



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

June 12, 2015

Dr. Robert Cherry, Radiation Safety Officer
United States Army Installation Management Command
ATTN: IMSO/301
Building 2261
2405 Gun Shed Road
JBSA Fort Sam Houston, TX 78234-1223

SUBJECT: NRC INSPECTION REPORT 040-09083/15-001

Dear Dr. Cherry:

This refers to the inspection conducted on May 12, 2015, at the Pōhakuloa Training Area on the Island of Hawaii, and continued in-office review through May 29, 2015. This inspection was an examination of activities conducted under Materials License SUC-1593 as they relate to safety and 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.

The inspection findings were presented to members of your staff at the conclusion of the onsite inspection. A final telephonic exit briefing was conducted with you on May 29, 2015. The enclosed report presents the results of this inspection. 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," 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.

Should you have any questions concerning this inspection, please contact Mr. Rick Muñoz, Health Physicist, at 817-200-1220 or the undersigned at 817-200-1191.

Sincerely,

/RA/

Ray L. Kellar, P.E., Chief
Repository and Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Docket: 040-09083
License: SUC-1593

Enclosure:
NRC Inspection Report 040-09083/15-001

cc w/encl: J. Eckerd, Program Manager,
Hawaii Department of Health

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ADAMS: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		<input type="checkbox"/> SUNSI Review Complete	Reviewer Initials: RRM
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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 040-09083

License: SUC-1593

Report: 040-09083/15-001

Licensee: United States Army Installation Management Command

Location: Pōhakuloa Training Area
Island of Hawaii

Date: May 12-29, 2015

Inspector: Rick Muñoz, Health Physicist
Nuclear Materials Safety Branch A
Division of Nuclear Materials Safety

Approved by: Ray L. Kellar, P.E., Chief
Repository and Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Attachment: Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

United States Army Installation Management Command
U.S. Nuclear Regulatory Commission (NRC) Inspection Report 040-09083/15-001

This was an inspection of activities authorized by NRC Materials License SUC-1593, issued on October 23, 2013. This announced inspection was performed at the Pōhakuloa Training Area (PTA), on the island of Hawaii, one of the two currently authorized places of use. In summary, the licensee was conducting activities in accordance with license and regulatory requirements.

Industrial/Academic/Research Programs

- The licensee implemented all aspects of its radiation safety plan (RSP). The RSP was in compliance with license requirements. (Section 1.2.a)
- The licensee implemented all aspects of its physical security plan. As a result, the licensee was effectively controlling the security of the depleted uranium on the training ranges. (Section 1.2.b)
- The licensee initially conducted base-line air sampling at six locations surrounding the perimeter of the PTA. Since high-explosive live-fire training is prohibited at the PTA, no air sampling was conducted within the impacted areas. By letter dated June 1, 2015, the licensee submitted a license amendment to the NRC that included a proposal to delete the requirement for air sampling during use of high explosives. The licensee's proposal to discontinue air sampling will be reviewed as part of the NRC's review of the license amendment application. (Section 1.2.c)
- In accordance with License Condition 23, the licensee submitted a vegetation sampling plan to the NRC within 90 days of the issuance of the license. The licensee is not required to conduct vegetation sampling at the PTA. (Section 1.2.d)

Report Details

Summary of Plant Status

On November 6, 2008, the United States Army Installation Management Command (the licensee) submitted a license application to the NRC for possession of depleted uranium (DU) at various military installations around the country. The Army's records indicate that munitions containing DU were tested in the 1960s at approximately 17 different installations throughout the United States. Two of these installations include Schofield Barracks on the island of Oahu and the PTA on the island of Hawaii. On October 23, 2013, the NRC issued Source Materials License SUC-1593 to the licensee for possession of 125-kilograms of DU at these two Hawaiian installations.

The initial inspection of the license was conducted at Schofield Barracks in February 2014 (ADAMS accession number ML14066A124). At that time, the inspector planned to conduct the initial inspection at PTA, but the licensee's staff could not support the inspection effort due to live-fire exercises that were in progress at Schofield Barracks.

This was the first inspection of the PTA site. There are approximately 200 individuals stationed at the PTA. About half of the individuals are contractors with the remainder being civilian employees. The garrison's permanent military presence at PTA included a lieutenant colonel, sergeant major (Army), gunnery sergeant (Marine), staff sergeant, and a sergeant first class. The base is designed to accommodate up to 2,000 soldiers at any one time.

No high-explosive munitions testing have been conducted in the PTA radiation controlled areas (RCA) designated as RCA-2 and RCA-3. High explosive ordinance detonation in the RCA is prohibited by the licensee's source material license. Only inert strikers and 50-caliber and bellow ordinance are allowed in the RCA. Range control access into the RCA is provided through Old Saddle Road.

According to the radiation safety plan (RSP), whenever personnel access to the RCA is required, the Garrison RSO will establish a minimum number of access control points on the RCA's perimeter for entry and exit (except in an emergency), known as the "hotline." The NRC inspector noted dedicated "hotline" demarcations on the trails leading to two RCA access control points identified as 11-T-1 and 12-A. Entrance into the RCA is limited to less than five times per year. Entry into the RCA is authorized for maintenance of targets, specifically the solar batteries that operate the targets located inside the RCA. Although some cleanup work has been conducted at Schofield Barracks in the past, there has been no collection or disposal of depleted uranium from the PTA since the license was issued in October 2013.

1 Industrial/Academic/Research Programs (87126)

1.1 Inspection Scope

The inspection was performed to determine if licensed activities were being conducted in accordance with the NRC requirements and were protective of the health and safety of workers, the general public, and the environment.

1.2 Observations and Findings

a. Implementation of the Radiation Safety Plan

License Condition 11 states, in part, that the licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the RSP dated August 23, 2013. The RSP provides the requirements for organizational staffing, staff responsibilities, RCA, activities authorized within the controlled areas, personnel monitoring, radiological surveys, environmental monitoring, inventory controls, posting requirements, access control, instrumentation, waste handling, program audits, training, recordkeeping, emergency planning, and site procedures.

The inspector reviewed the licensee's implementation of its RSP and determined that the licensee had implemented all aspects of the plan, and the current radiation safety program was in compliance with license requirements. The inspector reviewed all program areas in the RSP, and determined that all areas were in compliance with license and regulatory requirements.

In accordance with the NRC-approved RSP, the licensee was not required to monitor the occupational exposures of workers entering the RCA, and the licensee was not required to collect bioassays from site workers. As noted in the NRC's Safety Evaluation Report dated October 2013, the licensee has determined that dosimetry will not be required for entry into the RCA because workers are not expected to receive more than 10 percent of the allowable regulatory exposure limits. As allowed by regulation 10 CFR 20.1502, the licensee is not required to monitor for internal and external occupational doses if adults are not likely to receive more than 10 percent of the limits. In addition, the licensee will not collect bioassays, unless it believes that an uptake of DU has occurred. If this situation were to occur, the garrison radiation safety officer (RSO) will consult with the license RSO in order to appropriately address the potential intake.

Section 2 of the RSP provides the organizational staffing requirements. The staffing includes the garrison commander, license RSO, and garrison RSO. At the time of the inspection, the previous garrison RSO had terminated employment and both RSO positions for Schofield Barracks and the PTA were staffed with one qualified individual. The current garrison RSO assumed the position on February 27, 2015. In accordance with Section 2.4.4 of the RSP, on March 8, 2015, the license RSO notified the NRC that the Army had assigned this individual to the position of garrison RSO. At the conclusion of the onsite inspection, the license RSO noted that the Army commander responsible for the license would soon be replaced with a different individual. The license RSO stated that he would notify the NRC of this staff change as required by Section 2.1.2 of the RSP.

Section 3 of the RSP provides the instructions for control of the RCA at the PTA, while Section 14.1 provides area posting requirements. (A similar posting requirement is provided in License Condition 18.) The inspector noted that the boundary to the RCA consisted of a combination of signs and boundary rope. The inspector confirmed that the boundaries and postings consisting of a radiation symbol and the words "CAUTION, RADIOACTIVE MATERIALS met license and regulatory requirements and were sufficient to ensure that individuals entering the RCA were informed about the presence of DU in the area.

Section 15 of the RSP provides the access control requirements for personnel. These requirements include training of workers, escorts for visitors, posting of perimeters, and establishment of personnel frisking stations. Range control access to the RCA is through Old Saddle Road. There was a dedicated "hot line" demarcation on the trails leading into two access point identified as 11-T-1 and 12-A used as egress points. The inspector noted that the licensee had implemented access and egress control requirements that met the requirements of the RSP.

Section 4 of the RSP provides a list of the routine range activities authorized in the RCA. This section includes a requirement that high explosive munitions will not be fired into the RCA without prior NRC notification. (License Condition 17 provides a similar notification requirement.) The inspector determined that high explosive munitions had not been fired in the restricted area of the PTA. The licensee has implemented a specific prohibition in its operations to prevent the detonation of any high-explosive munitions in the RCA of the PTA.

During late-January 2014, the Army destroyed two unexploded ordnances in place at PTA. Although both detonations were well outside the RCA, the licensee as a precaution conducted radiological surveys, using Ludlum-2241 survey instrumentation, around the unexploded ordnance in accordance with Section 4.2 of the RSP. The documentation of this activity was reviewed by the inspector. The records, as required by Section 21.1 of the RSP, showed no detectable levels of radiation above background for this activity.

The radiation safety standards are provided in Section 6 of the RSP. These standards include surface contamination limits for equipment and vehicles being removed from the RCA. Section 11 provides the radiological survey instructions including requirements for performing and documenting these surveys. Currently, the licensee maintained two survey stations at the PTA. The inspector reviewed records maintained by the licensee of personnel and vehicles leaving the restricted areas since the implementation of the license in 2013. The inspector determined that appropriate, calibrated instrumentation was used and that the surveys met license and regulatory requirements. The inspector review of the records maintained for equipment and vehicles being removed for the RCA confirmed that that licensee had no survey results that exceeded the contamination limits specified in Table 1 from NRC Regulatory Guide 1.86.

In Section 12 of the RSP, the licensee committed to analyze the garrison drinking water for uranium content. An exploratory well was completed in 2014. Don Thompson, Ph.D., of the University of Hawaii-Hilo has been contracted to collect water samples and test for DU from the exploratory well. Currently, all water for the PTA is truck imported from Waimea, Hawaii. The U.S. Environmental Protection Agency's maximum contaminant level for uranium is 30 micrograms per liter. The next drinking water sampling event is scheduled to begin in May 2015.

Per Section 13 of the RSP, the licensee is required to maintain an inventory of all check sources in its possession and all DU identified on the training ranges. The inspector confirmed that the licensee had maintained an inventory of the instrument check sources in its possession and had maintained a log for DU rounds identified on training ranges at the PTA. At the time of the inspection, the licensee had formally identified and logged one round at the PTA. This DU round was identified and logged in February 2009. The

round was left in place, in part, because it was mostly intact with energetic material still remaining.

Section 14.3 provides the posting and notice requirements for occupational workers, to comply with Title 10 of the Code of Federal Regulations (CFR) 19.12 requirements. The licensee in its application had designated locations where it posted all notices as required by license and regulatory requirements. The inspector confirmed that the site postings included all necessary documents required by 10 CFR Part 19.12.

The instrumentation requirements are provided in Section 17 of the RSP. The licensee maintained a Ludlum-2241 radiation survey instrument in its possession for assessing contamination. (The licensee's contractor had additional meters that were used when the contractor's staff conducted radiological surveys.) The licensee conducted annual calibrations and daily checks of its meters through the Army's test, measurement, and diagnostic equipment calibration facility in Honolulu, Hawaii. The licensee calculated the minimum detectable concentrations using a spreadsheet.

The radioactive waste storage requirements are provided in Section 18 of the RSP. The inspector discussed the status of DU removed from the PTA range. The license RSO stated that no DU has been stored or removed from the PTA since license SUC-1593 was issued.

Section 19 of the RSP requires the licensee to conduct annual program audits. The last program audit of the PTA was conducted in May 13, 2015. The audit was conducted by the garrison RSO at a time when a contractor was implementing most portions of the radiation safety program. The auditor did not identify any problems or non-compliance items.

The training requirements are provided in Section 20 of the RSP. Personnel who enter the RCA are required to have general radiation safety and site-specific training. Training is required to be conducted prior to entry into the RCA and at least on an annual frequency. Prior to mid-January 2014, a contractor provided personnel training on behalf of the licensee. Starting mid-January 2014, the garrison RSO conducted the training for twelve military personnel who were authorized to enter the RCA. Refresher training records were reviewed by the inspector and confirm to have been conducted annually. At the time of the inspection, the licensee established a computerized tracking system to manage initial and refresher training.

Section 23 of the RSP requires that certain standard operating procedures be established and maintained. The procedures include instructions for training, instrument use, and RCA exit monitoring. The inspector reviewed these procedures and concluded that they met license requirements.

b. Review of Physical Security Plan

License Condition 11 states, in part, that the licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the physical security plan dated February 17, 2011. The current physical security plan includes requirements for responsibilities for implementing the plan, controlling the radiological boundaries, posting of these boundaries, controlling access to these areas,

and training of workers entering the RCA. These restrictions are necessary to control the security of the radioactive material within the training ranges.

The inspector reviewed the licensee's implementation of its physical security plan. The inspector concluded that the licensee had implemented all program areas (training, access control, etc.) at the PTA. During the inspection, the licensee's representatives stated that the physical security plan was currently under review, and a revised plan would be issued in the future. In accordance with Section 1.0 of the plan, the NRC will be notified if the changes to the physical security plan are significant. If the licensee elects to update the physical security plan and if the changes are significant, the licensee is required to submit the plan to the NRC for review. If the changes are not significant, the licensee is not required to submit the plan to the NRC. If revised, the NRC inspector will review the revised security plan during a future inspection.

c. Implementation of Air Sampling Plan

License Condition 22 requires the licensee to submit an air sampling plan to the NRC within 90 days of the issuance of the license. This condition further states that until the air sampling results are approved by the NRC, the licensee will conduct activities on the ranges in accordance with previously approved restrictions and provisions. The licensee submitted its proposed air sampling plan to the NRC by letter dated December 16, 2013, within 90 days of the issuance of the license as required.

License Condition 17 states that the licensee shall not fire high-explosive munitions into areas containing DU without first informing the NRC. The NRC inspector confirmed that no high-explosive munitions are fired in the RCA of the PTA.

The licensee originally collected a set of background samples in 2006 for the PTA. These samples were collected at six air sampling stations around the PTA property boundary. The licensee representative stated that sampling results for the 2006 sampling evolution were maintained at the Schofield Barrack's office on the island of Oahu and were available for NRC review.

In summary, the licensee initially conducted base line air sampling at six sampling locations surrounding the perimeter of the PTA. Since high-explosive live-fire training is prohibited at the PTA, no air sampling in the impacted areas were being conducted.

The licensee submitted a license amendment request to the NRC by letter dated June 1, 2015. In Attachment 8 to the amendment application, the licensee provides arguments against air sampling during use of high-explosives in the RCA. The NRC will review the licensee's proposal to discontinue air sampling during use of high explosives as part of its review of the license amendment.

d. Implementation of Plant/Vegetation Sampling Plan

License Condition 23 requires the licensee to provide a plant sampling plan to the NRC within 90 days of the issuance of the license. This condition further states that until the plant sampling results are approved by the NRC, the licensee will conduct activities on the ranges in accordance with previously approved restrictions and provisions. According to Section 3.4.2 of the NRC's Safety Evaluation Report, the licensee must demonstrate whether the vegetation at Schofield Barracks has been impacted by DU.

The NRC is not requiring the licensee to sample the vegetation at the PTA for several reasons, including lack of vegetation available for sampling.

1.3 Conclusions

The licensee implemented all aspects of its RSP. The radiation safety program was in compliance with license requirements. The licensee implemented all aspects of its physical security plan. As a result, the licensee was effectively controlling the security of the depleted uranium on the training ranges.

The licensee initially conducted base-line air sampling at six locations surrounding the perimeter of the PTA. Since high-explosive live-fire training is prohibited at the PTA, no air sampling was conducted within the impacted areas. By letter dated June 1, 2015, the licensee submitted a license amendment to the NRC that included a proposal to delete the requirement for air sampling during use of high explosives. The licensee's proposal to discontinue air sampling will be reviewed as part of the NRC's review of the license amendment application. In accordance with License Condition 23, the licensee submitted a vegetation sampling plan to the NRC within 90 days of the issuance of the license. The licensee is not required to conduct vegetation sampling at the PTA.

2 **Exit Meeting**

The inspector reviewed the inspection scope and findings with licensee representatives during a debrief meeting conducted at the conclusion of the onsite inspection on May 12, 2015. A final exit briefing was conducted telephonically with the Radiation Safety Officer, United States Army Installation Management Command, on May 29, 2015. During the inspection, the licensee did not identify any information reviewed by the inspector as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Department of the Army

T. Keller, Site Radiation Safety Officer
R. Cherry, License Radiation Safety Officer
C. German, Garrison Safety Manager
G. Fleming, Deputy Garrison Commander
J. Peterson, Lt Col. PTA Installation, U.S. Army

INSPECTION PROCEDURES USED

IP 87126 Industrial/Academic/Research Programs

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
DU	depleted uranium
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
PTA	Pōhakuloa Training Area
RCA	radiation controlled area
RSO	radiation safety officer
RSP	radiation safety plan