NRC FORM 374

PAGE 1 OF 9 PAGES Amendment No. 50

U.S. NUCLEAR REGULATORY COMMISSION

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, 37, 39, 40, 70 and 71, 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 | | 4. Expiration Date: June 30, 2024 | |
|----|---|-------------|----------------------|--|--|-----------------------------------|--|
| 1. | Charles River Laboratorie | , Inc. | | February 10, 2 | 023, EG(// | | |
| 2. | 54943 N. Main St. Mattawan, MI 49071 | | ESAC | 3. License No. amended in follows: | : 21-11315-02 is its entirety to read as | 5. Docł Refe | ket No.: 030-08546 prence No.: |
| 6. | Byproduct, source, and/or special nuclear material | 7. Chemica | I and/or physical fo | orm | Maximum amount that licens may possess at any one tim under this license | see 9. e | Authorized use |
| A. | Any byproduct material with Atomic Numbers 1 through 83 with half-life less than or equal to 120 days | A. Any | C III | A. | 50 millicuries per radionuclide and 500 millicuries total | A. | For research and development as defined in 10 CFR 30.4, including animal studies and in-vitro studies. |
| В. | Fluorine-18 | B. Any | No. | B. | 10 curies total | В. | Same as Item 9.A. |
| C. | Carbon-11 | C. Any | | | 5 curies total | C. | Same as Item 9.A. |
| D. | Nitrogen-13 | D. Any | | D. | 1 curie total | D. | Same as Item 9.A. |
| E. | Oxygen-15 | E. Any | | E. | 2 curies total | E. | Same as Item 9.A. |
| F. | Zirconium-89 | F. Any | | F. | 2 curies total | F. | Same as Item 9.A. |
| G. | lodine-124 | G. Non-vola | atile | G. | 2 curies total | G. | Same as Item 9.A. |

| NRC | FORM 374A | | U.S. NUCLEAR REG | JLATORY COMMISSION | | PAGE 2 OF 9 PAGES |
|---------------------|--|---------------|-------------------------|---|---------------------------------------|-------------------|
| | MATERIALSLICENSE | | License No.: 21-11315-0 | 2 Docket or Ref 030-08546 | Docket or Reference No.: 030-08546 | |
| SUPPLEMENTARY SHEET | | | Amendment No. 50 | | | |
| 6. | Byproduct, source, and/or special nuclear material | 7. Chemical a | nd/or physical form 8. | Maximum amount that licensee may possess at any one time under this license | 9. | Authorized use |
| Н. | lodine-124 | H. Volatile | EAN H. | 1 curie total | Н. | Same as Item 9.A. |
| I. | lodine-125 | I. Non-volati | | 1 curie total | I. | Same as Item 9.A. |
| J. | lodine-125 | J. Volatile | J. | 350 millicuries total | J. | Same as Item 9.A. |
| К. | Copper-64 | K. Any | К. | 100 millicuries total | K. | Same as Item 9.A. |
| L. | Indium-111 | L. Any | 5 💽 🐔 | 250 millicuries total | L. | Same as Item 9.A. |
| M. | Hydrogen-3 | M. Any | M. | 500 millicuries total | M. | Same as Item 9.A. |
| N. | Carbon-14 | N. Any | S N. | 840 millicuries total | N. | Same as Item 9.A. |
| О. | Calcium-45 | O. Any | 0, 0, 0, | 5 millicuries total | 0. | Same as Item 9.A. |
| Ρ. | Radium-223 | P. Any | P | 50 millicuries total | Ρ. | Same as Item 9.A. |
| Q. | Thorium-227 | Q. Any | A. | 50 millicuries total | Q. | Same as Item 9.A. |
| R. | Actinium-225 | R. Any | R R | 100 millicuries total | R. | Same as Item 9.A. |
| S. | Rhenium-186 | S. Any | S. | 250 millicuries total | S. | Same as Item 9.A. |
| Т. | Molybdenum-99 | T. Any | Т. | 32 curies total | Τ. | Same as Item 9.A. |
| U. | Technetium-99m | U. Any | U. | 32 curies total | U. | Same as Item 9.A. |

| NRC | FORM 374A | | U.S. NUCLEAR F | REGULATORY COMMI | SSION | PAGE 3 OF 9 PAGES |
|---------------------|--|---|--|--|---|-------------------------------------|
| | MATERIALS LICI | ENSE | License No.: 21-1131 | 5-02 | Docket or Referend 030-08546 | ce No.: |
| SUPPLEMENTARY SHEET | | Amendment No. 50 | | | | |
| 6. | Byproduct, source, and/or special nuclear material | 7. Chemical and | I/or physical form | Maximum among possess and pos | ount that licensee 9. at any one time nse | Authorized use |
| V. | Cobalt-57 | V. Sealed Sour Ziegler Isoto IPL, Model 2 and USM Se Isotopes, Id BM06E Seri Series; IPL, and USM Se | rces (Eckert & pe Products d/b/a 1911, UPET Series, eries; International aho, Inc., Model es and BM06S Model 374 Series eries) | V. 15 millicuries | total V. | Same as Item 9.A. |
| W. | Germanium-68 | W. Sealed Sour Ziegler Isoto IPL, Model Series for Germanium Internationa Inc., Model IPL, Model 3 Series; Sien Solutions US Imaging, Model | rces (Eckert & pe Products d/b/a 1911 and UPET 68/Gallium-68; 1 Isotopes Idaho, 3M06E and BM06S; 374 Series and USM hens Medical SA, Inc., Molecular odel LS) | W. 5 millicuries f | total W. | Same as Item 9.A. |
| X. | Americium-241 | X. Calibration a Reference S Ziegler Anal AM1-EAB-F | and Standard Sources (Eckert & ytics, Model P) | X. 0.054 microc source and 0 microcuries t | curies per X. 0.162 otal | For use in instrument calibration. |
| Y. | Cesium-137 | Y. Sealed Sour Ziegler Anal GF-137-D) | rces (Eckert & ytics, Model | Y. 1 millicurie to | otal Y. | For use in instrument calibration. |
| Z. | Cesium-137 | Z. Sealed Sour Products La Model RV-X | rces (Isotope boratories, Inc., XX) | Z. 250 microcur | ries total Z. | For use in PET scanner calibration. |

| NRC | FORM 374A | | U.S. NUCLEAR | REGULATORY COM | NISSION | PAGE 4 OF 9 PAGES |
|-----|--|--|--|---|--|---|
| | MATERIALS LICENSE SUPPLEMENTARY SHEET | | License No.: 21-113 | 15-02 | Docket or Refe 030-08546 | erence No.: |
| | | | Amendment No. 50 | | | |
| 6. | Byproduct, source, and/or special nuclear material | 7. Chemical and | /or physical form | Maximum an may possess under this lic | nount that licensee at any one time ense | 9. Authorized use |
| AA. | Germanium-68 | AA. Sealed Sour Ziegler Isoto Isotope Prod Model EG Se Sanders Mee Model PET-1 Medical Solu Model LS-SA | ces (Eckert & pe Products dba: lucts Laboratories, eries; HEGL Series; dical Products, 180/0.8; Siemens titions USA, Inc., | AA. 16.49 millio | uries total | AA. For use in PET scanner calibration. |
| AB. | lodine-123 | AB. Non-volatile | | AB. 2 curies tota | | AB. Same as Item 9.A. |
| AC. | lodine-123 | AC. Volatile | N Equi | AC. 1 curie total | | AC. Same as Item 9.A. |
| AD. | Cesium-137 | AD. Calibration a Reference S Ziegler Analy RV-137) | nd Standard ources (Eckert & /tics, Model | AD. 400 microct | iries total | AD. For use in instrument calibration. |
| AE. | Yttrium-90 | AE. Any | 4 | AE. 1.6 curies to | otal | AE. Same as Item 9.A. |
| AF. | Cesium-137 | AF. Any | ~ | AF. 5 millicuries | total | AF. Same as Item 9.A. |
| AG | . Gadolinium-153 | AG. Any | *** | AG. 800 microcu | uries total | AG. Same as Item 9.A. |
| AH. | lodine-131 | AH. Any | | AH. 125 millicur | ies total | AH. Same as Item 9.A. |
| AI. | Sodium-22 | Al. Calibration a Reference S Ziegler Isoto A1940) | nd Standard ources (Eckert & pe Products, Model | AI. 10 microcur and 10 micr | ies per source ocuries total | AI. For use in instrument calibration. |
| | | | | | | |

| NRC FORM 374A | U.S. NUCLEAR REGULATORY COMM | MISSION PAGE 5 OF 9 PAGES |
|---|--|---|
| MATERIAI S LICENSE | License No.: 21-11315-02 | Docket or Reference No.: 030-08546 |
| SUPPLEMENTARY SHEET | Amendment No. 50 | |
| | CONDITIONS | |
| 10. Licensed material may be used or store | d at the licensee's facilities located at 549 | 943 N. Main St., Mattawan, Michigan, 49071. |
| 11. The Radiation Safety Officer (RSO) for t | his license is Aura Kozminske. | A > O |
| 12. Licensed material shall only be used by, licensee shall maintain records of individ | or under the supervision of, individuals of luals designated as users for three years | designated, in writing, by the Radiation Safety Officer. The safter the individual's last use of licensed material. |
| 13. The licensee shall not use the licensed | material in or on humans. | O Z |
| 14. The licensee shall not use licensed mate condition of this license. | erial in field applications where activity is | released except as provided otherwise by specific |
| 15. Experimental animals, or the products fr human or animal consumption. | om experimental animals, that have beer | n administered licensed material shall not be used for |
| 16. This license does not authorize commer | cial distribution of licensed material. | |
| 17. A. Sealed sources and detector cells s the certificate of registration issued the absence of a registration certific months, or at such other intervals as | hall be tested for leakage and/or contami by the U.S. Nuclear Regulatory Commiss ate, sealed sources shall be tested for lea s specified. | ination at intervals not to exceed the intervals specified in sion under 10 CFR 32.210 or by an Agreement State. In akage and/or contamination at intervals not to exceed six |
| B. Not withstanding Paragraph A of this and/or contamination at intervals no | s Condition, sealed sources designed to p t to exceed 3 months. | primarily emit alpha particles shall be tested for leakage |

| | U.S. NUCLEAR REGULATORY | COMMISSION | PAGE 6 OF 9 PAGES | |
|--|---|------------|-------------------|--|
| | License No.: 21-11315-02 Docket or Reference No.: | | | |
| MATERIALS LICENSE | | 030-08546 | | |
| SUPPLEMENTARY SHEET | Amendment No. 50 | | | |
| C. 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 by 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. D. Sealed sources need not be tested if they contain only bydrogen-3; or they contain only a radioactive gas; or the balf-life of the isoton. | | | | |

- microcuries of alpha-emitting material.
- E. 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.
- F. The leak test shall be capable of detecting the presence of 185 becquerels (0.005 microcuries) of radioactive material on the test sample. If the test reveals the presence of 185 becquerels (0.005 microcuries) 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.
- G. Analysis of leak test samples and/or contamination shall be performed by persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services. The licensee is authorized to collect leak test samples but not perform the analysis.
- H. Records of leak test results shall be kept in units of becquerels (microcuries) and shall be maintained for three years.
- 18. 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 by the manufacturer and approved by U.S. Nuclear Regulatory Commission.
 - B. When in use, detector cells containing a titanium tritide foil shall be vented to the outside.

| NRC FORM 374A | U.S. NUCLEAR REGULATORY | COMMISSION | PAGE 7 OF 9 PAGES | | |
|--|---|---------------------------------------|--------------------------------|--|--|
| MATERIALSLICENSE | License No.: 21-11315-02 | Docket or Reference No.: 030-08546 | e No.: | | |
| SUPPLEMENTARY SHEET | Amendment No. 50 | | | | |
| Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee. The licensee shall conduct a physical inventory every six months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all sealed sources and/or devices received and possessed under the license. Records of inventories shall be maintained for three 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. | | | | | |
| 21. The licensee is authorized to hold disposal in ordinary trash provide | radioactive material with a physical half-lif d: | e of less than or equal to 120 day | rs for decay-in-storage before | | |
| A. Before disposal as ordinary tr | ash, the waste shall be surveyed at the co | ntainer surface with the appropria | te survey instrument set on | | |

- B. A record of each such disposal permitted under this license condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
- 22. 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. This license condition applies only to those procedures that are required to be submitted in accordance with the regulations. 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. Application dated December 20, 2013 excluding SSDR sheets (ML13360A321)

| NRC FORM 374A | U.S. NUCLEAR REGULATORY COMM | SSION | PAGE 8 OF 9 PAGES |
|---|------------------------------|--------------------------|-------------------|
| | License No.: 21-11315-02 | Docket or Reference No.: | |
| MATERIALS LICENSE | | 030-08546 | |
| SUPPLEMENTARY SHEET | Amendment No. 50 | | |
| | | | |
| | | | |
| B. Letter dated December 4, 2013 (ML1) | | | |
| C. Letter dated January 15, 2014 (ML14 | | | |
| D. Letter dated February 17, 2014 (ML14 | | | |

- E. Letter dated February 21, 2014 (ML14056A230)
- F. Letter dated April 28, 2014 excluding Attachment 6, RSC Training and Experience (ML14120A163)
- G. Letter dated April 28, 2014 excluding the MediSmarts Radiation Monitoring System Operating Manual (ML14120A167)
- H. Letter dated June 16, 2014 (ML14169A270)
- I. Letter dated September 8, 2014 (ML14252A338)
- J. Letter dated September 10, 2014 (ML14267A273)
- K. Letter dated March 6, 2015 (ML15071A381)
- L. Letter dated February 9, 2017 (ML17041A388)
- M. Letter dated March 29, 2018 (ML18092B265)
- N. Letter dated April 3, 2018 (ML18094A812)
- O. Letter dated April 4, 2018 (ML18096A822)
- P. Letter dated July 24, 2018 (ML18206A652)
- Q. Letter dated January 14, 2018 (ML19015A266)
- R. Letter dated December 12, 2019 (ML19350C668)
- S. Letter dated April 14, 2020 (ML20113E885)

| NRC FORM 374A | U.S. NUCLEAR REGULATORY COMM | SSION PAGE 9 OF 9 | PAGES |
|--|------------------------------|---|-------|
| MATERIALS LICENSE | License No.: 21-11315-02 | Docket or Reference No.: 030-08546 | |
| SUPPLEMENTARY SHEET | Amendment No. 50 | | |
| T. Letter dated May 8, 2020 (ML20133K U. Letter dated July 10, 2020 (ML20195, V. Letter dated June 18, 2020 (ML2017 W. Letter dated February 10, 2023 (ML23 | | A O A COMMS ON ONS ON | |
| | | | |

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: April 24, 2023

Ву: _____

Frank P. D. Tran Region 3