lamar Blvd., Suite 400, Arlington, Texas 76011, ATTN: Director, Division of Nuclear Materials Safety. The report shall specify the source involved, the test results, and corrective action taken.

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.

G. Records of leak test results shall be kept in units of microcuries and shall be maintained for 3 years.

15. Maintenance, repair, cleaning, replacement, and disposal of foils contained in detector cells shall be performed only by the device manufacturer or other persons specifically authorized by the Commission or an Agreement State to perform such services.

16. A. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperature from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside, unless the cells are used in a mobile laboratory situation in the field.

17. Licensed material shall not be used in or on human beings.

18. Experimental animals or the products from experimental animals, that have been administered licensed materials, shall not be used for human consumption.

19. This license does not authorize commercial distribution of licensed material.

20. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific conditions of this license.

21. 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."

22. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

23. The licensee shall not acquire licensed material in a sealed source or device that contains a sealed source unless the source or device has been registered with the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.

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24. The licensee shall conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory, and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.

25. In addition to the possession limits in item 8, the licensee shall further restrict the possession of unsealed byproduct materials to quantities less than 10^4 of the applicable limits in Appendix B of 10 CFR Part 30, as specified in 10 CFR 30.35(d).

26. The licensee is authorized to hold radioactive material with a physical half-life of less than 120 days for decay-in-storage before disposal in ordinary trash provided:

    A. Monitors byproduct material at the surface before disposal and determines that its radioactivity cannot be distinguished from the background radiation level with an appropriate radiation detection survey meter set on its most sensitive scale and with no interposed shielding; and

    B. Removes or obliterates all radiation labels, except for radiation labels on materials that are within containers and that will be managed as biomedical waste after they have been released from the licensee; and

    C. Maintains records of the disposal of licensed materials for 3 years. The record must include the date of the disposal, the survey instrument used, the background radiation level, the radiation level measured at the surface of each waste container, and the name of the individual who performed the disposal.

27. Radioactive waste generated shall be stored in accordance with the statements, representation, and procedures included with the waste storage plan described in the licensee's application dated March 1, 2010.

28. Except for maintaining labeling as required by 10 CFR Part 20 or 71, the licensee shall obtain authorization from U.S. Nuclear Regulatory Commission before making any changes in the sealed source, device, or source-device combination of a portable gauge that would alter the description or specifications as indicated in the respective Certificates of Registration issued either by the Commission pursuant to 10 CFR 32.210 or by an Agreement State.

29. Each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from it shielded position. The gauge or its container must be locked when in transport, storage, or when not under the direct surveillance of an authorized user.

30. Any cleaning, maintenance, or repair of portable nuclear gauges that requires detaching the source or source rod from the gauge shall be performed only by the manufacturer or other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

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31. A. If the licensee uses unshielded sealed sources extended more than 3 feet below the surface when using portable nuclear gauges, the licensee shall use surface casing that extends from the lowest depth to 12 inches above the surface and other appropriate procedures to reduce the probability of the source or probe becoming lodged below the surface. If it is not feasible to extend the casing 12 inches above the surface, the licensee shall implement procedures to ensure that the cased hole is free of obstruction before making measurements.

B. If a sealed source or a probe containing sealed sources in a portable nuclear gauge becomes lodged below the surface and it becomes apparent that efforts to recover the sealed source or probe may not be successful, the licensee shall notify the U.S. Nuclear Regulatory Commission and submit the report required by 10 CFR 30.50(b)(2) and (c). The licensee shall not abandon the sealed source or probe without obtaining the Commission's prior written consent. Notification and reporting requirements should be made to the NRC Emergency Operations Center at 301-816-5100.

32. Upon completion of each carbon-14 field study identified in License Condition 10.A.5 and 10.C., the licensee shall notify the NRC Region IV office identified in 10 CFR 30.6 and submit a copy of the baseline and final decommissioning surveys of the affected subplots.

33. Pursuant to 10 CFR 20.1302(c) 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.

34. Pursuant to 10 CFR 20.2002, the licensee may dispose of incinerator ash containing radioactive materials with Atomic Nos. 1-83, except as identified below, as ordinary waste in a landfill, provided that the concentration of radionuclides (in microcuries per gram of ash) at the time of disposal are no greater than the values of Table II, Column 2, 10 CFR Part 20, Appendix B. For hydrogen-3, carbon-14, aluminum-26, cholorine-36, silver-108m, niobium-94, iodine-129, technetium-99, and thalium-204, the concentration can be no greater than one-tenth of the value in Table II, Column 2, 10 CFR Part 20, Appendix B. If more than one radionuclide is present in the ash, then the sum of fractions rule applies.

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35. 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 Commissions=s regulations shall govern unless the statements, representations, and procedures in the licensee=s application and correspondence are more restrictive than the regulations.

A.	Letter dated March 10, 2000	[ML102360372]
B.	Letter dated June 27, 2000	[ML003765453]
C.	Letter dated April 16, 2001	[ML011160225]
D.	Letter dated December 1, 2001	[ML013650150]
E.	Letter dated March 21, 2005	[ML051150410]
F.	Application dated April 5, 2010	[ML101540223]
G.	Application dated March 1, 2010	[ML100970729, ML100970736, ML100970740]
H.	Application dated July 15, 2010	[ML102360269]
I.	Application dated August 31, 2010	[ML102560461]

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Date: April 11, 2011

By: _____

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