U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 10

# 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 October 27, 2021, | 4. Expiration Date: April 30, 2025 |
|---|---|---|
| 1. Missouri Public Health Laboratory | | 5. Docket No.: 030-38804<br>Reference No.: |
| 2. 101 N. Chestnut Street<br>P.O. Box 570<br>Jefferson City, MO 65102-0570 | 3. License No.: 24-35208-01 is amended in its entirety to read as follows: | |

| 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 | 9. Authorized use |
|---|---|---|---|
| A. Americium-241 | A. Sealed Sources | A. 1 microcurie per source and 20 microcuries total | A. For calibration of analytical equipment. |
| B. Lead-210 | B. Sealed Sources | B. 1 microcurie per source and 20 microcuries total | B. For calibration of analytical equipment. |
| C. Thorium-230 | C. Sealed Sources | C. 1 microcurie per source and 20 microcuries total | C. For calibration of analytical equipment. |
| D. Radium-226 | D. Sealed Sources | D. 1 microcurie per source and 20 microcuries total | D. For calibration of analytical equipment. |
| E. Cadmium-109 | E. Sealed Sources | E. 1 microcurie per source and 20 microcuries total | E. For calibration of analytical equipment. |
| F. Cobalt-57 | F. Sealed Sources | F. 1 microcurie per source and 20 microcuries total | F. For calibration of analytical equipment. |
| G. Cerium-139 | G. Sealed Sources | G. 1 microcurie per source and 20 microcuries total | G. For calibration of analytical equipment. |

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|---|---|---|---|
| H. Mercury-203 | H. Sealed Sources | H. 1 microcurie per source and 20 microcuries total | H. For calibration of analytical equipment. |
| I. Tin-113 | I. Sealed Sources | I. 1 microcurie per source and 20 microcuries total | I. For calibration of analytical equipment. |
| J. Cesium-137 | J. Sealed Sources | J. 1 microcurie per source and 20 microcuries total | J. For calibration of analytical equipment. |
| K. Yttrium-88 | K. Sealed Sources | K. 1 microcurie per source and 20 microcuries total | K. For calibration of analytical equipment. |
| L. Cobalt-60 | L. Sealed Sources | L. 1 microcurie per source and 20 microcuries total | L. For calibration of analytical equipment. |
| M. Plutonium-239 | M. Liquid | M. 1 microcurie per source and 3 microcuries total | M. For calibration of analytical equipment and spiking analytical samples. |
| N. Strontium-90 | N. Liquid | N. 1 microcurie per source and 3 microcuries total | N. For calibration of analytical equipment and spiking analytical samples. |
| O. Americium-241 | O. Liquid | O. 1 microcurie per source and 3 microcuries total | O. For calibration of analytical equipment and spiking analytical samples. |
| P. Yttrium-90 | P. Liquid | P. 1 microcurie per source and 3 microcuries total | P. For calibration of analytical equipment and spiking analytical samples. |
| Q. Strontium-89 | Q. Liquid | Q. 1 microcurie per source and 3 microcuries total | Q. For calibration of analytical equipment and spiking analytical samples. |
| R. Americium-241 | R. Solid or Liquid | R. Not to exceed 0.1 microcurie per sample and 1 microcurie total | R. For processing food samples and proficiency testing. |
| S. Lead-210 | S. Solid or Liquid | S. Not to exceed 0.1 microcurie per sample and 1 microcurie total | S. For processing food samples and proficiency testing. |
| T. Thorium-230 | T. Solid or Liquid | T. Not to exceed 0.1 microcurie per sample and 1 microcurie total | T. For processing food samples and proficiency testing. |

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|---|---|---|---|
| U. Radium-226 | U. Solid or Liquid | U. Not to exceed 0.1 microcurie per sample and 1 microcurie total | U. For processing food samples and proficiency testing. |
| V. Cadmium-109 | V. Solid or Liquid | V. Not to exceed 0.1 microcurie per sample and 1 microcurie total | V. For processing food samples and proficiency testing. |
| W. Cobalt-57 | W. Solid or Liquid | W. Not to exceed 0.1 microcurie per sample and 1 microcurie total | W. For processing food samples and proficiency testing. |
| X. Cerium-139 | X. Solid or Liquid | X. Not to exceed 0.1 microcurie per sample and 1 microcurie total | X. For processing food samples and proficiency testing. |
| Y. Mercury-203 | Y. Solid or Liquid | Y. Not to exceed 0.1 microcurie per sample and 1 microcurie total | Y. For processing food samples and proficiency testing. |
| Z. Tin-113 | Z. Solid or Liquid | Z. Not to exceed 0.1 microcurie per sample and 1 microcurie total | Z. For processing food samples and proficiency testing. |
| AA. Cesium-137 | AA. Solid or Liquid | AA. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AA. For processing food samples and proficiency testing. |
| AB. Yttrium-88 | AB. Solid or Liquid | AB. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AB. For processing food samples and proficiency testing. |
| AC. Cobalt-60 | AC. Solid or Liquid | AC. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AC. For processing food samples and proficiency testing. |
| AD. Plutonium-239 | AD. Solid or Liquid | AD. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AD. For processing food samples and proficiency testing. |

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|---|---|---|---|
| AE. Strontium-90 | AE. Solid or Liquid | AE. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AE. For processing food samples and proficiency testing. |
| AF. Strontium-89 | AF. Solid or Liquid | AF. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AF. For processing food samples and proficiency testing. |
| AG. Yttrium-90 | AG. Solid or Liquid | AG. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AG. For processing food samples and proficiency testing. |
| AH. Cesium-134 | AH. Solid or Liquid | AH. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AH. For processing food samples and proficiency testing. |
| AI. Chromium-51 | AI. Solid or Liquid | AI. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AI. For processing food samples and proficiency testing. |
| AJ. Iridium-192 | AJ. Solid or Liquid | AJ. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AJ. For processing food samples and proficiency testing. |
| AK. Barium-131 | AK. Solid or Liquid | AK. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AK. For processing food samples and proficiency testing. |
| AL. Lanthanum-140 | AL. Solid or Liquid | AL. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AL. For processing food samples and proficiency testing. |
| AM. Strontium-85 | AM. Solid or Liquid | AM. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AM. For processing food samples and proficiency testing. |

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|---|---|---|---|
| AN. Zinc-65 | AN. Solid or Liquid | AN. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AN. For processing food samples and proficiency testing. |
| AO. Cerium-144 | AO. Solid or Liquid | AO. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AO. For processing food samples and proficiency testing. |
| AP. Polonium-209 | AP. Liquid | AP. Not to exceed 1 microcurie per source and 3 microcuries total. | AP. For calibration of analytical equipment and spiking analytical samples. |
| AQ. Polonium-210 | AQ. Liquid | AQ. Not to exceed 1 microcurie per source and 3 microcuries total | AQ. For calibration of analytical equipment and spiking analytical samples. |
| AR. Polonium-209 | AR. Solid or Liquid | AR. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AR. For processing food samples and proficiency testing. |
| AS. Radium-226 | AS. Solid or Liquid | AS. Not to exceed 0.1 microcurie per sample and 1 microcurie total | AS. For processing food samples and proficiency testing. |
| AT. Polonium-210 | AT. Solid or Liquid | AT. Not to exceed 1 microcurie per sample and 3 microcuries total | AT. For processing food samples and proficiency testing. |
| AU. Barium-140 | AU. Solid or Liquid | AU. Not to exceed 1 microcurie per sample and 3 microcuries total | AU. For processing food samples and proficiency testing. |
| AV. Barium-133 | AV. Solid or Liquid | AV. Not to exceed 1 microcurie per sample and 3 microcuries total | AV. For processing food samples and proficiency testing. |
| AW. Europium-152 | AW. Solid or Liquid | AW. Not to exceed 1 microcurie per sample and 3 microcuries total | AW. For processing food samples and proficiency testing. |

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CONDITIONS

10. Licensed material may be used or stored at the licensee's facilities located at 101 North Chestnut Street, Jefferson City, Missouri, 65102.

11. The Radiation Safety Officer (RSO) for this license is Alan Schaffer.

12. Licensed material shall only be used by, or under the supervision of, the following individuals:

| Authorized Users | Material and Use |
|---|---|
| Alexa Gunter | All |
| Brianna Medrano | All |
| Thad Rehmert | All |
| Alan Schaffer | All |
| Amber Smith | All |
| Kaitlyn Sowerwine | All |

13. The licensee shall conduct a physical inventory every 6 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 3 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.

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

15. The licensee shall not use licensed material in or on human beings.

16. The licensee shall not use licensed material in field applications.

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17. 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 January 5, 2015 (ML15028A483)
    B. Letter dated April 21, 2015 (ML15120A626)
    C. Letter dated May 20, 2015 (ML15140A666)
    D. Letter dated February 4, 2016 (ML16040A217)
    E. Letter dated March 29, 2016 (ML16089A192)
    F. Letter dated May 18, 2016 (ML16139A425)
    G. Letter dated August 31, 2020 (ML20244A326)


FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: December 21, 2021

By: Magdalena R. Gryglak
Digitally signed by Magdalena R. Gryglak
Date: 2021.12.21 12:15:41 -06'00'

Magdalena R. Gryglak
Region 3