



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

August 14, 2024

Robert N. Cherry, PhD
U.S. Army Installation Management Command,
IMSO Building 2261
2450 Gun Shed Road
JBSA Fort Sam Houston, Texas 78234-1223

**SUBJECT: U.S. DEPARTMENT OF ARMY, JEFFERSON PROVING GROUND
NRC INSPECTION REPORT 040-08838/2024001**

Dear Dr. Robert Cherry:

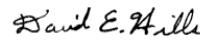
On July 9, 2024, the U.S. Nuclear Regulatory Commissioning (NRC) completed an inspection at the Jefferson Proving Ground located near Madison, Indiana 47250. On August 2, 2024, the NRC inspector discussed the results of the inspection with yourself, Tod Scalf, Acting Deputy to the Garrison Commander, and other members of your staff. The results of this inspection are documented in the enclosed report.

During the inspection, the NRC inspector reviewed and conducted an examination of activities at the site as they relate to safety and compliance with the license and the Commission's rules and regulations.

No violations of more than minor safety significance were identified during the inspection.

This letter, its enclosure, and your response, (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.290, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,



Signed by Hills, David
on 08/14/24

David E. Hills, Chief
Decommissioning Reactor, and ISFSI HP Branch
Division of Radiological Safety and Security

Docket No.: 040-08838

License No. SUB-1435

Enclosure:

IR No. 040-08838/2024001

cc: Colonel W. Parker III, Commander,
US Army Garrison-Rock Island Arsenal
T. Scalf, Deputy to the Garrison
Commander Acting
J. Deaton, Facility Manager

Letter to R. Cherry from D. Hills dated August 14, 2024.

SUBJECT: U.S. DEPARTMENT OF ARMY, JEFFERSON PROVING GROUND
NRC INSPECTION REPORT 040-08838/2024001

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OFFICIAL RECORD

**U.S. NUCLEAR REGULATORY COMMISSION
INSPECTION REPORT**

Docket No. 040-08838

License No.: SUB-1435

Report No.: 040-08838/2024001

Licensee: U.S. Department of the Army

Facility: Jefferson Proving Ground

Location: Madison, Indiana

Inspection Dates: July 9, 2024, to August 2, 2024

Inspector: M. LaFranzo, Senior Health Physicist

Approved By: David E. Hills, Chief
Decommissioning Reactor, and ISFSI HP Branch
Division of Radiological Safety and Security

EXECUTIVE SUMMARY

**U.S. Department of Army
Jefferson Proving Grounds
NRC Inspection Report No. 040-08838/2024001**

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of activities conducted at the facility. A brief summary of the areas reviewed are described below. Based on the results of the inspection, no violations of more than minor safety significance were identified.

Observation of Activities (RM-1)

- The NRC inspector noted that the licensee was following procedures and had adequate knowledge to ensure compliance with regulatory and license requirements.

Assessment of Dose to Workers and the Public (RM-2)

- The NRC inspector noted that the licensee documented and issued Annual Radiation Monitoring Reports as required.

Surveys for Contamination Control and Exposure Control (RM-3)

- The NRC inspector identified that the licensee was properly controlling contamination and exposure as required by regulations and license requirements.

Safety and Security of Licensed Materials (RM-4)

- The NRC inspector did not identify deficiencies in the licensee's safety and security program.

Management Oversight (RM-5)

- The NRC inspector did not identify any deficiencies in the licensee's management oversight of the license.

Report Details

Summary of Facility Status

Portions of Jefferson Proving Ground has been used for the testing of conventional explosive ammunition for many decades. In addition to the testing of conventional explosive ammunition, the U.S. Army also proof tested large caliber (i.e., 105- and 120-mm) anti-armor DU (Depleted Uranium) penetrators under NRC SUB-1435 from 18 March 1984 to 2 May 1994 (U.S. Army 2013). Army personnel fired approximately 220,462 lb (100,000 kg) of DU projectiles into the DU Impact Area. All DU penetrators were test fired from the three fixed-gun positions on the east-west oriented firing line using guns that were aimed in a northerly direction. Since the penetrators were not fired at hard targets (e.g., dismantled tanks, armored personnel carriers), the penetrators traveled through the soft targets, hit the earth/buried itself, or ricocheted/continued traveling until each penetrator lost all kinetic energy and fell to the ground.

The licensee has collected large quantities of DU projectiles and properly disposed of the material. However, due to the large quantities of unexploded conventional explosive ammunition in and around the locations where DU is found on site, the NRC has issued a "Possession only" license under License No. SUB-1435 (ML19088A304) Amendment 20 and has granted an exemption from the NRC's decommissioning timeliness rule for a 20-year period as of the issuance of the license. Under License Amendment 20, the licensee's possession limit is 80,000 kilograms and shall be kept onsite.

1.0 Observation of Activities (IP87140 RM-1)

1.1 Inspection Scope

The purpose of this portion of the inspection was to observe environmental sampling techniques in accordance with regulatory and license requirements.

1.2 Observations and Findings

During the inspection, the inspector observed environmental sampling techniques for well water, surface water and sediment sampling in accordance with the licensee's procedures. Samples were taken in accordance with licensee procedures which included, but not limited to, limiting cross contamination issues, and sampling container preparation, marking and storage for transport. The inspector interviewed licensee staff performing the activities and found each had adequate knowledge to ensure that procedures were followed as required.

1.3 Conclusions

The NRC inspector noted that the licensee was following procedures and had adequate knowledge to ensure compliance with regulatory and license requirements.

2.0 Assessment of Dose to Workers and the Public (IP87140 RM-2)

2.1 Inspection Scope

The purpose of this portion of the inspection was to review environmental reports and interview licensee staff to demonstrate compliance with regulatory and license requirements.

2.2 Observations and Findings

During the inspection, the inspector reviewed the licensee's 2020, 2021, 2022 and 2023 Radiation Monitoring Reports. The reports are found in ADAMS and are listed in this report. The inspector noted that radiological analysis and results for surface water, ground water and sediment were below quantities that would require additional review. The inspector interviewed the licensee staff and noted that the individuals had adequate knowledge concerning the development and implementation of the reports which are issued on an annual basis.

2.3 Conclusions

The NRC inspector noted that the licensee documented and issued annual Radiation Monitoring Reports as required.

3.0 Surveys for Contamination Control and Exposure Control (IP87140 RM-3)

3.1 Inspection Scope

The purpose of this portion of the inspection is to document observations of licensee staff performing radiological surveys for contamination and exposure as required and in accordance with regulatory and license requirements.

3.2 Observations and Findings

During the inspection, the inspector noted that the licensee was using survey instruments which detected the type of radiation found at the site and had adequate sensitivity to ensure detection of radioactive material at the levels required to be identified. The inspector noted that each survey instrument was appropriately calibrated, and a single check source was used to determine operability prior to instrument use.

Since the last inspection, the licensee had not identified licensed material that was needed to be removed from the controlled area and shipped as required by regulations and license requirements. On May 17, 2023, the licensee reported that a DU penetrator was found embedded in a tree. The tree was in the Depleted Impact Area, which was properly posted and fenced, surrounded by unexploded conventional explosive ammunition. The licensee was not going to remove the DU out of concern that such removal could inadvertently detonate the unexploded ammunition causing a physical risk to the removal team; such a determination is allowed under the license. During the inspection, the inspector confirmed that the penetrator was embedded in a tree and under the conditions that the licensee described. The inspector did not identify radiological contamination in the area and the tree had completely grown over the DU penetrator.

3.3 Conclusions

The NRC inspector identified that the licensee was properly controlling contamination and exposure as required by regulations and license requirements.

4.0 **Safety and Security of Licensed Materials (IP87140 RM-4)**

4.1 Inspection Scope

The purpose of this portion of the inspection is to document the observation of safety and security of licensed materials in accordance with regulatory and license requirements.

4.2 Observations and Findings

During the inspection, the inspector noted that all required signage, to include but not limited to radioactive materials and exploded ammunition, were visible and located at the appropriate locations. The licensee used a fence to limit access to the Depleted Impact Area and locations where unexploded ammunition was located; the fence was in proper repair and was in locations as noted within the License.

The inspector reviewed the licensee's training program. All individuals who are provided access to the Depleted Impact Area and/or areas with unexploded ammunition were trained in accordance with the licensee's training program. The inspector noted the program was implemented as required and no deficiencies were identified. The licensee had not identified instances where an individual performed their functions outside of the training program.

4.3 Conclusions

The NRC inspector did not identify deficiencies in the licensee's safety and security program.

5.0 **Management Oversight (IP87140 RM-5)**

5.1 Inspection Scope

The purpose of this portion of the inspection is to document information gathered during interviews with licensee management to ensure the licensee's program has adequate skills and personnel to ensure the licensee can be in compliance with regulatory and license requirements.

5.2 Observations and Findings

During the inspection, the inspector interviewed the Radiation Safety Officer and other members of the licensee staff. The inspector noted that each had adequate knowledge to ensure that licensed materials were handled and stored in accordance with regulatory and license requirements.

5.3 Conclusions

The NRC inspector did not identify any deficiencies in the licensee's management oversight of the license.

6.0 **Exit Meeting**

The inspector presented the results of the inspection to Dr. Robert Cherry, Colonel William J. Parker III, and members of the licensee staff at an exit meeting on August 2, 2024. The licensee acknowledged the results presented and did not identify any of the information discussed as proprietary which was included in the report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Colonel William J. Parker III, Commander, US Army Garrison-Rock Island Arsenal
Tod A. Scalf, Deputy to the Garrison Commander, Acting
Robert N. Cherry, PhD., Radiation Safety Officer
Joe R. Deaton, Facility Manager
Shelby Bare, Chemist USACE-LRL
Brooks Evens, USACE Contractor Officer Representative

INSPECTION PROCEDURE

IP 87140 Source, Special Nuclear Material, and other Alpha Emitter Use Programs

ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</u>	<u>Type</u>	<u>Summary</u>
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None

<u>Closed</u>	<u>Type</u>	<u>Summary</u>
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None

<u>Discussed</u>	<u>Type</u>	<u>Summary</u>
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None

PARTIAL LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

- Letter dated July 16, 2024 – Notification to NRC that license certifying official has changed to Colonel William J. Parker and has been appointed Commander, US Army Garrison-Rock Island Arsenal.
- Report dated March 2024 – Radiation Monitoring Report for License SUB-1425 Jefferson Proving Ground “Summary of Result for the April and November 2023 Sampling Events”
- Memorandum for Record dated May 17, 2023, titled “Depleted Uranium (DU) Penetrator Embedded in Tree”
- Report dated March 2023 – Radiation Monitoring Report for License SUB-1435 Jefferson Proving Ground “Summary of Results for the April and October 2022 Sampling Events” (ML24207A120)
- Report dated June 2022 – Radiation Monitoring Report for License SUB-1435 Jefferson Proving Ground “Summary of Results for the June and October 2021 Sampling Events” (ML23292A343)
- Report dated March 2021 – Radiation Monitoring Report for License SUB-1435 Jefferson Proving Ground “Summary of Results for the May and November/December 2020 Sampling Events” (ML22356A017)
- Report dated April 2020 – Radiation Monitoring Report for License SUB-1435 Jefferson Proving Ground “Summary of Results for the May and October 2019 Sampling Events” (ML21099A244)
- Document dated May 22, 2018 – “Radiation Safety Plan for Jefferson Proving Ground Depleted Uranium Impact Area”
- “Water Sampling” ENVP-2001 Rev 0; Effective date June 19, 2029

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
CFR	Code of Federal Regulations
DRSS	Division of Radiological Safety and Security
DU	Depleted Uranium
HP	Health Physics
IP	Inspection Procedure
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
mm	Millimeter
NRC	U.S. Nuclear Regulatory Commission
RM	Risk Module
kg	Kilogram
lb	Pound