D24 Investigation of "Inert" Artillery Shell Explosions

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The goal of this presentation is to demonstrate the importance of ensuring that staff have a responsible disposition and that they are appropriately qualified and trained to deal with the hazardous materials likely to be encountered during munitions decommissioning operations.

The presentation will impact the forensic science community by highlighting the importance of repeated safety inspections, even when multiple levels of paperwork indicate that a proposed operation will be safe to perform.

The case involved the decommissioning and recycling of military munitions that had been in storage and had exceeded their specified service life. Decommissioning of live explosive munitions is a delicate, potentially dangerous, and expensive process. The usual procedure is to inert the munitions by removing fusing and explosive warhead materials, then ship the remaining inert components to scrap metal processors for final disassembly and metals recycling.

Military authorities typically follow one of two courses of action for inerting the munitions. They can have a government/military entity perform the inerting process or they can have an approved private contractor do it. Needless to say, it is important that each step of the process be carefully monitored and documented to ensure that no munitions, removed fusing components, or energetic warhead materials are mishandled, misplaced, or lost to potentially dangerous criminals/terrorists.

Once the residual munitions components are certified as inert, they can be sold to scrap metals processors for final disassembly, destructive breakdown, and sale to metals smelters/recyclers. In recent years, some insurance companies have insisted that recycling processors not accept decommissioned munitions for processing, presumably because of the perceived high risk.

In this case, the empty shells were sold and transported to a large scrap metals processor who deemed it necessary to cut the shells into smaller parts. This cutting was to be accomplished using dual gas cutting torch equipment. Unfortunately, one or more of the shell bodies contained a significant amount of high explosive and a young contract employee was fatally injured when he took a cutting torch to a steel shell body and the high explosive detonated. Warning signs were not recognized and/or ignored. The young worker lost multiple body parts and faculties and took several weeks to die. The subsequent litigation investigation uncovered numerous alleged errors and lack of care issues on the part of the scrap metals processing plant and the employee's family were given substantial financial damages for the death and suffering of their family member. As with many investigations, this one revealed some interesting issues with both plant procedures and supervisors.

Artillery Shell, Munitions Decommissioning, Explosives Fatalities