



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

January 9, 2020

MG Timothy P. McGuire, Commander
U.S. Army Installation Management Command
2405 Gun Shed Road
JBSA Fort Sam Houston, TX 78234-1223

SUBJECT: JOINT BASE LEWIS-MCCHORD/YAKIMA NRC INSPECTION REPORT
040-09083/2019-002

This letter refers to the announced U.S. Nuclear Regulatory Commission (NRC) inspection conducted on October 28-29, 2019, at the Joint Base Lewis-McChord (JBLM) and Yakima Training Center, located in the State of Washington. The NRC inspector discussed the preliminary results of this inspection while on-site at the Yakima Training Center with Dr. Robert Cherry, Radiation Safety Officer, Michael Martin, Joint Base Garrison Radiation Safety Officer, and LTC Roger Gavriluk, Commander, Joint Base Lewis-McChord Yakima Training Center. On December 11, 2019, the NRC inspector presented the inspection results by telephone to Dr. Cherry and Mr. Martin. 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.

Based on the results of this inspection, the NRC has determined that one non-cited violation (NCV) of NRC requirements occurred. The NCV involved unauthorized access into JBLM's radiation controlled areas. Because the U.S. Army Installation Management Command identified and corrected this violation and the violation is not repetitive, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC's Enforcement Policy, which can be found at the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. A description of the requirement and the circumstances surrounding your identification and resolution of this noncompliance is documented in the body of this report.

If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region IV; and (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response, should 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/readingrm/adams.html>.

Should you have any questions concerning this letter or the enclosed report, please contact Ms. Linda Gersey, Health Physicist, at 817-200-1299, or the undersigned at 817-200-1156.

Sincerely,

/RA/

Heather J. Gepford, PhD, CHP, Chief
Materials Licensing and Decommissioning
Branch
Division of Nuclear Materials Safety

Docket No.: 040-09083
License No.: SUC-1593

Enclosure:
NRC Inspection Report 040-09083/2019-002

cc w/encl:
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**U.S. NUCLEAR REGULATORY COMMISSION
Region IV**

Docket No.: 040-09083

License No.: SUC-1593

Report No.: 040-09083/2019-002

Licensee: United States Army Installation Management Command

Facilities: Joint Base Lewis-McChord and Yakima Training Center

Locations: Tacoma, Washington and Yakima, Washington

Inspection Dates: October 28-29, 2019

Inspector: Linda M. Gersey, Health Physicist
Materials Inspection Branch
Division of Nuclear Materials Safety
Region IV

Approved by: Heather J. Gepford, PhD, CHP, Chief
Materials Licensing and Decommissioning Branch
Division of Nuclear Materials Safety

Attachment: Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

United States Army Installation Management Command
Joint Base Lewis-McChord and Yakima Training Center
NRC Inspection Report 04009083/2019-001

This U.S. Nuclear Regulatory Commission (NRC) inspection was an initial announced inspection of activities authorized at the Joint Base Lewis-McChord (JBLM) and the Yakima Training Center by NRC Source Materials License SUC-1593, Amendment 3, dated October 30, 2018.

Industrial/Academic/Research Programs

- Overall, the licensee adequately implemented its radiation safety and physical security plans, with one exception. (Sections 1.2.a and 1.2.b)
- One non-cited violation was identified and corrected by the licensee, related to unauthorized access to the radiation control area at JBLM. (Section 1.2.a)
- In addition, the licensee was monitoring the environment in accordance with license requirements and did not identify any migration of the depleted uranium from the RCAs. (Section 1.2.c)

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. The remnants were identified as spotting rounds that were used with the Davy Crockett Weapons System. As a result of the discovery, 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 for the two locations in Hawaii for possession of DU. License Amendment 3, dated October 30, 2018, (NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML18242A352) authorized additional locations for possession of DU; a total of 16 Army installations throughout the U.S. were identified on the license. The 20-millimeter spotting round weighed approximately one pound and contained about 0.204 kilograms of DU. The licensee submitted environmental monitoring plans for each installation identified on the license as required by license Amendment Number 1. On February 9, 2017, the NRC authorized the environmental monitoring plans for each installation and incorporated them by reference under License Condition (LC) 11, and specified, in part, under LC 18, that the licensee was required to implement the environmental monitoring plan at each installation by August 9, 2017. The NRC initiated an inspection program for this license during fiscal year 2018.

This was an announced initial inspection of the Army's Joint Base Lewis-McChord (JBLM) and Yakima Training Center (Yakima) installations, which are listed on the Army's Source Material License SUC-1593. Both installations were identified as having remnants of DU from the Davy Crockett Weapons System and have designated Radiation Control Areas (RCAs) to control unauthorized access to the DU. The total amount of DU listed on the license for the combined installations is 340 kilograms.

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

a. Implementation of the Radiation Safety Plan

The licensee's Radiation Safety Plan (RSP), dated December 31, 2015, (ADAMS Accession No. ML16004A369) specifies, in part, the qualifications and duties of the Garrison Radiation Safety Officer (GRSO), personnel training requirements, access control to the RCAs, contamination surveys, posting requirements, program audits, and the environmental monitoring program. The RSP applies to all installations listed on the license. Each installation has an individualized environmental monitoring plan based on the location of the RCA and its relation to groundwater flow and other factors. The

licensee stated that no new fragments of DU had been identified at the JBLM or Yakima installations since the license was issued.

The license is managed under IMCOM, Fort Sam Houston, Texas, with the Radiation Safety Officer (RSO), as listed on the license, as the single point of contact. The inspector observed that the RSO was involved with the license application process, 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 the JBLM and Yakima. The RSO coordinated closely with the GRSO, who is assigned radiation safety duties at both the JBLM and Yakima installations. The GRSO reports to the JBLM location. The inspector reviewed the qualifications of the GRSO and his assigned duties and determined that they met the requirements of the license. The GRSO stated that his radiation safety duties take approximately one third of his time and he is on-site at Yakima on a quarterly basis. The inspector observed that the GRSO was knowledgeable of the license requirements for the radiation safety, security, and environmental programs.

(i) JBLM Installation

There are three RCAs located at the JBLM installation, identified as Range-52, OP-9, and OP-8. All RCAs are located within one artillery impacted area. The impacted area is dangerous due to unexploded ordnances and specific authorization is required to enter. The JBLM impacted area, and the three RCAs inside the impacted area, are not fenced, although unexploded ordinance postings are closely spaced around the perimeter of the impacted area. The inspector observed nine postings that indicated "Caution – Radioactive Material," as required by the RSP, at the vehicle entrances to the impacted area and found the postings to be adequate. The license allows for posting RCAs at the perimeter of the impacted area if the RCA is located within an unsafe area.

During the inspection, the licensee had discussions with the inspector regarding a self-identified violation of license requirements related to unauthorized access to the RCAs at the JBLM installation. Section 15.1 of the licensee's RSP states, in part, that personnel access to RCAs is not authorized except with the knowledge and approval of the GRSO. In addition, no one may enter the RCA unless they have met all radiation safety training requirements outlined in Section 20 of the RSP. The licensee stated that on October 2, 2017, May 3, 2018, May 7, 2018, and April 30, 2019, six employees of the U.S. Army's Directorate of Public Works Environmental Division (DPWED) entered the three JBLM RCAs to perform environmental surveys without the knowledge and approval of the GRSO. The licensee had self-identified the noncompliance on June 12, 2019, during a training session given by the GRSO with DPWED employees, prior to the NRC's inspection.

The licensee performed an immediate investigation without NRC prompting or identification. Based on the investigation findings, the licensee performed corrective actions including mandating that all future personnel who enter the impacted area where the RCAs are located use only global positioning system devices with pre-programmed locations of the RCAs. The licensee took additional corrective actions to prevent recurrence by providing personnel entering impacted areas with hand-held maps which identify the boundary of the RCAs and by

updating the request/approval form for impacted area entry. The revised request/approval form has three new checkboxes to: (1) indicate entry into the RCA; (2) confirm radiation safety training was completed; and (3) verify the GRSO has been notified. The range control officer provides the final approval for entry into the RCA.

Since the noncompliance would not have been of a Severity Level III or higher and the inspector concluded there were no indications of willfulness, the NRC has determined that the noncompliance was a non-cited violation (NCV 04009083/2019-002-01) in accordance with Section 2.3.2 of the NRC Enforcement Policy, which can be found at the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>.

(ii) Yakima Training Center

The inspector toured the Yakima Training Center with the RSO and GRSO. Yakima has three RCAs, identified as Range 17, Range 18, and Range 14, each located inside artillery impacted areas. Ranges 17 and 18 are located within the Central impacted area and Range 14 is in a separate impacted area. The Central and Range 14 impacted areas are surrounded by barbed-wire fencing, and entry is forbidden due to the dangers of unexploded ordinances. There are five postings total that indicate "Caution – Radioactive Material," located on the perimeter fences of the impacted areas, two postings on Range 14 and three postings on the Central impacted area. Due to the dangerous locations of the RCAs, the license allows for posting of the RCAs at the perimeter of an impacted area. The inspector viewed four of the five postings and determined that they met the license requirements.

Because the Army does not allow entry into the RCAs at Yakima, there are few radiation safety duties required at this installation. Were there a need for the GRSO to be on-site beyond the normal quarterly visits, the GRSO stated he could be at Yakima within a few hours. Due to the limited radiation safety program duties required at Yakima, the inspector focused on performing interviews, ensuring the security of the RCAs, and reviewing the environmental sampling requirements.

b. Review of Physical Security Plan

The Physical Security Plan, dated December 31, 2015, is required by LC 11 and applies to all installations listed on the license. The physical security plan referenced the RSP 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. These restrictions were necessary to control the security of the radioactive material within the ranges.

During the inspection, the inspector observed that the physical security requirements and access control measures to the range were implemented through the installation range control officer. Since no authorized entries were made into the licensed, radiation controlled areas since the installations were added to the license, the inspector did not have any records to review for this area of the inspection.

c. Implementation of the Environmental Radiation Monitoring Plan

The licensee developed a site-specific environmental radiation monitoring plan (ERMP) for each installation authorized on the license and each site-specific plan was approved by the NRC under license Amendment Number 2. The ERMP described the physical, geological, groundwater, and habitat of the installation. The licensee had a contract with Science Applications International Corporation (SAIC) for environmental sample collection and a contract with Test America for the analyses.

The NRC-approved ERMP for JBLM requires quarterly sampling of co-located surface water and sediment samples at one location, identified as AIA-SP02. The sampling location was considered a downstream waterway of the RCAs to the Nisqually Clear Creek Fish Hatchery. During the initial sampling event in 2017, the SAIC contractors identified that the sampling location was inaccessible due to dense vegetation and a steep grade. The licensee identified an alternate sampling location, approximately 319 feet downstream of the original location, that should have similar sampling results. The inspector reviewed the 2017-2018 environmental sampling results. The sample results did not identify the presence of DU, as determined using the activity ratio of uranium-238/uranium-234 exceeding the value of three, as specified in LC 17.

The NRC-approved plan for Yakima requires quarterly sampling of co-located surface water and sediment samples from three locations downstream from the RCAs. The three locations are identified as SWS-01, SWS-02, and SWS-03. The inspector reviewed the 2017-2018 environmental sample results. During some sampling events, surface water was not available for collection, as noted by the SAIC contractors. The sample results did not identify the presence of DU, as determined using the activity ratio of uranium-238/uranium-234 exceeding the value of three, as specified in LC 17.

1.3 Conclusion

Overall, the licensee adequately implemented its radiation safety and physical security plans, with one exception. One NCV was identified and corrected by the licensee, related to unauthorized access to the RCA at JBLM. In addition, the licensee was monitoring the environment in accordance with license requirements and did not identify any migration of the DU from the RCAs.

2 Exit Meeting Summary

On December 11, 2019, the NRC inspector presented the inspection results by telephone to Dr. Robert N. Cherry, RSO, and Michael Martin, Joint Base GRSO. No proprietary information was identified during the inspection.

SUPPLEMENTAL INSPECTION INFORMATION

Key Points of Contact

Licensee Personnel

R. Cherry, License RSO
M. Martin, Joint Base GRSO

Inspection Procedures Used

IP 87126 Industrial/Academic/Research Programs

List of Items Opened, Closed, and Discussed

Opened

NCV	04009083/2019-002-01	Unauthorized entry into JBLM RCAs
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Closed

NCV	04009083/2019-002-01	Unauthorized entry into JBLM RCAs
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Discussed

None

List of Acronyms Used

ADAMS	Agencywide Documents Access and Management System
DPWED	U.S. Army's Directorate of Public Works Environmental Division
DU	Depleted Uranium
ERMP	Environmental Radiation Monitoring plan
GRSO	Garrison Radiation Safety Officer
IMCOM	Installation Management Command
JBLM	Joint Base Lewis-McChord
LC	License Condition
NCV	Non-cited violation
NRC	Nuclear Regulatory Commission
RCA	Radiation Controlled Area
RSO	Radiation Safety Officer
RSP	Radiation Safety Plan
SAIC	Science Applications International Corporation

JOINT BASE LEWIS-MCCHORD/YAKIMA NRC INSPECTION REPORT 040-09083/2019-002 –
DATED JANUARY 9, 2020

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