



**UNITED STATES
NUCLEAR REGULATORY
COMMISSION**
REGION I
2100 RENAISSANCE BLVD.
KING OF PRUSSIA, PA 19406-
2713

September 19, 2018

Lt. Gen. Paul E. Funk II, Commander
U.S. Army Installation Management Command
2405 Gun Shed Road
Joint Base Fort Sam Houston, TX 78234-1223

SUBJECT: FORT BENNING - NRC INSPECTION REPORT SUC-1593/2018002

Dear Lt. Gen. Funk:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted on August 21, 2018, at Fort Benning located near Columbus, Georgia. The NRC inspector discussed the results of this inspection with the Radiation Safety Officer identified under your license, the Garrison Safety Officer, and the Garrison Radiation Safety Officer at the exit briefing on August 21, 2018. The inspection results are documented in the enclosure to this letter.

This inspection was an examination of activities conducted under your NRC Source Materials License SUC-1593 as it relates to public health and safety, common defense and security, and to confirm compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel regarding programmatic implementation of the radiation safety plan, physical security plan, and the environmental radiation monitoring plan. No violations were identified and no response to this letter is required.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

If you have any questions regarding this matter, please contact Orysia Masnyk Bailey of my staff at (864) 427-1032 or via electronic mail at Orysia.MasnykBailey@nrc.gov.

Thank you for your cooperation.

Sincerely,
/RA SHAMMANN for/
Raymond J. Powell, Chief
Decommissioning, ISFSI, and Reactor HP Branch
Division of Nuclear Materials Safety
Region I

P.Funk

2

Docket: 040-09083
License: SUC-1593

Enclosure:
Inspection Report 040-09083/2018-002
w/Attachment: Supplemental Information

cc w/encl:

U.S. Army Installation Management Command
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Commander, USAG FT BENNING
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6811 Vibbert Avenue
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USAG FT HOOD
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SKoenick, NMSS
ASnyder, NMSS
TPruitt, DNMS/RIV

P. Funk

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SUNSI Review Complete: O.Masnyk-Bailey

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection No. SUC-1593/2018002
Docket No. 040-09083
License No. SUC-1593
Licensee: United States Army Installation Management Command
Address: Fort Benning, Georgia
Inspection Dates: August 21, 2018
Inspector: Orysia Masnyk Bailey, Health Physicist
Decommissioning, ISFSI, and Reactor
HP Branch
Division of Nuclear Materials Safety
Approved By: Raymond J. Powell, Chief
Decommissioning, ISFSI, and Reactor
HP Branch
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

United States Army Installation Management Command
Fort Benning
NRC Inspection Report SUC-1593/2018-002

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of activities authorized at Fort Benning near Columbus, Georgia, by NRC Source Materials License SUC-1593, Amendment 02, dated February 9, 2017. The inspection disclosed that the licensee was conducting licensed activities in accordance with approved procedures, license requirements, and applicable NRC regulations.

Industrial/Academic/Research Programs

- The licensee implemented all aspects of its program, including the radiation safety plan, physical security plan, and the environmental radiation monitoring plan and was in compliance with license requirements. The licensee was effectively controlling the security of the depleted uranium (DU) at Fort Benning. In addition, the licensee was monitoring the environment, which demonstrated there was not any migration of the DU from the radiation controlled area.

Report Details

Summary Status of Licensed Activities

In August 2005, the Department of the Army discovered remnants of munitions containing depleted uranium (DU) at the Schofield Army Barracks in Hawaii, during an unexploded ordnance clearance project. The remnants were identified as spotting rounds that were used with the Davy Crockett Weapons System. The Davy Crockett Weapons System was either an M388 or M390 nuclear projectile developed during the late 1950's and deployed between 1962 and 1968. The weapons system was never used by the military, except during two test explosions in 1962, in a controlled environment at the Nevada Test Site.

The spotting round cartridge (M101) contained DU and was designed to mimic the trajectory of the nuclear projectile due to its density of approximately 18.8 grams per cubic centimeter (g/cm^3), and was used to insure a high probability of impact by the weapons system. The spotting round emitted a puff of white smoke upon impact that allowed the officer in charge to figure the angle and timing calculations for the nuclear projectile. The DU remained intact or mostly intact on or near the surface following impact and did not explode. There were approximately 75,000 DU spotting rounds manufactured and subsequently distributed under the authority of a number of U.S. Atomic Energy Commission licenses that were in effect at the time. There were approximately 30,000 of the spotting rounds fired at Army ranges across the United States. Remnants of the tail assemblies may remain at each installation where the U.S. Army trained with the Davy Crockett weapon system from 1960 to 1968.

The U.S. Army Installation Management Command (IMCOM) applied for an NRC license in 2008 on behalf of the Army for all identified locations that were under NRC jurisdiction. On October 13, 2013, the NRC issued source material license SUC-1593 (docket number 040-09083) for the two locations in Hawaii for possession of DU. A subsequent amendment authorized other locations for possession of DU, so that a total of 16 installations were identified on the license, which represented multiple ranges and a total possession limit of 5700 kilograms of DU. The 20-millimeter spotting round weighed approximately one pound and contained about 0.45 pounds (0.204 kilograms) of DU. Licensing documents include an environmental monitoring plan for each installation identified on the license, as well as a security and radiation safety plans.

The NRC initiated its inspection program of the licensee under Manual Chapter 2800, starting in fiscal year 2018, with approximately 4 installations to be inspected every 2 years. This inspection was the second inspection in 2018.

1 Industrial/Academic/Research Programs (87126)

1.1 Inspection Scope

The inspector evaluated whether licensed activities were being conducted to protect public health and safety, the common defense and security, and with the conditions of the license and regulatory requirements.

1.2 Observations and Findings

The license is managed under IMCOM, Fort Sam Houston, Texas, with one point of contact, the License Radiation Safety Officer (LRSO). This individual is named on the license. The inspector observed that the LRSO was familiar with each of the locations named on the license, was knowledgeable about the history and use of the DU spotting rounds and weapon systems, and was well-informed of the status of the activities conducted under the license at Fort Benning, Georgia. There is a Garrison Radiation Safety Officer (GRSO) at each installation.

The LRSO visited each installation annually and performed an annual audit at each installation using inspection procedure (IP) 87126. This meets the requirement of 10 CFR 20.1101, "Radiation Protection Programs."

a. Implementation of the Radiation Safety Plan

The Radiation Safety Plan, dated December 31, 2015 (ML16004A369) was submitted and authorized by the NRC under license condition 11. Fort Benning has a radiation safety staff, consisting of a GRSO and assistant GRSO trained in accordance with the Radiation Safety Plan, Section 2.4.1.

The inspector observed that the licensed radiation controlled areas (RCAs) for the DU spotting rounds is well marked on site maps, and that site range and safety staff are conversant with these locations. Once approval had been granted through the range safety plan, the licensee drove the inspector to the radiation controlled areas that were established for the control of the DU on the ranges. The inspector observed the required postings that indicated "Caution – Radioactive Material" signs, as required by Section 14.1 of the Radiation Safety Plan.

The inspector also observed other NRC required postings, including the NRC Form 3 and the applicable regulations were located at the safety office. Subsequent to the inspection the licensee added a picture of a spent M101 spotting round to the "Notice To Employees".

The ranges containing the RCAs continue to be used for standard marksmanship and weapons familiarization training to support the mission of the installation, as authorized by the license and the radiation safety plan. One of the RCAs is not surrounded by a firing range and is adjacent to areas where public hunting is authorized. The licensee has developed "Caution Radioactive Materials" signs where "Keep Out" has been added.

The licensee maintained calibrated instruments as required by Section 17 of the Radiation Safety Plan. The instruments available to the GRSO were appropriate for the licensed material and type of uses anticipated under the possession-only license.

b. Review of Physical Security Plan

The Physical Security Plan, dated December 31, 2015, is required by license condition 11, and references the Radiation Safety Plan for specific details regarding the control of the radiological boundaries, posting of the boundaries, controlling access to the radiation controlled area, and training of workers entering the area.

During the inspection, the inspector observed that the physical requirements and access control measures to the range were implemented through the installation range control officer. The inspector was controlled and monitored while present on the ranges. Fort Benning has an "I Sportsman" program in place, whereby hunters are tracked by their cell phones after applying for a permit to hunt on base property.

c. Implementation of the Environmental Radiation Monitoring Plan

The licensee developed a site-specific environmental radiation monitoring plan for each installation authorized on the license and each site-specific plan was approved by the NRC under license amendment number 02. The environmental radiation monitoring plan described the physical, geological, groundwater, and habitat of the installation.

The NRC approved plan for Fort Benning required quarterly sampling at two locations identified as OC-02 and UC-02. The locations were determined to be downstream of the radiation controlled areas. The licensee collected surface water and sediment samples at each location on a quarterly basis.

The inspector reviewed available quarterly sample results for the two designated locations. The sample results did not identify the presence of DU and did not indicate the presence of any radioactive materials above background levels.

1.3 Conclusion

The licensee implemented all aspects of its approved license. No violations were identified.

3 Exit Meeting Summary

On August 21, 2018, the NRC inspector presented the inspection results to Dr. Robert N. Cherry of your staff, and members of the Fort Hood safety staff. No proprietary information was identified during the inspection.

SUPPLEMENTAL INSPECTION INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Cherry, License RSO

G. Purtteman, Garrison RSO

J. Whitlock, Garrison RSO

INSPECTION PROCEDURES USED

IP 87126 Industrial/Academic/Research Programs

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

CFR	<i>Code of Federal Regulations</i>
DU	Depleted Uranium
GRSO	Garrison Radiation Safety Officer
INCOM	Army Installation Management Command
LRSO	License Radiation Safety Officer
RCA	Radiation Control Area