



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

October 20, 2003

Docket No. 04006377

License No. SUB-348

Richard W. Fliszar  
TACOM-ARDEC Radiation Protection Officer  
Department of the Army  
U. S. Army Tank-Automotive and Armaments Command  
Armaments Research, Development and Engineering Center  
Picatinny Arsenal, NJ 07806-5000

SUBJECT: INSPECTION 04006377/2003001, DEPARTMENT OF THE ARMY, U. S. ARMY  
TANK-AUTOMOTIVE AND ARMAMENTS COMMAND, PICATINNY ARSENAL,  
NEW JERSEY

Dear Mr. Fliszar:

On September 4, 18 and 22, 2003, Donna Janda and Betsy Ullrich of this office conducted a safety inspection at the above address of activities authorized by the above listed NRC license. The inspection was limited to a review of decommissioning activities at Building 611B. Additional information was discussed in the telephone conversation on September 10, 2003 between you and Joseph Fabiano of your organization, representatives of Duratek, Inc., and this office as part of the inspection. The findings of the inspection were discussed with you, Joseph Fabiano and Richard Moss of your organization at the conclusion of the inspection. The enclosed report presents the results of this inspection.

Within the scope of this inspection, no violations were identified.

In accordance with 10 CFR 2.790, a copy of this letter will be placed in the NRC Public Document Room and will be accessible from the NRC Web site at <http://www.nrc.gov/reading-rm.html>. No reply to this letter is required.

Your cooperation with us is appreciated.

Sincerely,

***Original signed by John D. Kinneman***

John D. Kinneman, Chief  
Nuclear Materials Safety Branch 2  
Division of Nuclear Materials Safety

Enclosure:  
Inspection Report No. 04006377/2003001

R. Fliszar  
Department of the Army

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cc:  
State of New Jersey

R. Fliszar  
Department of the Army

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DATE	10/20/2003		10/20/2003		10/20/2003			

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 04006377/2003001

Docket No. 04006377

License No. SUB-348

Licensee: Department of the Army  
U. S. Army Tank-Automotive and Armaments Command  
Armament Research, Development, and Engineering Center

Location: Picatinny Arsenal, New Jersey

Inspection Dates: September 4, 17, and 22, 2003 and a conference telephone  
discussion on September 10, 2003

Inspectors:	<b>Original signed by:</b>	<b>10/20/2003</b>
	_____ Donna M. Janda Health Physicist	_____ date

<b>Original signed by:</b>	<b>10/20/2003</b>
_____ Betsy Ullrich Senior Health Physicist	_____ date

Approved By:	<b>Original signed by</b> <b>John D. Kinneman</b>	<b>October 20, 2003</b>
	_____ John D. Kinneman, Chief Nuclear Materials Safety Branch 2 Division of Nuclear Materials Safety	_____ date

## **EXECUTIVE SUMMARY**

Department of the Army  
NRC Inspection Report No. 04006377/2003001

Building 611B was formerly used by the Department of the Army, U. S. Army Tank-Automotive and Armaments Command (TACOM), Armament Research, Development, and Engineering Center (ARDEC) at Picatinny Arsenal, New Jersey, for indoor testing of depleted uranium (DU) munitions from 1959 through 1984. The licensee notified the NRC in November 1998 of their intent to decommission Building 611B. Characterization activities identified some contamination of outside areas, most likely due to the storage of contaminated targets outside the building, and release of DU from the HEPA filters during a fire.

TACOM-ARDEC submitted a decommissioning plan in November 1999, with a request for a site-specific Derived Concentration Guideline Level (DCGL) for DU in soil and DU contamination of the building. The "Decommissioning Plan for Building 611B, TACOM-ARDEC, Picatinny Arsenal, NJ" and the site-specific DCGLs were approved in October 2002. Decommissioning activities began in August 2003 and were completed by the end of September 2003.

The inspection was limited to a review of the licensee's implementation of the TACOM-ARDEC decommissioning plan and inspection of final status surveys. No violations or safety concerns were identified.

## **REPORT DETAILS**

### **I. Organization and Scope of the Program**

#### **a. Inspection Scope**

The inspection was limited to a review of the activities related to the decommissioning of Building 611B at the Picatinny Arsenal.

#### **b. Observations and Findings**

Building 611B was formerly used for indoor testing of munitions, including depleted uranium (DU) munitions. The facility was used for testing of DU munitions from 1959 through 1984. The Department of the Army, U. S. Army Tank-Automotive and Armaments Command (TACOM), Armament Research, Development, and Engineering Center (ARDEC) at Picatinny Arsenal, New Jersey, notified the NRC in November 1998 of their intent to decommission Building 611B. Although all testing of DU munitions was performed in the building, characterization activities identified that some contamination of outside areas occurred from the storage of contaminated targets outside the building, and release of DU from the HEPA filters during a fire.

TACOM-ARDEC was required to submit to the NRC a plan for decommissioning of this facility. The decommissioning plan was submitted in November 1999 and included a request for a site-specific Derived Concentration Guideline Level (DCGL) for DU in soil and DU contamination of the building. The "Decommissioning Plan for Building 611B, TACOM-ARDEC, Picatinny Arsenal, NJ" and the DCGL for soil were approved by Amendment 23 of the license, issued November 24, 2000. At that time, the DCGL for building contamination was not accepted. TACOM-ARDEC later proposed a different DCGL for residual contamination of the building, which was approved by Amendment 26 of the license, issued October 21, 2002.

The Radiation Safety Officer for the license informed the Region I office by e-mail in July 2003 that decommissioning activities would begin August 2003 and would be completed by the end of September 2003. The NRC inspectors reviewed the implementation of the TACOM-ARDEC decommissioning plan and observed decommissioning activities during this period. Decommissioning activities were performed by Duratek, Inc. (Duratek) under a contract with the U. S. Army Corps of Engineers. The decommissioning of the facility required coordination of NRC-regulated activities with other safety concerns, such as asbestos abatement and removal of unexploded ordnance from non-DU munitions testing at the site.

#### **c. Conclusions**

No violations or safety concerns were identified.

### **II. Facilities and Equipment**

a. Inspection Scope

The inspectors reviewed the facilities and equipment used during the decommissioning activities for radiation level and contamination surveys, and for sample collection.

b. Observations and Findings

Duratek workers were provided with a room in a building nearby Building 611B for administrative activities related to the decommissioning. Duratek maintained on-site a Model BC-4 Beta Counter and a Model SAC-4 Alpha Scintillation Counter for screening and analysis of samples. These instruments were used primarily for evaluation of wipe samples for removable contamination. Portable survey instruments used by Duratek included a sodium iodide detector for gamma scanning surveys, and detectors with gas-flow proportional probes for alpha-beta scanning and static surveys of the building and equipment released from the site. The instruments were appropriate for the radiation expected to be encountered. The inspectors reviewed records that indicated the analytical and portable instruments were in calibration, and that operational checks of the instruments were performed prior to use each day.

Removable contamination was sampled using filter paper wipes. Dry samples were collected, screened using Duratek's on-site equipment, and sent for laboratory analysis. Equipment used for collection of soil samples included a trowel, sample containers, and supplies for cleaning the trowel between each sample collection. Soil samples were sent to an outside laboratory for analysis.

Both routine and specialized equipment were available and used for remediation and decommissioning were available and used. Such equipment included standard cleaning supplies for lightly contaminated items, scabbling devices for removal of contaminated concrete, and heavy construction equipment such as torches, cranes and other similar devices for dismantling portions of the facilities.

c. Conclusions

No violations or safety concerns were identified.

### **III. Material Control and Disposal**

a. Inspection Scope

The inspectors reviewed the licensee's procedures for collection and storage of contaminated material for disposal from the decommissioning activities.

b. Observations and Findings

Building 611B was located in a section of Picatinny Arsenal that was controlled for non-radiological concerns. Inspectors observed that only authorized persons were

allowed entry into this section. Inspectors were allowed entry only when accompanied by authorized personnel. The roadway to Building 611B site was roped off and posted to prevent inadvertent entry.

Inspectors observed containers available for storage of DU-contaminated waste material as it was identified and removed from Building 611B. Filled waste containers were stored in the licensee's radioactive waste storage building until ready for shipment for final disposal.

c. Conclusions

No violations or safety concerns were identified.

#### **IV. Surveys and Sampling**

a. Inspection Scope

Inspectors observed surveys and sampling during the inspection, and reviewed a sample of records of surveys completed.

b. Observations and Findings

Inspectors observed Duratek, Inc. employees performing scanning surveys and soil sampling. Inspectors observed equipment in use at Building 611B for scanning and static surveys of the building. Workers used instruments and equipment appropriately. Soil sampling equipment was cleaned between each sample collected in accordance with the licensee's plan.

During one of the site inspections, the licensee's contractor proposed to collect only biased samples of soil from areas suspected to be contaminated, based on the characterization surveys. The soil sampling plan and proposed change were discussed further during a telephone conference call on September 10, 2003, between the inspectors and representatives of the licensee, the Army Corps of Engineers, and Duratek. Although the NRC had no objection to the collection and analysis of biased samples in addition to the required random samples, the inspectors informed the licensee that random soil samples had to be collected, in order to provide an acceptable statistical sample in accordance with final status survey procedures in the licensee's decommissioning plan. The licensee chose to collect and analyze only the random samples required for the decommissioning final status survey. Surveys and sampling procedures observed were in accordance with licensee commitments in the decommissioning plan.

c. Conclusions

No violations or safety concerns were identified.



## **V. Radiation Protection**

### **a. Inspection Scope**

Inspectors reviewed the licensee's program for radiation protection during the decommissioning of Building 611B.

### **b. Observations and Findings**

All workers and visitors to the building 611B decommissioning site were issued thermoluminescent dosimeters (TLD) by the licensee, although no measurable doses were expected. Air sampling was performed during decommissioning activities, and the analysis of the air samples indicated that there was no airborne radioactivity present that would require additional monitoring. The licensee had planned to collect bioassay samples if airborne radioactivity was present.

### **c. Conclusions**

No violations or safety concerns were identified.

## **VI. Exit Meeting**

The inspectors met with licensee representatives prior to leaving the site on each day of the inspection. Inspectors discussed their observations of the day, and requested updates of the decommissioning schedule in order to plan their next inspection.

Licensee representatives stated that they hope to provide the NRC with a report of the results of the final status survey, and a request to release Building 611B for unrestricted use, by the end of the calendar year.

## **PARTIAL LIST OF PERSONS CONTACTED**

### **Licensee**

Richard Fliszar, Radiation Safety Officer  
Joseph Fabiano, Health Physicist  
Richard Moss, Health Physicist  
MSG Linda Cuneo, EOD

### **U. S. Army Corps of Engineers**

Chris Hallam

### **Duratek, Inc.**

Doug Schult  
Sean McChesney