

August 1, 2011

EA-10-129

Lt. General Rick Lynch, Commanding General
Department of the Army
U.S. Army Installation Management Command
11711 North IH 35, STE 110
San Antonio, TX 78233-5498

SUBJECT: NOTICE OF VIOLATION OF 10 CFR 40.3 – POSSESSION OF DEPLETED URANIUM WITHOUT A U.S. NUCLEAR REGULATORY COMMISSION LICENSE

Dear General Lynch:

This letter pertains to the United States Army's (the Army) notification to the U.S. Nuclear Regulatory Commission (NRC) of the presence of depleted uranium (DU) at various Army installations, and the NRC's subsequent evaluation of the apparent violation of NRC's regulations at 10 CFR 40.3, namely, that the Army possessed DU associated with the Davy Crockett weapons system at these installations without an NRC license.

On April 4, 2011, Mr. Paul Michalak and Mr. Dominick Orlando of the Division of Waste Management and Environmental Protection, USNRC, conducted a meeting by telephone with Dr. Robert Cherry, Radiation Safety Staff Officer, of the Army Installation Management Command staff, in which the basis for the apparent violation of NRC's regulations was discussed. The apparent violation was also described in detail in the letter the NRC issued to the Army on April 5, 2011 (Agencywide Document Access and Management System (ADAMS) Accession Number ML110660245).

During the April 4 meeting, the NRC staff informed Dr. Cherry that the NRC was considering escalated enforcement for this apparent violation involving the possession of DU at multiple Army installations without an NRC license and performing decommissioning activities at the Army's Schofield Barracks installation without authorization from NRC. The staff also requested an open, predecisional enforcement conference (PEC) with the Army in order to obtain information to assist the NRC in making an informed enforcement decision, and to provide the Army with an opportunity to present its perspective on the apparent violation and any other information that the Army believed the NRC should take into consideration.

On May 10, 2011, a predecisional enforcement conference was conducted in the NRC's Region IV offices with members of your staff. The purpose of the conference was to discuss the apparent violations, their significance, their root causes, and your corrective actions.

Based on the information developed during the NRC's evaluation, including the information that you provided during the conference, the NRC has determined that a violation of NRC requirements has occurred. The violation is cited in the enclosed Notice of Violation (Notice)

and the circumstances surrounding it are described in detail in Enclosure 1 of the April 5, 2011 letter.

The NRC considers this violation significant because the requirements in 10 CFR 40.3 provide reasonable assurance that control of radioactive material will be adequate to prevent unauthorized removal or access, and to ensure that any exposure to workers, members of the public, and the environment do not exceed NRC dose limits. Therefore, this violation has been categorized in accordance with the NRC Enforcement Policy at Severity Level III. The NRC Enforcement Policy may be found on the NRC website at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html.

In accordance with the NRC Enforcement Policy, a base civil penalty in the amount of \$3,500 is considered for a Severity Level III violation. Because the Schofield Barracks or Pohakuloa Training Area have not previously been the subject of escalated enforcement action and the Army identified and notified the NRC of the presence of radioactive material, the NRC considered whether credit was warranted for *Corrective Action* in accordance with the civil penalty assessment process in Section 2.3.4 of the Enforcement Policy. Based on its assessment of the Army's corrective actions, the NRC has determined that *Corrective Action* credit is warranted. The Army's corrective actions included the submission of a license application and the implementation of measures to ensure access control of areas suspected to contain DU.

Therefore, to encourage prompt and comprehensive correction of violations, and in recognition of the absence of previous escalated enforcement action, a civil penalty will not be proposed. However, significant violations in the future could result in a civil penalty. In addition, issuance of this Severity Level III violation constitutes escalated enforcement action that may subject the Army to increased inspection effort.

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to be taken to correct the violation and to prevent recurrence, and the date when full compliance will be achieved, is already adequately addressed on the docket in documents submitted by the Army as a result of the PEC that was held May 10, 2011, (ML111590184) and in an email from Dr. Cherry dated June 15, 2011 (ML111671027). Therefore, the Army is not required to respond to this letter unless the description therein does not accurately reflect the Army's corrective actions or its position. In that case, or if the Army chooses to provide additional information, it should follow the instructions specified in the enclosed Notice.

Additionally, as described in Enclosure 2, we understand the Army is continuing to conduct an extent of condition review as a result of identifying this issue in Hawaii, with corrective actions pending for multiple additional sites. In accordance with the Enforcement Policy, Section 3.3, "Violations Identified Because of Previous Enforcement Action," if the remaining examples do not substantially change the safety significance or the character of the regulatory concern arising out of this action, and are corrected within a reasonable time commensurate with the safety significance, the remaining examples will not be cited.

In accordance with 10 CFR 2.390 of the NRC's Rules of Practice, a copy of this letter, its enclosures, and the Army's response, if it decides to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, the Army's response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of the Army's response that identifies the information that should be protected and a redacted copy of the Army's response that deletes such information. If the Army requests withholding of such information, it must specifically identify the portions of the Army's response that it seeks to have withheld and provide in detail the bases for the Army's claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). The NRC also includes significant enforcement actions on its Web site at <http://www.nrc.gov/reading-rm/doc-collections/enforcement/actions/>.

Should you have any questions regarding this letter or the enclosed Notice or report, please contact Mr. Paul Michalak, Chief, Materials Decommissioning Branch, at 301-415-7612.

Sincerely,

/RA/

Roy Zimmerman, Director
Office of Enforcement

Docket: 40-9083

Enclosures:

1. Notice of Violation
2. Enclosure 1 of April 5, 2011 letter

cc: See next page

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Sincerely,
/RA/

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cc: See next page

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12. State of Alaska
13. State of New Jersey
14. State of Colorado

NOTICE OF VIOLATION

Department of the Army
U.S. Army Installation Management Command
11711 North IH 35, STE 110
San Antonio, TX 78233-5498

Docket 40-9083
EA-10-129

Based on the identification by the United States Army (the Army) of the presence of depleted uranium (DU) at various Army installations, to the U.S. Nuclear Regulatory Commission (NRC) in 2006 and subsequent NRC evaluation of the issue, a violation of NRC requirements was identified. In accordance with the NRC's Enforcement Policy, the violation is listed below.

10 CFR 40.3, "License Requirements," states, in part, that persons may not receive title to, own, receive, possess, use, transfer, or dispose of source material unless authorized in a specific or general license issued by the NRC.

Contrary to the above, the Army is in possession of DU, a source material, in quantities in excess of the exempt and general use limits, without authorization in a specific or general license issued by the NRC. Specifically, from April 1978, when NRC license SUB-459 expired, to the present, the Army continued to possess DU associated with the Davy Crockett weapons system in the form of spent fragments of spotting rounds (obtained from 1962 to 1968, and expended prior to 1968) at firing ranges located at the Army's two installations in Hawaii, Schofield Barracks and Pohakuloa Training Area. In addition to the two installations in Hawaii, the Army has also identified the presence of spent DU spotting rounds at other Army installations across the United States.

This is a Severity Level III violation (Section 6.3.c)

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken, and planned to be taken, to correct the violation and to prevent recurrence, and the date when full compliance will be achieved, is already adequately addressed on the docket in documents submitted by the Army (Agencywide Document Access and Management System (ADAMS) Accession Numbers ML111590184 and ML111671027). However, the Army is required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect the Army's corrective actions or its position. In that case, or if the Army chooses to respond, clearly mark the response as a "Reply to a Notice of Violation; EA-10-129", and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Director, Office of Enforcement, NRC HQ, within 30 days of the date of the letter transmitting this Notice of Violation.

Enclosure 1

If the Army chooses to respond, the response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at www.nrc.gov/reading-rm/pdr.html or www.nrc.gov/reading-rm/adams.html. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

In accordance with 10 CFR 19.11, the Army is required to post this Notice within 2 working days of receipt.

Dated this 1st day of August, 2011

**Enclosure 2-
Enclosure 1 of April 5, 2011 Letter**

Basis for Apparent Violation

Summary

On March 4, 2010, a resident of Hawaii filed a request with the U.S. Nuclear Regulatory Commission (NRC) to take enforcement action against the Army if the NRC found that the Army had possessed or released depleted uranium (DU) to the environment without a license. The NRC reviewed this request pursuant to 10 CFR § 2.206, the process by which an individual may petition the NRC to take an enforcement action.

Based on the NRC's review of the information in its possession, it appears that the Army is in violation of 10 CFR § 40.3, "License Requirements," in that it appears that the Army is in possession of DU at multiple installations without proper NRC authorization in the form of a specific or general license issued by the NRC. It also appears that the Army performed decommissioning activities at the Schofield Barracks installation without NRC authorization.

Between 1962 and 1968, the Army apparently received and used DU (which the NRC licenses as source material) at test firing ranges located at two installations in Hawaii: Schofield Barracks and Pohakuloa Training Area. In addition, the Army suspects that it received and used DU at other installations across the United States, including Fort Benning, Georgia; Fort Campbell, Kentucky; Fort Carson, Colorado; Fort Hood, Texas; Fort Knox, Kentucky; Fort Lewis, Washington; and Fort Riley, Kansas. This DU was incorporated into the body of spotting rounds used in connection with the Davy Crockett weapons system. As a result of the testing of the Davy Crockett weapon system, DU was likely scattered throughout the firing ranges at the identified installations. The Army has indicated to the NRC staff that it believes that it discontinued testing of the Davy Crockett weapon system in Hawaii in 1968. The Army has not communicated to the NRC when it believes to have discontinued testing of the Davy Crockett weapon system at the other identified installations.

NRC license SUB-459 authorized the Army to manufacture the spotting rounds containing DU and to transfer those rounds for testing at other Army installations. At the request of the Army, SUB-459 was allowed by the NRC to expire in April 1978.

In November 2006, the Army notified the NRC of the discovery of DU at the Army's Schofield Barracks installation on the island of Oahu, Hawaii¹. Specifically, an Army contractor visually discovered spotting round fragments while performing "range clearing" exercises for unexploded ordnance.

From November 2006 through February 2007, the NRC and Army staffs discussed the presence of the DU at Schofield Barracks. In February 2007, the Army sent a letter to the NRC outlining its investigation of the DU found at Schofield Barracks and indicated that it might need a license to possess the quantity of DU it believed to be present (ADAMS Accession No. ML070650679). The Army also suggested in the letter that, before submitting such a license application, it would determine the total number of installations that might contain DU from spent spotting rounds used in connection with the Davy Crockett weapons system. In March 2007,

¹ Memorandum from G.M. McCann to J. L. Cameron and D. B. Spitzberg, dated 3/5/2007 ML070650224

the NRC staff sent a letter to the Army stating that the approach suggested by the Army was reasonable (ML070710239). In August 2007, the U.S. Army notified the NRC that it had discovered DU contamination at the Pohakuloa Training Area installation.

On November 6, 2008, the U.S. Army Installation Management Command (IMCOM) submitted a license application to the NRC for a license to possess the quantities of DU believed by the Army to be present at various Army installations, including, in addition to the two Hawaiian installations, Forts Benning (Georgia), Campbell (Kentucky), Carson (Colorado), Hood (Texas), Knox (Kentucky) Lewis (Washington), and Riley (Kansas) (ML090070095). On November 16, 2010, NRC legal and technical staff held a license application meeting with Army legal counsel and technical staff at NRC headquarters.² At that meeting, the Army informed the NRC staff of the current status of its investigation of the extent of DU contamination at Army installations and indicated that DU contamination may be present at 17 installations. On November 30, 2010, the NRC staff issued a letter to IMCOM containing technical comments on the Army's license application submittals (consisting of a generic physical security plan and a generic environmental radiation monitoring plan (ERMP)) as well as on the site-specific EMRPs for the Schofield Barracks, Pohakuloa Training Area and Fort Benning installations (ML103160239).

In addition, on October 29, 2010, technical and project management staff from the U.S. Army Corps of Engineers (USACE) and IMCOM met with NRC staff at NRC headquarters to discuss planned construction activities in areas known to contain DU at the Schofield Barracks installation.³ At the meeting, the Army reported that it had removed DU (utilizing the services of Cabrera Services, Inc., an NRC-licensed remediation contractor) from a portion of the Schofield Barracks installation as part of a project to construct a Battle Area Complex (BAX) at Schofield Barracks. On November 24, 2010, the NRC staff issued a letter to the Army outlining what decommissioning activities could and could not be undertaken by Cabrera Services in support of the Army's plan to construct a Battle Area Complex at the Schofield Barracks installation (ML103160174). In that letter, the NRC staff communicated to the Army that maintenance activities that would occur within areas believed to be contaminated with DU at the identified installations would need to be conducted in accordance with a radiation safety program approved by the NRC via a license. Accordingly, such maintenance activities would need to be suspended until a radiation safety program was approved via a license issued by the NRC.

It is the understanding of the NRC staff at this time that, although firing ranges located at the identified installations are controlled Army property and, as such, are not accessible to the general public, the Army continues to use those ranges for testing of various weapon systems. The NRC also understands that Army personnel may have in the past, as part of the performance of various tasks, including range maintenance activities, accessed areas where DU is believed to be located at the identified ranges. As a result, there is the potential that individuals and equipment (including vehicles), having entered the areas believed to contain DU, became contaminated with DU and, as such, inadvertently spread DU outside of the areas of original deposit, including offsite of the identified installations.

² A summary of the meeting as prepared by the NRC staff, along with a copy of the slides used at the meeting as well as the transcript for the meeting can be found at ML103360437.

³ A summary of the meeting as prepared by the NRC staff can be found at ML103130409.

The details regarding the specific quantity of material issued to a given installation, previously recovered from ranges, or disposed of as radioactive waste is not currently known by the NRC staff. However, the NRC staff is aware that the Army estimates that the maximum cumulative amount of DU present at all of the identified installations is 8,000 kg (17,637 lbs). Table 1, below, summarizes the information provided by the Army to the NRC staff at the November 16, 2010 meeting, amended and supplemented in a February 17, 2011, correspondence. The Army has made commitments in its license application to perform scoping and characterization surveys to delineate the affected areas (subject to precautions required due to the presence of unexploded ordnance) and to determine the amount of DU at the various installations listed in Table 1, below.

Table 1	
Location/Range	Estimated M101 spotting rounds
Schofield Barracks and Pohakuloa Training Area, Hawaii	714
Fort Benning, Georgia	9,700
Fort Carson, Colorado	1,404
Fort Campbell, Kentucky	681
Fort Hood, Texas	4,038
Fort Lewis, Washington	1,756
Fort Knox, Kentucky	3,956
Fort Riley, Kansas	105
Fort Gordan, Georgia	273 ^a
Fort Greeley, Alaska	50 ^a
Fort Hunter Liggett, California	150 ^a
Fort Jackson, South Carolina	234 ^a
Fort Polk, Louisiana	1923 ^a
Fort Sill, Oklahoma	585 ^a
Yakima Training Center, Washington	50 ^a
60 installations on original list – narrowed down to current list based on Archive Search Reports (ASRs)	
ASRs = 29,781 total M101 rounds	
a – estimate, exact number not known.	

According to the terms of 10 CFR § 40.22, "Small Quantities of Source Material," general licenses authorize the use and transfer of certain small quantities of source material. Based on the information provided by the Army in its license application, the NRC's understanding is that the Army currently possesses DU in quantities that exceed the quantities authorized by 10 CFR § 40.22 at the installations identified in the table above.

Apparent Violation

10 CFR § 40.3, "License Requirements," states, in part, that persons may not receive title to, own, receive, possess, use, transfer, or dispose source material unless authorized in a specific or general license issued by the NRC.

Based upon the above, it appears that the Army is in possession of DU, a source material, in quantities in excess of the exempt and general use limits, without authorization in a specific or general license issued by the NRC. From April 1978, when SUB-459 expired, to the present, the Army continued to possess DU in the form of spent fragments of spotting rounds (obtained from 1962 to 1968, and expended prior to 1968) at firing ranges located at the Army's two Hawaiian installations, Schofield Barracks and Pohakuloa Training Area, in apparent violation of 10 CFR § 40.3. In addition to the two installations in Hawaii, the Army has also identified the potential presence of DU contamination at other installations across the United States. The confirmed presence of DU at any of these installations will be treated as additional examples of this apparent violation of 10 CFR § 40.3.

It also appears that the Army may have performed certain decommissioning activities at the Schofield Barracks installation without necessary authorization from NRC. During the meeting with NRC staff on October 29, 2010, USACE staff informed the NRC that certain areas at the Schofield Barracks installation had been remediated and cleared for unrestricted use. Prior to that meeting with USACE staff, the NRC was not aware that the Army was pursuing such decommissioning activities and, as such, had not approved the release of any areas at Schofield Barracks known to be contaminated with DU for unrestricted use. Were the Army an NRC licensee with respect to the DU present at Schofield Barracks, the Army would have been required by 10 CFR § 40.42 to obtain NRC approval prior to releasing remediated range areas for unrestricted use at Schofield Barracks. As it is, the NRC may consider the Army's failure to obtain NRC approval prior to release of remediated range areas as a consequence of the Army's apparent violation of 10 CFR § 40.3 for possession of DU in licensable quantities in absence of a NRC license.