Retrograding Containerized

by Lieutenant Colonel Richard G. Terao

Containerizing munitions in Southwest Asia for movement out of the theater after the Persian Gulf War presented unique challenges for the ammunition retrograde team of the 22d Support Command. We had to safely ship nearly 300,000 tons of munitions, valued in excess of $6 billion, that were in the possession of soldiers and units or distributed among theater storage areas, corps storage areas, and logistics bases throughout the theater.

A survey of the theater's ammunition inventories at the end of hostilities indicated that most of this tonnage was still in its original depot packaging. Fortunately, most of the packaging had fared quite well despite several months of unprotected, outdoor storage in the desert. We determined that, after some cleaning of the ammunition, we could request breakbulk shipping to start the flow of class V materiel from the theater. Beginning the ammunition retrograde process in this manner allowed us to secure a port for hazardous cargo, comply with the command's redeployment schedule, and still have time to complete the infrastructure needed for containerization. Eventually, we were sending containerized munitions safely, efficiently, and securely through the commercial and military transportation systems.

Organization and Mission

The ammunition retrograde team, consisting of 26 soldiers (both active and reserve component) and civilians, was a subordinate element of the Army Materiel Command-Southwest Asia and the 22d Support Command. The team exercised executive responsibility for coordinating and providing technical advice for ammunition retrograde operations between the 22d Support Command and its subordinate commands—the 7th Transportation Group, the 111th Ordnance Group and 22d Ordnance Battalion, and the 321st Materiel Management Center—and two national inventory control points—the Army Armament, Munitions, and Chemical Command and the Army Missile Command. The team's mission was to carry out a comprehensive plan for safely shipping munitions to loca-

Munitions

This soldier uses the wet method to clean tank ammunition to meet USDA standards.

tions in the continental United States, Europe, and Asia while making intheater dispositions of ammunition needed for training, foreign military sales, prepositioned war reserves, or demilitarization.

Planning Retrograde Operations

Headquarters, Department of the Army, established priorities, the 22d Support Command set the schedule for retrograding ammunition, and the national inventory control points specified where ammunition would be shipped. One of our first priorities was securing all classified and security-risk category I (classified/category I) munitions, such as AT-4's, Stingers, Redeyes, and Chaparrals, at the storage sites in the theater. Although each storage site had guards and roving patrols, none of the sites met physical security regulatory requirements. We decided to use MILVAN containers to immediately secure all classified/category I items.

In our planning, we considered a number of factors that would affect retrograde operations: the need for ammunition for additional theater missions, the scheduled drawdown and closure of the troop support areas as the leases for their sites expired, and the issue and transfer of munitions among the theater storage areas. After weighing the impact of these factors, we made the following actions our initial retrograde priorities: distributing munitions needed to reconfigure ammunition basic loads for contingency units; securing and accounting for all classified/category I munitions; and shipping ammunition predictive surveillance samples to the United States. Only after satisfying these priorities could we redeploy our ammunition units and begin transferring local retrograde operations to a contractor.

Ammunition Condition

Many of the munitions returned by the units were missing inner and outer packaging or had damaged or missing containers. Our ordnance units quickly became adept at handling ammunition returned in all sorts of field-expedient containers, including MRE (meals, ready-to-eat) boxes, sandbags, and barrels. To comply with U.S. and Saudi Arabian security concerns, all loose classified/category I items were immediately inspected, cleaned, packed in original containers or generic pallet boxes, placed in 20-foot MILVAN containers, and stored at a secure port facility for surface shipment.

Several tons of captured enemy ammunition and missiles, much of it in original shipping and storage containers, presented another challenge. Each individual item of captured enemy munitions was identified, certified as safe, cleaned, documented, and then custom-blocked and -braced for shipment in 20-foot and 40-foot commercial-style intermodal containers.

Contract Ammunition Services

To expedite the redeployment of U.S. forces from Southwest Asia, the 22d Support Command directed the use of contractor services for ammunition retrograde. We began the contracting process by formulating a concept of operations and identifying performance requirements. The contracting process seemed simple on the surface, but as we delved into the concept of operations, we realized that contracting could be quite complex. Since we did not have the benefit of a class V retrograde scope-of-work statement, our ammunition retrograde team tailored normal retail and wholesale ammunition operations to reflect the harsh realities of desert operations.

After competitive technical and cost evaluations, the 22d Support Command awarded a contract on 15 June 1991 to Brown and Root Saudi Limited (BRSL). The contract required BRSL to receive, store, and re-

warehouse munitions; conduct demilitarization and preservation and packaging operations; and ship the munitions out of theater. The start date for the contract was 30 days after the contract was awarded to allow BRSL time to observe the retrograde operations being performed by soldiers, begin hiring third-country nationals as laborers, and establish a life-support infrastructure for their workers.

Containerized Ammunition

We started using MILVAN containers early in the retrograde process to secure and ship all classified/category I munitions. We learned that specialized training, facilities, and materials-handling equipment were needed to safely and efficiently stuff containers. We were particularly concerned about providing container training to BRSL supervisors and their laborers before transferring retrograde operations to them. We, therefore, coordinated with the Army Defense Ammunition Center and School in Savanna, Illinois, to send a transportation engineer to Southwest Asia. We worked with the engineer to jointly develop a comprehensive training program on container stuffing, blocking and bracing, packaging and palletizing, marking, documenting, and load diagraming. Local representatives from the U.S. Customs Service and the U.S. Department of Agriculture (USDA) provided additional guidance on their inspection and documentation requirements. Meanwhile, we had three processing sites, each with covered preservation and packaging lines and hardstands, built at the troop support areas. We used these sites to conduct Customs Service, USDA, and vehicle inspections, stuff containers, and load vehicles.

During the first month of operations, our soldiers processed 501 MILVAN containers of classified/category I munitions. These containers were subsequently shipped on a U.S.-flag vessel in early August. Although we could have processed more MILVAN and intermodal containers, several factors combined to delay our containerizing operation for approximately 1 month. These factors included competing theater missions, lack of availability of ammunition container ships, restrictions on the net weight of explosives allowed at seaports, and an incomplete containerization infrastructure. Despite the delay, we continued the ammunition retrograde by using the breakbulk method. Once BRSL personnel were ready, ammunition containerization became routine.

We eventually shipped a total of 3,766 end-opening MILVAN and intermodal containers from Southwest Asia to Indian Island, Washington; Concord, California; Sunny Point, North Carolina; and U.S. Army, Europe. Over 50 percent of the containers held artillery propelling charges. The second largest category of shipments was 165-millimeter, high-explosive plastic cartridges, followed by 155-millimeter, white phosphorus projectiles. The remaining containers were used for shipping classified/category I ammunition and captured enemy munitions.

We learned a number of lessons from our experience in Southwest Asia.

The containerization infrastructure must be completely in place before beginning retrograde operations. An incomplete infrastructure, such as we had in Southwest Asia, will affect such fundamental container operations as moving, inspecting, cleaning, and repairing munitions; stuffing containers; and loading and unloading trailers. Attempting to operate without the proper onsite facilities for containerization is unsafe and could result in a catastrophe.

Paved hardstand areas with sufficient drainage are needed. By using hardstands, we prevented dirt from being tracked into containers, which would have violated USDA inspection standards; we also avoided the formation of muddy quagmires when the containers were washed before movement to the seaports.

We found the 50,000-pound, rough-terrain container handler to be the most suitable vehicle for moving containers. Because of its mobility, the rough-terrain container handler was more versatile for moving and loading containers than the rough-terrain container crane, which was best suited for stationary work. Using the crane slowed down our operations because we had to depend on ground personnel to physically guide the suspended spreader bar into position for attachment to containers.

Ammunition containerization drawings for most items have been available since the early 1980's. However, these drawings require that extensive amounts of dunnage material be used to properly restrain the ammunition. In recent years, the Army Defense Ammunition Center and School has improved dunnaging techniques and reduced the required amount of dunnage by approximately 50 percent. These improved dunnaging techniques were particularly important to us because adequate supplies of specific types of lumber and sheeting material were virtually unavailable locally. In fact, we had dunnage materials shipped to Southwest Asia to ensure that sufficient amounts were available for our first container stuffing operations.

During the course of operations, we stuffed an average of 75 containers per day, though our daily rates ranged from a few containers to 100. Our proficiency was influenced by weather conditions, our equipment, and the type of item being loaded. Container stuffing operations were mostly conducted with the 6,000-pound, variable-reach forklift; the 4,000-pound, rough-terrain forklift; or a commercial version of the

A variable-reach forklift is used to stuff a container.

4,000-pound, clean-burning, diesel forklift. We observed that the performance of each forklift depended on the skill of its operator and that no forklift was vastly superior. However, the variable-reach forklift had several drawbacks compared to the others: it took longer to learn how to use; it provided the operator with poorer visibility when loading a container; and the power characteristics of its extendable arm occasionally caused the operator to damage the container.

Cleaning the munitions and containers to meet USDA standards was a meticulous and lengthy process. We used two cleaning methods: wet and dry. The wet method was a two-phase process. In phase one, we used a low-pressure, high-volume fire hose to thoroughly purge large particulate matter from the surface. In the second phase, we used a low-volume, high-pressure washer to remove any matter remaining after the initial cleansing. The dry method, which employed high air pressure and brushes, was used on munitions that could not tolerate wet cleaning because of their packaging materials or sensitive components.

All required documentation forms were initially unavailable through normal publication channels. Our ammunition retrograde team relied on local printers to make the necessary transportation forms and hazardous cargo placards we needed to comply with peacetime international shipping standards. Normally, all documentation is attached to the exterior of the shipping container. We took additional precautions and attached a duplicate set of documents to the inside of the container door. Our experience in Southwest Asia mandated redundancy in documentation, especially when handling hazardous, classified, or pilferable cargo.

Local technical expertise in ammunition retrograde operations was often unavailable. Differences in time zones between Southwest Asia, Europe, and the United States; lack of quality communications; and stringent international shipping requirements further exacerbated our situation. Fortunately, we had access to onsite expertise in ammunition, shipping, and transportation. The transportation engineer from the Army Defense Ammunition Center and School was critical to our success. He provided ammunition restraint training and interpreted container drawings to our soldiers and BRSL supervisors and laborers. He also had onsite authority to modify existing container drawings and restraint procedures. This was particularly valuable for shipping captured enemy munitions because no standard drawings or restraint procedures existed for those items.

Containerizing munitions was not easy. But despite the myriad of challenges, we safely and successfully accomplished our mission on schedule. Our success was due to the total dedication of hundreds of soldiers and civilians supporting the largest ammunition retrograde program in history. **ALOG**

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