

RADIOACTIVE MATERIAL LICENSE

Pursuant to the California Code of Regulations, Division 1, Title 17, Chapter 5, Subchapter 4, Group 2, Licensing of Radioactive Material, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, use, possess, transfer, or dispose of radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders of the California Department of Public Health now or hereafter in effect and to any standard or specific condition specified in this license.

1. Licensee: Thermo Gamma Metrics	3. License Number: 3775-37	Amendment Number: 75
2. Address: 9389 Waples Street San Diego, CA 92121	4. Expiration date: February 19, 2024	(2)
Attention: Eric Empey Radiation Safety Officer	5. Inspection agency: Radiologic Health Branch South	

License Number 3775-37 is hereby amended as follows:

6. Nuclide	7. Form	8. Possession Limit
A. Americium-241	A. Sealed sources (QSA Global Model AMC.D1, AMC.19, AMC.30 or BEBIG Model Am1.Gxx)	A. Total not to exceed 222 GBq (6 Ci), 111 GBq (3 Ci) each.
B. Californium-252	B. Sealed sources (Eckert Ziegler Isotope Products Model 3004, N-252 Series, 3014, 3023, 3024, and 3026, QSA Global Model CVN.CYn or Frontier Technology Model 10 and 100 Series, or FSUE State Scientific Center of Russia Model HK252M41 Series or Joint-Stock Company, State Scientific Center Research Institute of Atomic Reactors' Model HK252M11 Series, or General Electric Hitachi Model GEN-Cf-100 Series)	B. 50 sources. Total not to exceed 2.200 mg (44.8 GBq (1.210 Ci)). No single source to exceed the maximum activity specified in the Sealed Source and Device Registry Certificate issued by the U.S. Nuclear Regulatory Commission, Agreement State, or Licensing State.
C. Cesium-137	C. Sealed sources (QSA Global Series CDC.700, or IPL Model 225)	C. 20 sources not to exceed 444 MBq (12 mCi) each. Total not to exceed 8.9 GBq (240 mCi).
D. Cobalt-60	D. Sealed sources (QSA Global Model (CKC.P1) or Isotope Products Labs Model 225)	D. 20 sources not to exceed 444 MBq (12 mCi) each. Total not to exceed 8.9 GBq (240 mCi).
E. Curium-244	E. Sealed source (QSA Global Model CLC.D1)	E. Total not to exceed 74 GBq (2 Ci), 37 GBq (1 Ci) each.
F. Curium-244/Carbon-13	F. Sealed sources (QSA Global Model (LN.PG1)	F. Two sources not to exceed 7.4 GBq (200 mCi) total.
G. Hydrogen-3	G. Sealed sources	G. 5 sources not to exceed 740 GBq (20 Ci) each. Total not to exceed 3.7 TBq (100 Ci).
H. Iron-55	H. Sealed sources (New England Nuclear Model NER-460B or QSA Global Model IEC.D2)	H. 2 sources not to exceed 13 GBq (350 mCi) total.

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I. Krypton-85	I. Sealed sources (QSA Global Model KAC.24100, KAC.4, KAC.D4; IPL or NEN NER 584, 585, or Model 8170)	I. 5 sources not to exceed 74 GBq (2 Ci) each. Total not to exceed 370 GBq (10 Ci).
J. Promethium-147	J. Sealed sources (QSA Global Model PHC.C1, PHC.80955, PHC.Q880 or 83515)	J. 10 sources not to exceed 185 GBq (5 Ci) each. Total not to exceed 1.9 TBq (50 Ci).
K. Sodium-22	K. Sealed sources (IPL Model GFS)	K. 10 sources not to exceed 4.4 MBq (120 μ Ci) each. Total not to exceed 44.4 MBq (1200 μ Ci).
L. Strontium-90	L. Sealed sources (New England Nuclear Model NER-593, or QSA Global Model SIC.L5 or SIF.D1)	L. Total not to exceed 7.4 GBq (200 mCi), not to exceed 3.7 GBq (100 mCi) each.
M. Thorium-228	M. Sealed source (IPL Model M)	M. 1 source not to exceed 1.1 MBq (30 μ Ci).
N. Thorium-228	N. Sealed sources (IPL Model GFS)	N. 10 sources not to exceed 4.4 MBq (120 μ Ci) total.
O. Tri-Nuclide (Antimony-125, Europium-154, & Europium-155)	O. Sealed source (IPL Model GF-TN Type M)	O. 1 source not to exceed 148 kBq (4 μ Ci).
P. Uranium-235	P. Sealed sources	P. 97 sources not to exceed 15 g (41.8 MBq (1.13 mCi)) each. Total not to exceed 349 g (969.4 MBq (26.2 mCi)).
Q. Any radionuclide with atomic number 3 to 105	Q. Sealed in Fission Chambers	Q. Not to exceed 3.7 GBq (100 mCi).
R. Any radionuclide with atomic number 3 to 105	R. Neutron monitoring detector and assembly	R. Not to exceed 37 kBq (1 μ Ci).

9. Authorized Use

A. To be used as components of gamma gauges distributed by Gamma-Metrics.

A., C., E., H., I., J., and L. For use and/or possession incidental to: (1) Installation and removal from gauging devices. (2) Relocation, repair and servicing of Thermo Radiometrie devices including leak testing of sealed sources and radiation surveys of Thermo Radiometrie devices. (3) Instruction and training of individuals in the use of Thermo Radiometrie devices. (4) Storing and transferring of sealed sources from devices manufactured by Thermo Radiometrie, received from customers for disposal.

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- A., E., I., J., L. To be used for (1) Research and development (as defined in Section 30100 of the California Radiation Control Regulations, Title 17), manufacture, testing and demonstration of gauging devices. (2). Installation into or removal from gauging devices. (3) Installation, relocation, repair, or servicing of Eberline Instruments, GMBH, Radiometrie Division devices including leak testing of sealed sources and radiation surveys of devices. (4) Storing and transferring of sealed sources and devices manufactured by Eberline Instruments, GMBH, Radiometrie Division, received from customers for disposal. (5) Distribution of the gauging devices specified in Condition 22 of this license to persons authorized to receive the licensed material pursuant to the terms and conditions of a specific license issued by the U.S. Nuclear Regulatory Commission, an Agreement State or a Licensing State. (6) Instruction and training of individuals in the use of devices distributed by Gamma Metrics or Radiometrie, U.S.A., Inc.
- B. To be used for research, development, and manufacturing of gauging systems and for distribution to specific licensees of the U.S. Nuclear Regulatory Commission or Agreement States.
- B. & C. To be used as components in the manufacturing or devices and for demonstration, installation, source replacement, servicing, repair and distribution of such devices to specific licensees of the U.S. Nuclear Regulatory Commission or Agreement States.
- B., C., D., F., H., K., M., and N. To be used for research and development as defined in Section 30100 of the California Radiation Control Regulations, Title 17.
- C. For storage and transfer of sealed sources received from customers for disposal.
- G. To be used as components of neutron generators for research and development of bulk materials analysis.
- O. To be used in a laboratory environment as calibration standard.
- P. To be used as Reuter-Stokes fission chambers Model RS-C3 Series or RS-P6 or Mirion IST fission chambers Model HH series, WL series or NY series for incorporation into detector assemblies and transfer to specific licenses of the U.S. Nuclear Regulatory Commission or Agreement States and for R & D as defined in Section 30100 of the California Radiation Control Regulations Title 17.
- Q. To be used incidental to receipt of fission chambers containing fission and activation products.
- R. To be used in a mildly irradiated neutron flux monitoring detector assembly and detector chamber for analysis and repair to original specifications.

LICENSE CONDITIONS

10. Radioactive material shall be used only at the following approved locations:
- 9389 Waples Street, San Diego, CA.
 - Radioactive material described in Subitems A., B., C., E., and G., of this license may be used at temporary job sites of the licensee in areas not under exclusive federal jurisdiction throughout the State of California, for demonstration, installation, source replacement, servicing and repair of devices manufactured by the licensee (See Condition 25).
11. This license is subject to an annual fee for sources of radioactive material authorized to be possessed at any one time as specified in Items 6, 7, 8 and 9 of this license. The annual fee for this license is required by and computed in accordance with Title 17, California Code of Regulations, Sections 30230-30232 and is also subject to an annual cost-of-living adjustment pursuant to Section 100425 of the California Health and Safety Code.
12. Radioactive material may be used only by, or under the supervision of, individuals designated by the Radiation Safety Committee.

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13. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Items 6, 7, 8 and 9 of this license in accordance with the statements, representations, and procedures contained in the documents listed below. The Department's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- (a) The renewal application and attachments dated December 20, 2011, all signed by Robert Barnes, Radiation Safety Officer and the electronic mails dated December 11, 2013, February 26, 2014 and March 3, 2014, all signed by Leigh DeHuff, Alternate Radiation Safety Officer.
 - (b) The email received on April 3, 2015, from William Flick, Manager/Quality Assurance, with attached updated Radiation Safety Procedure SE-04.004, revision E, dated October 16, 2014, titled Radiation Contamination Wipe Test.
 - (c) The letter with attachments dated September 18, 2015, as modified by the letter with attachments received on December 28, 2015 and letter with attachment dated February 3, 2016, all signed by Robert Barnes, Radiation Safety Officer, regarding updated Radiation Safety Plan, updated procedures SE-01.002 and SE-04.005, emergency telephone list, and facility maps for the new use location.
 - (d) The letter dated January 16, 2019, signed by Robert Barnes, Radiation Safety Officer, with attached Quality Assurance Manual Rev. 21, dated December 15, 2014 along with ISO 9001:2015 certificate dated May 3, 2017 regarding the quality assurance program.
 - (e) The letter, with attachments, dated July 2, 2020, from Robert Barnes, former Radiation Safety Officer, supplemented and modified by the email, with attachments, dated October 2, 2020, from Eric Empey, Radiation Safety Officer.
 - (f) The form CDPH 5314, "Certificate of Disposition of Materials", with attachments, dated November 11, 2020, signed by Christopher Cascella, Business Leader and Director of Operations, and email dated November 28, 2020, with attachments, from Christopher Cascella, regarding release of the use location at 10010 Mesa Rim Road for unrestricted use.
 - (g) The letter dated March 27, 2021, with attachments, signed by Eric Empey, Radiation Safety Officer, email dated May 13, 2021, with attachments, and email dated May 14, 2021, both from Eric Empey regarding updated emergency contact list.**
14. (a) The Radiation Safety Officer in this program shall be Eric Empey.
- (b) The Chairperson of the Radiation Safety Committee in this program shall be Eric Empey.
- (c) The Alternate Radiation Safety Officer in this program shall be Renee Small.**
15. All uses of radioactive material under this license shall be conducted in accordance with the user's application and modifying requirements of the Radiation Safety Committee. The review of intramural applications shall include findings with respect to matters specified in Title 17, California Code of Regulations, Section 30194. Documentation of these findings shall be maintained for Department inspection.
16. Sealed sources possessed under this license shall be tested for leakage and/or contamination as required by Title 17, California Code of Regulations, Section 30275 (c).
17. The licensee is authorized to make changes to procedures in the Radiation Safety Program as described in the letter dated September 24, 2009, signed by Charlie DeStefano, RSO without prior Departmental approval as long as:
- (a) The proposed revision is documented, reviewed and approved by the licensee's Radiation Safety Committee in accordance with established procedures prior to implementation.

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- (b) The revised program is in accordance with regulatory requirements, will not change the license conditions, and will not decrease the effectiveness of the Radiation Safety Program.
 - (c) The licensee's staff is trained in the revised procedures prior to implementation, and
 - (d) The licensee's audit program evaluates the effectiveness of the change and its implementation.
18. Quantitative analytical assays for the purpose of tests for leakage and/or contamination of sealed sources shall be performed only by persons specifically authorized to perform that service.
19. Records of leak test results shall be kept in units of becquerels (microcuries) and maintained for inspection. Records may be disposed of following Department inspection. Any leak test revealing the presence of 185 Bq (0.005 μ Ci) or more of removable radioactive material shall be reported to the California Department of Public Health, Radiologic Health Branch MS 7610, P.O. Box 997414, Sacramento, CA 95899-7414, within five days of the test. This report shall include a description of the defective source or device, the results of the test, and the corrective action taken.
20. This license does not authorize distribution of radioactive material pursuant to Title 17, California Code of Regulations, Sections 30180 and 30192 through 30192.6 or equivalent provisions of the U.S. Nuclear Regulatory Commission or Agreement States.
21. The licensee is authorized to perform tests for leakage and/or contamination of sealed sources. The following tests may be performed for sources possessed under this license and as a customer service:
- (a) Collection of wipe test samples from sealed sources and devices containing sealed sources.
 - (b) Furnishing leak test kits for sealed sources and devices containing sealed sources to customers authorized to use such leak test kits.
 - (c) Analysis of materials collected by the licensee as stated in (a) above and material returned by customers from leak test kits listed in (b) above for the amount of radioactivity. Reports to customers of analysis shall be in microcuries.
22. The licensee shall distribute only sealed sources and/or devices for which a Sealed Source and Device Registry Certificate has been issued by the California Department of Public Health, the U.S. Nuclear Regulatory Commission, an Agreement State or a Licensing State. Sealed sources and/or devices distributed must adhere to the design specifications described in the Sealed Source and Device Registry Certificate. Any changes in the design or specifications of these sealed sources and/or devices require the manufacturer to apply for and receive an amendment to the Sealed Source and Device Registry Certificate prior to distribution. The licensee may distribute sources and/or devices without a Sealed Source and Device Registry Certificate provided the recipient is authorized to possess such items by license condition or applicable state or federal regulations and laws.
23. At any time the licensee is engaged in making measurements by authority of this license at either a permanent or temporary job site, the licensee shall have a current copy of each of the following documents available for inspection at the job site:
- (a) A statement authorizing each qualified individual to use radioactive material
 - (b) This license.
 - (c) The manufacturer's instruction manual with appropriate emergency procedures.

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24. The licensee shall comply with all requirements of Title 17, California Code of Regulations, Section 30373 when transporting or delivering radioactive materials to a carrier for shipment. These requirements include; packaging, marking, labeling, loading, storage, placarding, monitoring, and accident reporting. Shipping papers shall be maintained for inspection pursuant to the U.S. Department of Transportation requirements (Title 49, Code of Federal Regulations, Part 172, Sections 172.200 through 172.204).
25. Before radioactive materials may be used at a temporary job site at any federal facility, the jurisdictional status of the job site must be determined. If the jurisdictional status is unknown, the federal agency should be contacted to determine if the job site is under exclusive federal jurisdiction. A response shall be obtained in writing or a record made of the name and title of the person at the federal agency who provided the determination and the date that it was provided. Authorization for use of radioactive materials at the job sites under exclusive federal jurisdiction shall be obtained either by:
- (a) Filing an NRC Form-241 in accordance with the Code of Federal Regulations, Title 10, Part 150.20 (b), "Recognition of Agreement State Licenses", or
 - (b) By applying for a specific NRC license.
- Before radioactive material can be used at a temporary job site in another State, authorization shall be obtained from the State if it is an Agreement State, or from the NRC for any non-Agreement State, either by filing for reciprocity or applying for a specific license.
26. The total mass of special nuclear material possessed under this license at any one time or at any one authorized location of use shall not exceed that stated in the following formula: The number of grams of Uranium 235 divided by 350, plus the number of grams of Uranium 233 divided by 200, plus the number of grams of Plutonium (all isotopes) divided by 200, shall not exceed one (ie. unity).
27. In accordance with California Health and Safety Code Section 115000.1(h), the licensee shall annually report the radioactive waste inventory held in storage on December 31 of each year and all manifests of Low Level Radioactive Waste (LLRW) shipments to licensed LLRW disposal facilities made during the year to the Department via the online LLRW Tracking System at <https://llrwts.cdph.ca.gov/>.
28. At least 30 days prior to vacating any address of use listed in Condition 10 of this license, the licensee shall provide written notification of intent to vacate to the California Department of Public Health, in accordance with Title 17, California Code of Regulations, Section 30256 (b). Control of all licensed areas must be maintained until such areas are released by the Department for unrestricted use or the license is terminated, in accordance with Title 17, California Code of Regulations, Section 30256 (j).
29. A copy of this license and a copy of all records and documents pertaining to this license shall be maintained available for inspection at 9389 Waples Street, San Diego, CA.

Issued for the State of California Department of Public HealthDate: May 25, 2021By: Thomas Moore

Radiologic Health Branch
MS 7610, P.O. Box 997414
Sacramento, CA 95899-7414