WHAT IS RECOVERED CHEMICAL WARFARE MATERIEL (RCWM)?

The U.S. Army Chemical Materials Activity Recovered Chemical Materiel Directorate (CMA) responds nationwide to planned and unplanned chemical munition recoveries. Chemical warfare materiel is most often recovered at military installations where chemical weapons were manufactured, tested or stored. Historically, burial was an accepted method of chemical materiel disposal, and munitions are periodically recovered during environmental remediation of old burial sites. The most common RCWM are projectiles, which are artillery shells fired from cannons, and mortar shells.

World War I munitions

During World War I, the U.S. Army began testing of chemical-filled projectiles at firing ranges on U.S. military installations. The gray projectile body may be marked with red, white or yellow bands to identify the type of chemical agent. Further detail may be displayed in black stencil markings, reading “SPECIAL GAS” or “SMOKE.” The most commonly recovered WWI projectiles are the 75mm and the 4.7-inch projectile.

The 75mm projectile measures approximately 11 inches long, three inches in diameter and weighs up to 12.5 pounds, depending on the type of chemical agent it contains. It also includes an adapter and booster casing that screw into the nose of the shell.

The larger 4.7-inch projectile resembles the 75mm projectile, but measures approximately 17 inches long, 4.7 inches in diameter and weighs up to 43.75 pounds.

75 mm projectile

4.7-inch projectile

4.2-inch mortar shell

In 1928, United States engineers developed the 4.2-inch mortar from the British Army’s Stokes mortar, which they developed in response to gas-cloud attacks in World War I.

Typically filled with mustard agent, the 4.2-inch mortar shell consist of a one-piece forged steel case projectile body with fuze, burster and tail assembly. The chemical agent remains sealed in the shell with a steel burster well. The body contains a perforated vane assembly welded to the inside, designed to accommodate the burster tube extending from the fuze. The tail assembly consists of a pressure plate and rotating disk, propelling charge, cartridge container, ignition cartridge and striker-nut assembly.

The 4.2-inch mortar shell measures 21 inches long with its fuze. The gray or olive green munition body may display yellow, green and red bands denoting its chemical fill.

4.2-inch mortar shell

World War II munitions

During World War II, the U.S. Army designed the 105mm and 155mm projectiles to replace the 75mm and 4.7-inch projectiles. Both the 105mm and 155mm projectiles typically contain mustard agent. Their gray projectile bodies are marked with up to three colored bands, signifying the munition’s chemical fill. Words such as

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"SPECIAL GAS" may also distinguish the munition body.

The projectiles vary in size, with the largest measuring approximately 27 inches long and six inches in diameter and weighing up to 92 pounds. The shell contains an adapter and booster casing that screws into the nose of the shell, also allowing a fuse to screw into the nose of the projectile.

Chemical Agent Identification Sets

From 1928 to 1969, the U.S. Army used Chemical Agent Identification Sets to train Soldiers and Sailors in the safe handling, identification and decontamination of chemical warfare agents. The sets consist of chemical agents in glass bottles, ampoules and vials. In some cases, after use in training, the Army buried CAIS items, and these items are periodically recovered from burial sites.

The Army expects to continue recovering CAIS items through ongoing environmental remediation activities at military installations and formerly used defense sites. CAIS items containing diluted agent or industrial chemicals in glass ampoules and vials are packaged and processed as hazardous waste. Only CAIS bottles that contain concentrated mustard agent are treated using RCMD destruction technology.

105mm projectile

155mm projectile

The U.S. Army used Chemical Agent Identification Sets to train Soldiers and Sailors in the safe handling and treatment of chemical warfare agents.

GENERAL SAFETY STATEMENT:
The Army developed the 3Rs — Recognize, Retreat, Report — to inform people what to do should they encounter or suspect they have encountered a military munition.

Recognize when you may have encountered a munition and that munitions are dangerous

Retreat do not approach, touch, move or disturb it, but carefully leave the area

Report call 911 and tell police what you saw and where you saw it

More info at https://www.denix.osd.mil/uxo