

## Technical Aspects of Cluster Munitions Stockpile Destruction

presented by  
Peter Courtney-Green, NATO Maintenance and Supply Agency

This presentation is based on NAMSA's experience of contracting for the demilitarization of cluster munitions stockpiles, which it has been doing on behalf of certain NATO countries for the last 15 years. These stockpile reductions were either to destroy old and obsolete munitions or, when the cluster munitions contained anti-personnel landmines, to comply with the terms of the Ottawa Convention.

There are relatively few companies in Europe that specialize in stockpile destruction of munitions. NAMSA awards contracts to companies in NATO countries that meet the required standards of safety, security and environmental compliance: in Europe these are in Norway, Germany, UK, France, Spain and Italy. NAMSA has also awarded contracts for stockpile destruction in Albania, Serbia and Ukraine on behalf of the NATO Partnership for Peace Trust Funds. There are several ammunition demilitarization facilities in the USA, but NAMSA has not done business with them.

One of our earliest cluster munitions contracts was for the destruction of 30,000 8 inch artillery projectiles, each of which contained 180 M42 and M46 grenades. Our customer was the US Army in Europe and the work was done by the Norwegian Ammunition Disposal Company (now Nammo NAD), which specializes in deep underground detonation in worked-out copper mines. This is, perhaps surprisingly, an ecologically sound method of disposal.

The same M42 and M46 grenades are found in the M483 artillery projectile; and the M77 grenade in the M26 MLRS rocket is almost exactly similar. NAMSA has awarded contracts to companies in Germany, Norway and Italy for the disposal of large quantities of artillery projectiles and rockets containing 65 million of these sub munitions. Disposal methods for the grenades include cryofracture, in which they are frozen in liquid nitrogen, crushed to expose the explosive filling and then incinerated, and the use of complex robotics to disassemble both munitions and sub munitions. Building robotic machines is expensive, but once built they can operate 24 hours a day and 7 days a week, so the high initial expenditure is justified where the volume of munitions is sufficiently large.

NAMSA has awarded several contracts for the disposal of air delivered cluster bombs, including BL 755 for the UK and Netherlands Air Forces, JP 233 runway attack system and CBU 87 for the UK, CBU Mk 20 (Rockeye) and CBU 89 for the US Air Force.

There are no published standards for the disposal of cluster munitions stockpiles; and there is very little published of any real value on the disposal of other types of munitions. There are international, NATO, EU and national standards and regulations that must be followed in handling, transporting and processing explosive ordnance of any kind. These rules concern health and safety, waste disposal, recycling, incineration etc. One of the most significant of these is the EU Directive on the incineration of waste, because cluster munitions disposal often includes the incineration of explosive components.

There are several NATO Standardization Agreements (STANAG's) that have some applicability to the destruction of munitions, but none that can serve as definitive guides. The

most obvious of these is STANAG 4518 - Safe Disposal of Munitions, Design Principles and Requirements, and Safety Assessment, but it is far from being a definitive guide to industrial scale demilitarization.

Ammunition is often transported from one end of Europe to the other to take advantage of the best market prices for demilitarization. There has been discussion in recent years about reclassifying ammunition destined for demilitarization as hazardous waste, which would adversely affect its transfer across national boundaries. This would be a major error: storing, handling, moving and processing ammunition are covered by comprehensive and appropriate legislation at national and international levels, and reclassifying ammunition as hazardous waste would not make these things any safer.

To achieve the lowest prices in open competitive tenders it is necessary for contractors to recycle materials to the maximum extent possible. Some companies claim to recycle 98% of materials, including metals, plastics and explosives. This reduces considerably the cost of disposal.

Stockpile destruction of cluster munitions is not analogous to the destruction of anti-personnel mines under the Ottawa Treaty because cluster munitions are more complex and their destruction is more expensive. Some countries will inevitably find it difficult to meet the Treaty deadlines.