UNITED STATES
NUCLEAR REGULATORY COMMISSION
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September 3, 2020

MEMORANDUM TO: Blake Welling, Acting Director
Division of Nuclear Materials Safety, Region I

David Pelton, Director
Division of Nuclear Materials Safety, Region III

Mary Muessle, Director
Division of Nuclear Materials Safety, Region IV

Kevin Williams, Director
Division of Materials Safety, Security, State
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Office of Nuclear Material Safety
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Patricia K. Holahan
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Date: 2020.09.03 10:57:39 -04'00'

FROM: Patricia K. Holahan, Director
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
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SUBJECT: RESULTS OF IMPLEMENTATION PLAN TO IDENTIFY DEPLETED URANIUM ON MILITARY RANGES AND DETERMINE ITS LICENSING STATUS

On February 22, 2019, the U.S. Nuclear Regulatory Commission (NRC) staff issued, "Implementation Plan to Identify Depleted Uranium on Military Ranges and Determine Its Licensing Status," (Agencywide Document Access and Management System [ADAMS] Accession No. ML18157A033 (redacted version without budget information is at ADAMS Accession No. ML19072A214)). The implementation plan focused on depleted uranium (DU) (e.g., spent munitions, armor, other items) that remains on active or inactive military ranges and provided a strategy for confirming that the possession of all DU on active and inactive military ranges[1] is currently either: 1) authorized by an NRC license or 2) being addressed through the

[1] NRC's regulatory authority covers DU under military control. DU is a source material, and section 63 of the Atomic Energy Act (AEA) authorizes the Commission to issue licenses for source material for the "conduct of research and development activities of the types specified in Section 31." Section 31.a.3 of the AEA provides that such research and development activities include the use of "radioactive material for medical, biological, agricultural, health, or *military* purposes" (emphasis added). The NRC's jurisdiction over military uses, such as the testing and development of DU as part of weapons systems,

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Memorandum of Understanding (MOU) between the NRC and the U.S. Department of Defense (DoD) for Coordination on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Response Actions at DoD Sites with Radioactive Materials.

Background

In 2007, the Army discovered unlicensed DU from the Davy Crockett M101 Spotting Rounds that were present on one range on the Island of Oahu and four firing ranges on the Island of Hawaii. The manufacture, storage, testing, and distribution of these rounds was conducted under Atomic Energy Commission regulatory oversight from the 1940s through the 1970s and NRC regulatory oversight in the late 1970s. Historically, these munitions were not accounted for after they had been used on firing ranges. The Army did not remove or clean up these spent rounds on firing ranges. As a result of further evaluation of its ranges, the Army identified additional firing ranges containing spent DU rounds. Based on the Army's possession of spent DU munitions at these ranges, the NRC requested that the Army apply for an appropriate source material license for possession of the DU material. Source Materials License SUC-1593 was subsequently issued to the Department of the Army in 2013. The licensing of the first two sites identified with Davy Crockett DU munitions took approximately six years. The licensing of the remaining fifteen sites, using a programmatic approach that streamlined the licensing process, took approximately two additional years to complete.

During the initial licensing action for the Army's Davy Crockett DU munitions, the NRC staff realized that similar spent DU munitions from other weapon systems could be present on military ranges that are not under NRC regulatory oversight. The NRC staff determined that, after completion of the licensing of all the Davy Crockett DU, the NRC would assess if DU munitions from other weapon systems were present on military ranges. Based on these findings, the NRC would determine if further actions were necessary. During a public meeting with stakeholders in 2013 (ADAMS Accession No. ML13352A214), the NRC committed to evaluate the potential for the presence of other (non-Davy Crockett) spent DU munitions on the Hawaiian military installations.

Since the Davy Crockett spent DU munitions license amendment was completed in March 2016 to add 15 additional sites, there have been several inquiries from the public about the status of licensing for DU in specific calibers of spent rounds in military training applications and associated inquiries regarding the adequacy of protection of public health and safety. While the NRC's findings regarding the Davy Crockett DU licensed under license SUC-1593 indicates that the presence of DU is not an immediate safety concern, the DU implementation plan would address those inquiries and ensure that DU at military firing ranges is under appropriate regulatory control.

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falls within research and development activities with a military purpose over which the AEA gives the NRC authority. Under section 31.a, the NRC licenses "persons," which section 11.s defines to include "Government Agenc[ies] other than the Commission." Therefore, the NRC can issue licenses to the U.S. Department of Defense, including its Military Departments (the Army, Navy, and Air Force), under this provision.

The NRC staff developed a DU implementation plan that would have the U.S. Navy Master Materials Licensee (MML),[2] the U.S. Air Force MML, and the U.S. Department of the Army (Army),[3,4] confirm that all of the DU that remains on active and inactive ranges is under NRC regulatory oversight, while minimizing unnecessary regulatory burden.

In developing the implementation plan, the NRC staff was informed by previous DU licensing (e.g., the NRC's previous approach related to unlicensed Davy Crockett DU) and established an NRC-wide strategy to ensure that any newly identified unlicensed DU be placed under appropriate NRC oversight. The NRC staff concluded that a search of historical licensing records would be useful because even though firing ranges using Davy Crockett munitions were originally licensed by the AEC and subsequently NRC for possession of DU, spent DU munitions were not removed from these sites (this was subsequently identified by the Army and reported to the NRC) before the licenses were terminated. The NRC's staff's historical licensing records search could lead to finding similar weapons ranges as those found by the Army at the ranges where Davy Crockett spotting rounds were used.

The NRC Regional Offices reviewed the implementation plan, provided insights, and contributed significantly to the development of the milestones and estimated resources needed to implement the plan. The NRC staff also discussed the approaches in the implementation plan with the military.

Implementation Plan Findings:

NRC headquarters personnel reviewed available historical NRC information to identify DU at firing ranges. The staff then further researched any potential sites that were found during the searches to verify they were already under appropriate oversight or already remediated. Specifically, the staff conducted Boolean searches of: 1) "firing ranges" and "depleted uranium" as well as 2) "ranges" and "uranium;" 3) "uranium" and "projectile"; and 4) "ranges" and "DU." The searches were done using the: Terminated License Tracking System database (containing files associated with retired NRC and Atomic Energy Commission licenses from the 1950s through 1990s); NRC Legacy Library- Microfiche (1990-1999); ADAMS (1999-2010). The licensing information from the year 2011 to the present was considered to be current information; therefore, historical searches were not performed for this timeframe. The NRC staff completed its records review and, after following up on potential items of interest found in the searches (for example, the Ethan Allen Firing Range, Underhill, Vermont), did not discover any DoD DU military ranges that were unlicensed and not addressed through the MOU. The staff's working papers from the searches can be found in ADAMS at ML20211L849.

As noted in the implementation plan, the NRC then requested the Army, Navy, and Air Force representatives to review the NRC staff's findings to ensure all sites have been appropriately identified. Letters, with the NRC staff's conclusions, were sent to the Army, Navy, and Air Force on January 17, 2020 (ADAMS Accession No. ML19346F896).

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[2] The U.S. Navy MML includes radiological material possessed by the U.S. Marines that is under NRC regulatory oversight.

[3] The U.S. Army has specific licenses for sites with DU and does not hold an MML.

[4] License Conditions (LCs) 12 and 13 of the Davy Crockett license (SUC-1593) require the Army to notify the NRC if it identifies any information that indicates that Davy Crockett DU is present anywhere other than the installations already licensed. These LCs do not require the Army to search for additional DU from other weapon systems.

The letters requested a review of the information in the letters, to: (1) confirm that the list in the attached table (ADAMS Accession No. ML19346F899) includes all active and inactive military ranges with licensable quantities of DU that have not been completely remediated; (2) confirm whether each site is authorized by an existing NRC license, is subject to the DoD MOU, or is unlicensed; and (3) if any new sites are identified, in addition to what NRC has identified which are not currently licensed or covered under the MOU, provide an outline of the current controls for protection of public health and safety at the site.

The table attached to the NRC's letters to the Army, Navy, and Air Force contained a list of firing ranges that are under an NRC license (either under an MML permit or an Army license). The table included the NRC's understanding of how the identified firing ranges are monitored and controlled to ensure adequate protection of public health and safety. The military recipients were also requested to review this information to check for completeness and accuracy.

The Army, Navy, and Air Force responded to the NRC's staff's letters on April 15, 2020, February 10, 2020, and March 19, 2020, respectively (ADAMS Accession No. ML20113E805). All three responses indicated that the table in the NRC staff's letter to them was complete and that there were no additional sites that needed to be added to the list in the table.

Conclusion:

Based on the NRC staff's extensive review of its own historical records and the reviews performed by the military as documented in their responses, the staff has concluded that current military possession of DU is appropriately authorized by an NRC license or being addressed through the MOU between the NRC and DoD for Coordination on CERCLA Response Actions at DoD Sites with Radioactive Materials. Therefore, no further action is warranted on this issue at this time.

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