

**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 letters dated December 19, 2017 and February 16, 2018  |
| 1. United States Army Installation Management Command                                 | 3. Source Materials License No. SUC-1593 is amended with respect to revised Radiation Safety Plan requirements for Fort Hunter Liggett, CA and Fort Jackson, SC, and revised M101 Impact Area map for Fort Wainwright, AK |
| 2. ATTN: IMSO, Building 2261, 2405 Gun Shed Road, Fort Sam Houston, Texas, 78234-1223 | 4. Expiration date: March 21, 2026  |
|   | 5. Docket No. 040-09083<br>Amendment No. 4  |

|                    |   |  |
|--------------------|---|--|
| 6. Source Material | 7. Chemical and/or physical form                                    | 8. Maximum amount that licensee may possess at any one time under this license |
| Uranium (depleted) | Any   | 5700 Kg, as distributed below  |
|                    | Installation  | DU mass (Kg)   |
|                    | A. Fort Benning, GA (Georgia)                                       | A. 1850  |
|                    | B. Fort Bragg, NC (North Carolina)                                  | B. 810   |
|                    | C. Fort Campbell, KY (Kentucky)                                     | C. 130   |
|                    | D. Fort Carson, CO (Colorado)                                       | D. 270   |
|                    | E. Fort Gordon, GA (Georgia)  | E. 30  |
|                    | F. Fort Hood, TX (Texas)  | F. 770   |
|                    | G. Fort Hunter Liggett, CA (California)                             | G. 30  |
|                    | H. Fort Jackson, SC (South Carolina)                                | H. 30  |
|                    | I. Fort Knox, KY  | I. 760   |
|                    | J. Fort Polk, LA (Louisiana)  | J. 370   |
|                    | K. Fort Riley, KS (Kansas)  | K. 20  |
|                    | L. Fort Sill, OK (Oklahoma)   | L. 120   |
|                    | M. Donnelly Training Area, Fort Wainwright, AK (Alaska)             | M. 20  |
|                    | N. Joint Base Lewis-McChord/Yakima Training Center, WA (Washington) | N. 340   |
|                    | O. Joint Base McGuire-Dix-Lakehurst, NJ (New Jersey)                | O. 10  |
|                    | P. Schofield Barracks/PTA, HI (Hawaii)                              | P. 140   |
|                    | <b>Total</b>  | <b>5700 Kg</b>   |

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## 9. Authorized Use:

Activities necessary for the possession and management of depleted uranium (DU) spotting rounds and fragments as a result of previous use of DU at sites located at U.S. Army installations. These activities include:

- A. Activities necessary to maintain the sites in a safe condition and to prevent the unauthorized removal of licensed material from the authorized places of use;
- B. Activities necessary to determine the presence of licensed material at the sites;
- C. Activities necessary to monitor the radiological environmental conditions in and around the authorized places of use to determine if licensed material is being transported in the environment; and
- D. Activities necessary for the packaging, transport and disposal of incidentally identified licensed material to a licensed/permitted disposal facility.

**CONDITIONS**

10. The authorized places of use (possession) shall be at U.S. Army installations at Donnelly Training Area, Fort Wainwright, AK, Fort Benning, GA; Fort Bragg, NC; Fort Campbell, KY; Fort Carson, CO; Fort Gordon, GA; Fort Hood, TX; Fort Hunter Liggett, CA; Fort Jackson, SC; Fort Knox, KY; Fort Polk, LA; Fort Riley, KS; Fort Sill, OK; Joint Base Lewis-McChord/Yakima Training Center, WA; Joint Base McGuire-Dix-Lakehurst, NJ; and Schofield Barracks/ PTA, HI.

11. Except as specifically provided otherwise, the licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the license amendment application:

- Programmatic Radiation Safety Plan, "Radiation Safety Plan for IMCOM [Installation Management Command] Ranges Affected by M101 Davy Crockett Spotting Round Depleted Uranium," dated December 31, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16004A369), as amended by additional pages found in ADAMS Accession No. ML18009A452, in letter dated December 19, 2017;
- Programmatic Physical Security Plan, "Physical Security Plan for U.S. Army Installation Management Command Ranges Affected by Depleted Uranium in M101 Davy Crockett Spotting Rounds," dated December 31, 2015 (ADAMS Accession No. ML16004A369);
- Form 313, "Application for Materials License," items 1 - 7, dated June 1, 2015 (ADAMS Accession No. Pkg. ML15161A454, Form 313 at ADAMS Accession No. ML15161A458);
- Attachment 3, "Calculation of TEDE [Total Effective Dose Equivalent] to Individual Likely to Receive Highest Dose," dated June 1, 2015 (ADAMS Accession No. Pkg. ML15161A454, Attachment 5 at ADAMS Accession No. ML1516A459);
- Attachment 4, "How the Army Determined the M101DU RCAs [Radiation Control Areas]," dated September 30, 2015 (ADAMS Accession No. Pkg. ML15294A276, Attachment 4 at ADAMS Accession No. ML15294A278);
- Attachment 5, "Bounding Calculations Using RESRAD 7.0 and RESRAD-OFFSITE 3.1," dated June 1, 2015 (ADAMS Accession No. Pkg. ML15161A454, Attachment 5 at ADAMS Accession No. ML15161A459);
- Email clarifying RCAs at Fort Knox, KY, dated January 29, 2016 (ADAMS Accession No. ML16041A107);

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- Attachment 8, "Estimating Public Exposure to Airborne Depleted Uranium Outside the U.S. Army Pohakuloa Training Area, Hawaii," dated September 30, 2015 (Pkg. ADAMS Accession No. ML15294A276, Attachment 8 at ADAMS Accession No. ML15294A277);
- Attachment 9, "Examples of Army Range Fires," dated September 30, 2015 (ADAMS Accession No. Pkg. ML15294A276, Attachment 9 at ADAMS Accession No. ML15294A277);
- Attachment 10, "Arguments against Air Sampling During HE [High Explosive] Fire into RCAs, Rev. 1," dated September 30, 2015 (ADAMS Accession No. Pkg. ML15294A276, Attachment 10 at ADAMS Accession No. ML15294A277);
- Attachment 11, "Calculation of Public Dose' SOP [Standard Operating Procedure]," dated September 30, 2015 (ADAMS Accession No. Pkg. ML15294A276, Attachment 11 at ADAMS Accession No. ML15294A277);
- Programmatic Environmental Radiation Monitoring Plan (ERMP), "Programmatic Approach for Preparation of Installation-specific Environmental Radiation Monitoring Plans", dated September 15, 2016 (ADAMS Accession No. ML16265A218);
- "U.S. Army Decommissioning Funding Plan (DFP) for License Number SUC-1593," dated February 9, 2016 (ADAMS Accession No. ML16042A232);
- Maps of "M101 Impact Areas," dated February 16, 2018 (ADAMS Accession No. ML18064A140)
- Emails clarifying M101 Target Areas [Radiation Control Areas], dated February 12, 2016 (ADAMS Accession No. ML16048A347), May 24, 2016 (ADAMS Accession No. ML16341C807), and December 7, 2016 (ADAMS Accession No. ML1651A092)
- "Statement of Intent" dated June 1, 2015 (ADAMS Accession No. ML15161A458);
- Final Site-Specific ERMPs and Associated Quality Assurance Plan, dated September 2016 (ADAMS Accession No. Pkg. ML16265A221) for all Davy Crockett RCAs except those located at Fort Polk, LA, Fort Riley, KS, and the PTA, HI;
- Revised Final Site-Specific ERMPs for Fort Polk, LA, Annex 11; Fort Riley, KS, Annex 12; and PTA, Annex 17 RCAs, dated May 2017, May 2017, and April 2017, respectively (ADAMS Accession No. ML17158B356) and associated Quality Assurance Plan, dated September 2016 (ADAMS Accession No. ML16265A233);
- Letter dated December 15, 2017 (ADAMS Accession No. ML18009A456), clarifying sediment sample collection;
- Letter dated February 24, 2010 (ADAMS Accession No. ML120950352), documenting the contact information for the License Radiation Safety Officer (RSO) for this license; and
- Letter dated September 13, 2019 (ADAMS Accession No. ML19281C335), identifying the certifying official for this license

The approved license application is hereby incorporated by reference, except where superseded by license condition(s) below:

12. If the licensee identifies information indicating that Davy Crockett-related DU may be present at a U.S. Army installation not identified in License Condition 10 or included on another U.S. Nuclear Regulatory Commission (NRC) license, then the licensee will notify the NRC in writing within 15 calendar days of the identification of this information and this notice must include a schedule for evaluating the presence of DU. The evaluation schedule should not exceed 90 calendar days from the date of the notification letter.
13. If it is determined that Davy Crockett-related DU is present at a U.S. Army installation not listed in License Condition 10 or included on another NRC license, the licensee shall submit a request to include

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the installation in this license within 60 calendar days of the determination. The request will address radiation safety, environmental radiation monitoring, physical security, decommissioning financial assurance, and the name of the Garrison RSO. Any additional procedures necessary to ensure compliance with License Conditions 9A - 9D that are not included in the licensee's application referenced in License Condition 11 will also be included in the request.

14. The licensee shall submit an updated site-specific decommissioning cost estimate and financial assurance instrument for each U.S. Army installation listed in License Condition 10 on a triennial basis, by December 31<sup>st</sup> of each year or, if applicable, in accordance with the requirements of Title 10 of the Code of *Federal Regulations* (10 CFR) 40.36(c)5.
15. The licensee shall post "Caution - Radioactive Material" signs at a sufficient number of locations around each the RCA to ensure that individuals entering the RCA are aware of the presence of DU. The signs may be placed at the perimeter of the range impact areas if posting them at the RCA boundary is unsafe due to the presence of unexploded ordnance.
16. Decommissioning is not authorized without NRC approval:
  - a. The licensee shall not perform any decommissioning or ground disturbing activities to collect or remove DU fragments or contaminated soil that is identified during routine range activities at any of the RCAs without prior authorization from the NRC. Picking up incidental pieces of DU that the licensee finds during training exercises would be allowed without NRC approval, if it does not involve ground disturbing activities;
  - b. NRC or Agreement State licensed contractors may undertake decommissioning or ground disturbing activities to collect or remove DU fragments or contaminated soil that is identified during routine range activities at any RCA consistent with the conditions and commitments of their license(s); and
  - c. When the licensee engages an NRC or Agreement State licensed contractor to undertake decommissioning or ground disturbing activities to collect or remove DU fragments or contaminated soil that is identified during routine range activities at any of the RCAs, the licensee will notify NRC in accordance with the requirements of 10 CFR 40.42(g)(1). The licensee shall provide NRC with the contractor's site-specific decommissioning plans and all other documents associated with radiation safety and environmental monitoring associated with the proposed decommissioning or ground disturbing activities in accordance with the requirements of 10 CFR 40.42 prior to the commencement of the activity. If issues are identified by NRC that could impact radiological health and safety, they will be resolved prior to the commencement of the activity.
17. When analytical sampling results from locations outside of the RCA indicate that the uranium-238 to uranium-234 ratio (U-238/U-234) activity ratio exceeds 3, the licensee shall notify NRC within 30 calendar days and collect additional environmental samples within 30 calendar days of the notification of NRC, unless prohibited by the absence of the sampling media (e.g., lack of well water).
18. Within 3 months of the effective date of License Amendment No. 3, the licensee shall fully implement each of the revised final site-specific ERMPs for Fort Polk, LA, Fort Riley, KS, and the PTA, HI (ADAMS Accession No. ML17158B356).
19. Deleted.

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20. All written notices and reports to NRC required under this license shall be addressed to: ATTN: Document Control Desk, Deputy Director, Division of Decommissioning, Uranium Recovery, and Waste Programs, Office of Nuclear Material Safety and Safeguards, Mailstop T5A10, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by express delivery to 11545 Rockville Pike, Two White Flint North, Rockville, MD 20852-2738. Required telephone notification shall be made to the NRC Operations Center at (301) 816-5100, unless otherwise specified in license conditions.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: November 26, 2019

By: 

Stephen Koenick, Branch Chief  
Low-Level Waste and Projects Branch  
Division of Decommissioning, Uranium Recovery  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards