



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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February 11, 2003

Lt. Col.Kali Mather  
Department of the Air Force  
USAF Radioisotope Committee  
HQ AFMOA/SGZR  
110 Luke Ave, Suite 405  
Bolling AFB, DC 20322-7050

SUBJECT: NRC INSPECTION REPORT 030-28641/2003-01

Dear Lt. Col. Mather:

This refers to the inspection conducted on January 13-14, 2003, at Eglin Air Force Base, Florida. The inspection was limited to a review of decommissioning activities authorized under Master Materials License 42-23539-01AF and Air Force Permit No. FL-08883-01/05AFP. An exit briefing was conducted with the Eglin Air Force Base staff at the completion of the onsite inspection. No violations of NRC requirements were identified; therefore, no response to this letter is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Mr. Anthony Gaines at (817) 860-8252 or the undersigned at (817) 860-8186.

Sincerely,

**/RA/**

Charles L. Cain, Chief  
Nuclear Materials Licensing Branch

Docket No.: 030-28641  
License No.: 42-23539-01AF

Enclosure:  
NRC Inspection Report  
030-28641/2003-01

cc w/enclosure:  
Florida Radiation Control Program Director

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION II

Docket No. 030-28641

License No. 42-23539-01AF

Air Force Permit No. FL-08883-01/05AFP

Report No. 030-28641/2003-01

Licensee: Department of the Air Force

Facility: Test Area C-74L

Location: Eglin Air Force Base, Florida

Dates: January 13-14, 2003

Inspectors: Orysia Masnyk Bailey, Health Physicist  
Materials Licensing and Inspection Branch  
Division of Nuclear Materials Safety  
Region II

J. Griffis, Health Physicist  
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Region II

Approved By: D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

Attachment: Supplemental Information

## **EXECUTIVE SUMMARY**

Department of the Air Force  
NRC Inspection Report 030-28641/2003-01

The purpose of this inspection was to review the licensee's progress in decommissioning of Test Area C-74L at Eglin Air Force Base in Florida.

### **Closeout Inspection and Summary/Decommissioning Inspection Procedure for Materials Licenses**

- A review of the licensee's documentation, discussion with cognizant licensee and contractor personnel, and observation of remediation and survey activities in progress disclosed that the licensee was performing activities in accordance with the guidance provided in the unapproved decommissioning plan. No radiation safety issues were identified during this inspection.

## Report Details

### **Summary of Facility Status**

On May 24, 2002, the Air Force submitted a Decommissioning Plan (DP) to the NRC. The Air Force requested approval to decommission a site previously used for depleted uranium (DU) munitions testing between 1974-1978. At the time of this inspection, the Air Force permittee (Eglin Air Force Base) was near completion of the decommissioning of Test Area C-74L, although the DP had not been approved by the NRC.

#### **1 Closeout Inspection and Summary/Decommissioning Inspection Procedure for Materials Licenses (83890/87104)**

##### **1.1 Inspection Scope**

This inspection was performed to determine whether decommissioning activities were being conducted safely and in accordance with NRC requirements and the licensee's unapproved DP. The inspection included a review of records, discussion with site personnel, and observation of remediation and survey activities in progress. Since the DP had not been approved by the NRC, confirmatory measurements were not taken by the NRC during this inspection.

##### **1.2 Observations and Findings**

Test Area C-74L is located in Walton County, Florida, within the north-central part of Eglin Air Force Base. From late-1974 to 1978, the area was used for pre-production testing of a gun system which used DU ammunition. An estimated 16,315 pounds of DU was expended at the site. Approximately 9,257 pounds of DU were disposed of during remediation activities conducted between March 1978 and June 1987.

Due to previous remediation activities, the current decommissioning effort is primarily concentrated in Installation Restoration Program Site No. RW-41, specifically, the radioactive material controlled area. This controlled area was established in the late 1970's due to DU fragments in the soil. In 1980, the approach corridor of the site, from the gun bay building to the target butt and the target butt itself, were remediated by removing the top 6 inches of soil. The results of this previous remediation work are documented in the DP in a contractor report dated March 2000.

The licensee's DP contains the objective of remediating the site so the total effective dose equivalent to the average member of a critical group will not exceed 15 millirems (0.15 mSv) per year from all exposure pathways. The DP also concludes that DU has not impacted the groundwater. The inspectors noted that the DP references a "shallow" groundwater well; however, the base radiation safety officer clarified that this well is actually approximately 325 feet deep. This potential discrepancy will be reconciled during the NRC's review of the DP.

The DP contains the licensee's considerations for developing their derived concentration guideline levels (DCGLs). The licensee plans to use a DCGL of 5,000 dpm/100cm<sup>2</sup> for building surface contamination. This DCGL was derived, in part, using the guidance provided in NRC Regulatory Guide 1.86. The RESRAD computer model was used to derive the soil DCGLs. For the residential future land use scenario, the DCGL is 500 pCi/g in soil; for an industrial scenario, it is 600 pCi/g. The licensee concluded that the most likely future land use will be industrial based on the potential presence of unexploded ordnance. Accordingly, the soil DCGL provided in the DP were based on the industrial scenario.

The licensee contracted with Earth Tech Environment & Infrastructure, Inc. (Earth Tech) to perform the characterization survey and final status survey, and to implement interim corrective measures. The characterization survey consisted of a 100 percent walkover survey of the site using a Field Instrument for the Detection of Low-Energy Radiation (FIDLER) detector in the north-south orientation and a 10 percent walkover in the east-west orientation. Discrete DU penetrators were removed as discovered. The final status survey will be performed using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) method as described in NUREG-1575.

Prior to the onsite inspection, soil samples were obtained to help determine a correlation factor between the FIDLER readings and the laboratory analytical results. The DP contains a March 2000 report which documents the results of a study that was performed to demonstrate that the FIDLER is capable of detecting DU fragments at 10 to 50 percent of the DCGL and detecting DU fragments greater than 50 grams in the upper 12 inches of soil within 10 to 50 percent of the DCGL. The minimum detectable count rate scan calculation was 1078 cpm for use during field surveys. The FIDLER-based DCGL was 44 kcpm for a 1-meter area. The personnel performing the surveys were using 22 kcpm as an action limit, remediating all areas with higher readings.

The licensee combined the characterization and remediation activities. As soon as a hot spot was identified, the spot was remediated by scooping up discrete particles or soil as needed. The waste was scooped into buckets then placed directly into shipping containers. The unapproved DP called for the removal of the top 6 inches of soil in the entire area because previous studies led to the conclusion that the DU particles were concentrated in the top 6 inches of soil. Now, larger areas were being remediated by scooping up the entire area with a front end loader and emptying the dirt directly into a shipping container. After remediation is complete, the licensee plans to conduct a 100 percent walkover survey (in two directions, in effect two walk over surveys) as a final status survey. Thirty soil samples will be obtained from the 30 "hottest" initial spots detected during the characterization survey.

The NRC inspectors observed the technicians conducting work and interviewed permittee and contractor personnel. The inspectors concluded that the personnel seemed knowledgeable of the DP's objectives and limits. Survey techniques were as described in the DP. Survey equipment was appropriate for its purpose and properly calibrated. Records that were reviewed were complete and descriptive of the work completed and data accumulated to date.

### 1.3 Conclusions

A review of the licensee's documentation, discussion with cognizant licensee and contractor personnel, and observation of remediation and survey activities in progress disclosed that the licensee was performing activities in accordance with the guidance provided in the unapproved decommissioning plan. No radiation safety issues were identified during this inspection.

## **2 Exit Meeting Summary**

The inspection results were presented to representatives of the licensee at the conclusion of the onsite inspection on January 14, 2003. Licensee representatives acknowledged the findings as presented. The licensee did not identify any information reviewed by the NRC inspectors as being proprietary information.

**ATTACHMENT**  
**SUPPLEMENTAL INFORMATION**

**PARTIAL LIST OF PERSONS CONTACTED**

Department of the Air Force, Eglin Air Force Base

\*John P. Albright, Lt Col, USAF, Alternate Base Radiation Safety Officer

\*Stephen K. Curry, Alternate Base Radiation Safety Officer

Earth Tech Environment & Infrastructure, Inc.

Ray Arndt, Unexploded Ordnance Support

Alan Carl, Health Physics Technician

Ken Krieger, Health Physics Technician

\*Patrick Lay, Project Manager

Andriene Lopez, Health Physics Technician

Adalmari Martinez, Health Physics Technician

Cindy Mauro, Health Physics Technician

Dave Millar, Unexploded Ordnance Support

\*Andre Pryce, Radiation Safety Officer

\* Attended exit interview

**ITEMS OPENED, CLOSED AND DISCUSSED**

Opened

None.

Closed

None.

Discussed

None.

**LIST OF ACRONYMS USED**

cpm	counts per minute
DCGL	derived concentration guideline level
DP	Decommissioning Plan
DU	depleted uranium
dpm/100 cm <sup>2</sup>	disintegrations per minute per 100 square centimeters
FIDLER	Field Instrument for the Detection of Low-Energy Radiation
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
pCi/g	picocuries per gram