



NRC Inspection Report No. 03029462/2004-002

From March 8-11, 2004, inspectors from the U.S. Nuclear Regulatory Commission (NRC) Region I performed a special announced inspection of the Navy's Master Materials License. Activities inspected were performed under the Navy's Permit No. 13-00164-L1NP, which authorizes the possession and use of depleted uranium (DU) munitions. The inspection focused on the Phalanx Close-In Weapon System (CWIS) ammunition. In doing so, the inspectors visited the CWIS Program Office in Arlington, Virginia; the Naval Operations Logistics Service Center in Mechanicsburg, Pennsylvania; the Naval Weapons Storage facility in Yorktown, Virginia; and the USS Laboon docked in Norfolk, Virginia.

The inspectors determined that the licensee had an adequate inventory program in place to manage the DU munitions program. The Navy had identified and was working to correct a problem with their inventory of DU munitions that the Navy transports for the Air Force and the Army.

One violation of regulatory requirements was identified by the Navy during an inspection of the program that was conducted at the request of the NRC. Specifically, the Navy was unable to account for transactions in their Conventional Ammunition Inventory Management System (CAIMS) for DU munitions transported for the Air Force and the Navy under the Navy's Radioactive Materials Permit No. 13-00164-L1NP. The Navy had implemented corrective and preventative measures at the time of the NRC inspection.

## REPORT DETAILS

### a. Inspection Scope

From March 8-11, 2004, inspectors performed a special announced inspection of the Navy's oversight of depleted uranium (DU) munitions, specifically of the Phalanx Close-In Weapon System (CWIS) ammunition. The inspectors visited the Navy's CWIS Program Office in Arlington, Virginia; the Naval Operations Logistics Service Center in Mechanicsburg, Pennsylvania; the Naval Weapons Storage facility in Yorktown, Virginia; and the USS Laboon docked in Norfolk, Virginia. The inspectors interviewed cognizant Navy personnel, reviewed records, and observed data input into the Navy's inventory program.

### b. Observations and Findings

The Navy's possession and use of DU alloy penetrators is authorized under Permit No. 13-00164-L1NP, issued to the Naval Surface Warfare Center in Crane Indiana. It authorizes the possession of up to 5,000,000 kilograms of material for storage as war reserve material and for use during Pre Action Calibration and Alignment Tests (functionability/serviceability) firing at sea. The Navy also takes temporary ownership of and transports Air Force and Army DU ammunition under this permit.

The inspectors reviewed the Navy's record of an inspection of this permit conducted October 21-24, 2002. This review identified that the Navy is working to resolve three items which remain open as a result of their inspection. The Navy is working to develop the following: (1) a system to track DU ammunition handled for the Army and Air Force; (2) a system for reconciliation and reporting this DU; and (3) a system to record receipts and transfers of this DU into and out of the Navy's system. The Navy is working to develop a records program to integrate Army and Air Force DU into the Navy inventory; a task made difficult by the fact that the Navy can not access the Air Force and Army inventory programs.

At the NRC's request, the Navy investigated a concern that 1700 rounds of DU ammunition was inappropriately transferred to the United States Coast Guard Cutter MELLON on August 15, 2001. The Navy's investigation disclosed the following. A Coast Guard ship, the USCGC Mellon, submitted a requisition through the Navy's ammunition supply system in August, 2001, for 1500 rounds of MK 149 CWIS rounds to be delivered to the USCG Pacific Armory Detachment, Seattle, Washington. This requisition was processed through the Naval Ammunition Logistic Center, Pacific where it was determined that the Naval Magazine, Indian Island, Washington was the closest source of CWIS ammunition. Indian Island did not have enough tungsten ammunition and substituted DU ammunition to fill the request. They issued 1700 rounds to Pacific Armory Detachment Seattle (70 grams per round, approximately 119 kilograms in total). The rounds were received on August 7, 2001, and issued to the USCGC Mellon on August 15, 2001. On September 5, 2001, the Coast Guard returned the rounds to Naval Magazine, Indian Island after determining they were not authorized to receive this type of ammunition.

According to the licensee, the root cause of the incident was that the procedure for ammunition issuance allowed the substitution of one type of ammunition for another but did not have a note prohibiting the substitution of DU rounds when a Coast Guard ship requested CWIS ammo. The ammunition requisition personnel did not check to ensure that the ship requesting the CWIS ammo was authorized for DU.

As part of the corrective actions following the Navy inspection, the database controls were changed so that only the ammunition inventory manager at the HQ Naval Ammunition Logistics Center can authorize DU use. Further, the overall procedure, NAVSUP-802, was amended to include a footnote that Coast Guard ships are not authorized for DU. Ammunition supply personnel were briefed regarding the controls on DU ammunition.

10 CFR 40.51 delineates the requirements for transfer of source or byproduct material and requires the licensee to verify that the material is being transferred to an authorized specific or general licensee and lists the methods by which the transferor may verify this authorization. The Navy transferred the DU without this verification. The Navy did not issue a violation in this case because corrective measures were implemented in a timely fashion.

At the CWIS Program Office in Arlington, Virginia, representatives from the RAM/Phalanx Program Office presented an overview of the Phalanx CWIS system. This included a description and history of the system. The operation, pre-action aim calibration (PAC) firing, technician training, and shipboard environment were discussed. The representatives conducting the presentation had worked with the CWIS system on board and were qualified operators and could discuss the control and inventory of the DU ammunition used in the CWIS. The PAC firing was explained in detail. This is a process by which DU ammunition is expended during calibration. The NRC inspectors verified that a system is in place to account for each round expended.

At the Naval Operational Logistics Support Center (NOLSC AMMO) in Mechanicsburg, Pennsylvania, representatives explained and briefly demonstrated the Conventional Ammunition Inventory Management System (CAIMS) which is used to account for all ammunition used within the Navy. This included a discussion of ammunition accounting, governing policies, information systems, and DU inventory management.

The inspectors determined that the Navy tracks ammunition from the time it is accepted from a vendor until it is expended or demilitarized. This is accomplished through issue, receipt or change transaction reports. End of line users and organizations responsible for ammunition storage input information into CAIMS through their Retail Ordnance Logistics Management System (ROLMS). A monthly inventory of DU ammunition is prepared, as well as an annual physical inventory, and discrepancies identified are reconciled.

At the Naval Weapons Storage facility in Yorktown, Virginia, representatives explained their use of the ROLMS, which was as previously described. The inspectors randomly selected DU ammunition which was stored on site. The Foreman of the Storage Section was able to show the inspectors the storage location based on information provided by

the Supervisor/Inventory Management Specialist. The information identified the number of rounds and the exact storage location.

Onboard the USS Laboon docked in Norfolk, Virginia, representatives discussed and demonstrated their use of their ROLMS, which was as previously described. The inspectors were able to see the CWIS in place and representatives described the use, including PAC fire, ammunition accounting, and security of the CWIS ammunition. The NRC inspectors determined that DU ammunition stored and expended is accounted for to the last round.

c. Conclusions

The NRC inspectors concluded that the Navy has an adequate program in place for control of the Navy DU ammunition and determined that the Navy was working to integrate the Air Force and Army DU ammunition shipped by the Navy into the Navy inventory control program.

**II. Exit Meeting**

An exit meeting was conducted by telephone on April 29, 2004, between Captain David Farrand of the Navy's Radiological Controls and Health Branch and Orysia Masnyk Bailey of this office. The inspection results were discussed and Captain Farrand had no dissenting comments. He confirmed that the Navy was actively pursuing a resolution to the Navy/Army/Air Force inventory system interface problem.

## LIST OF PERSONS CONTACTED

### Navy Master Materials License:

CDR Bill Adams, NAVSEA

Captain David Farrand, Radiological Controls and Health Branch

Timothy P. Hart, Inspector, Radiological Affairs Support Office

### RAM/Phalanx Program Office:

Captain Albert Lang, PEO/WS 3B

FCCS(SW) Jeff Moczynski, Feet Liaison

FC1(SW) Danny Rider, Fleet Liaison Assistant

### Naval Operations Logistics Service Center, Mechanicsburg, Pennsylvania:

Don Espinshade, Branch Head, NAVSEA Logistics Support

Michael Koblists, Inventory Management

CDR. Dave Wasburg, Director, Ordnance Management

Pamela Weems, Stockpile Analysis & Support

### Naval Weapons Storage, Yorktown, Virginia:

Robert Perry, General Foreman, Storage Section

Bruce Smeland, Supervisor, Inventory Management Specialist

William Snow, Jr., Occupational Safety & Health Specialist

Michael Tribble, Operations Superintendent, Atlantic Ordnance Command

### USS Laboon, DDG-5, Guided Missile Destroyer:

Ensign Bilinski, Strike Officer

Senior Chief Goodman, NAV SURF

Commander Graham, Ship's Captain

Chief Lehman, Strike Chief, Senior CWIS Technician

Ensign Spivey, Ordnance Officer

### NRC

Diana Diaz, Health Physicist #\*

Jim Schmidt, Health Physicist #\*

#Indicates presence at entrance meeting

\*Indicates presence at exit meeting