

Dan Kaszeta, managing director of Strongpoint Security explores the history of chemical landmines

Mine eyes have seen the glory...

During six years as a civil servant, I had an inert and empty version of a M23 VX land mine sitting in my office.. Barely a week went by without someone asking me if it was real, what good a chemical landmine would be in any real war, and if anyone ever used one. The answers to these three questions make for an interesting tale.

First, chemical landmines in general, and the M23 in particular, were real. The US army developed the M23 in 1960, tested M23 VX land mines in several environments (including controversial testing in Panama not disclosed to the Panamanians) and procured the M23 in large quantities. By the end of the cold war there were 101,186 M23 mines stored in five US sites, according to the exhaustive inventory published by former US army chemical corps officer Albert Mauroni. By the 1980s, the M23 was considered

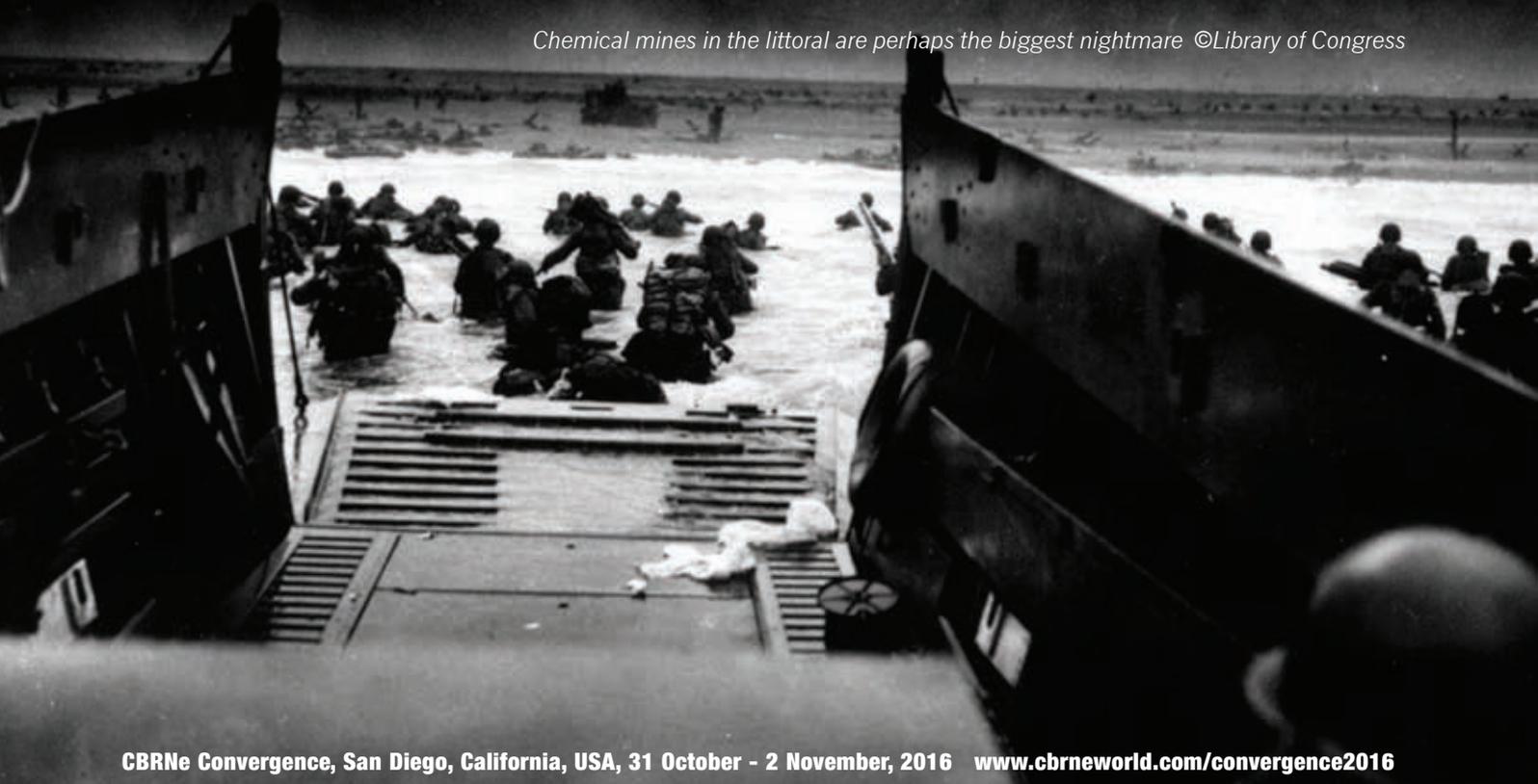
obsolete. After much debate and many delays, the serious effort to destroy the M23 mines finally began in 2004. The last M23 was destroyed by 2010.

The M23 closely resembled the much more common M15 antitank mine. Overall it was circular, 34.3inches (87.1cm) in diameter, 5inches (12.7cm) high, and weighed 22.9lb (10.4kg). It contained 4.75kg of VX nerve agent (a highly persistent liquid). The explosive burster was small - 0.8lb of Composition B. The M23 was filled at the factory and sealed. In turn, the mines were stored three to a sealed steel drum. Over the years, some M23 mines did leak in storage, but rarely. According to statistics from the late 1980s, one leaking mine out of this vast inventory was discovered about every 18 months.

It is important to note that the M23 was by no means the only chemical landmine in existence. It replaced an

earlier US system, the M1 mustard mine, which was a glorified paint can with a bursting charge, developed in the late 1930s. Britain had several mustard mines developed and in inventory during the second world war. Approximately 35,000 20kg and 50kg German mustard mines were sunk in the Baltic sea by the Soviet Union after the war, according to Polish and Russian sources. The Soviet Union developed several chemical mines during the second world war and kept similar systems in its inventory during the cold war. The existence of chemical mines in the Chinese and North Korean arsenals is a matter of speculation. The question: What good is it? is a bit more perplexing. Any chemical landmine designed along the lines of the M23 raises a number of technical and doctrinal issues. The M23 did not abide by many precepts that were

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considered to be axioms of proper chemical munition design. The M23's charge to agent ratio seemed more likely to cause a big puddle of liquid contamination than an ideal dispersion of droplets over a wide area.

The conventional wisdom prevailing during most of the twentieth century was that persistent agents such as VX needed to be used air-burst weapons for good effect and the opposite applied to those with non-persistent agents, such as GB (sarin). Having a thick persistent agent bursting at ground level runs against this conventional wisdom. A declassified US army document indicates that an antipersonnel adapter was developed for the M23, which would cause the mine to pop 20 metres into the air before bursting, for a wider spread of droplets. There is no evidence in the unclassified realm that this pop-up adapter was ever fielded, although the document is an interesting revelation into the army's thought process at the time.

The practicality of the M23 was always a bit questionable. The Corps of Engineers, the primary minelayers for the US army, rarely if ever practised the M23. The stockpiles were largely retained in strategic reserves in depots in the hinterland of the continental US, far from potential battlefields. To lay chemical mines in the Fulda Gap or on the Korean demilitarised zone would have required weeks or even months of notice in order to ship the mines safely and securely from depots to forward deployed troops. And this presumes an improbable level of advanced warning of a Warsaw Pact invasion.

The significant footprint of extra security and technical escorts mandated by US army regulations for shipping chemical weapons would clearly have been noticed by foreign intelligence services and seen as provocation. Installation of chemical mines would have been quite visible and provocative. The sight - through binoculars - of US soldiers wearing the old M3 TAP suit laying mines at the East German border would have certainly caused a degree of alarm in Moscow.

It seems quite possible that a VX land mine could, indeed, be useful for

counter-mobility, area denial, and general attrition, by contaminating large belts of land with a highly persistent nerve agent. Arguably, tracked vehicles could re-aerosolise the liquid VX. Mechanised troops passing through the contaminated land would become heavily contaminated, requiring time-intensive decontamination, causing attrition to vehicle crews and passengers, and forcing the enemy to operate in chemical protective posture. Modern military doctrine stresses mobility, flexibility, and offensive tactics. Most military thought in the western world post-Maginot line would consider the M23 mine a weapon system that has lost all hope of offensive operation or the recapture of terrain. No commander would ever want to use M23s on any terrain they might wish to reconquer and reoccupy. The M23 was a 'salt the earth' kind of weapon. It is also worth revisiting the ratio of agent to bursting charge. This design feature was intended to produce a thick pool of agent rather than a dispersal of aerosol. It meant that the contamination of terrain created by an M23 minefield would be very dense and long lasting. Decontaminating terrain is extremely labour and material-intensive. De-mining doctrine in Nato armies rarely considered removal of chemical mines. A mine that caused heavy contamination to combat engineering equipment would be problematic for many commanders.

The third question I was often asked was: Were chemical mines ever used? Until recently I had no answer. The large chemical conflicts (world war one, the Italo-Ethiopian war, the Iran-Iraq war) show little, if any, evidence of chemical mines being used, although some research later in world war one appears to have been conducted. The author gladly receives any additional data on these conflicts. Various chlorine-based IEDs are occasionally described as mines, but in my mind these do not really count in the same way as actual chemical mines. History is replete with instances of the use of chemical artillery shells, mortars, Livens projectors, rockets, missile warheads, spray tanks, and aerial

bombs. In terms of actual use, however, chemical mines are rare.

This leads me to burning bridges... Occasionally, someone needs to burn the bridge. One probable use of chemical landmines was at Jaslo, in Poland, during the German invasion in 1939. The particulars of this incident are more than a bit opaque and the story varies greatly from source to source. Even so, the incident is documented by credible sources from both Germany and Poland, including Polish chemical specialists at the military institute of chemistry and radiometry. Several other incidents in September 1939 are mentioned, but there's most information on Jaslo.

This incident occurred on or about 8 September 1939, when Polish troops



used mustard mines to defend a bridge in the town of Jaslo. It is possible that either an improvised device or artillery shells were used, but the preponderance of sources point to actual mines. German troops from a pioneer battalion suffered chemical casualties. The figures vary, but two to four soldiers are alleged to have died (whether from chemical or explosive causes, it is not known) and at least a dozen were affected by mustard exposure.

The incident was clearly of propaganda benefit to the Germans, as it allowed them to accuse Poland of illegal methods of warfare, which is highly ironic given what we now know of Germany's occupation of Poland. It appears that the attack was of little

tactical benefit as German forces quickly seized the area. There are several permutations to the story, but this is effectively the baseline version. It is important to note that the Jaslo incident was strongly denied as Nazi propaganda during the communist era. Several sources I contacted also believed that the incident was contrived for propaganda purposes.

Jaslo is a reminder that in the interwar period Poland had a chemical weapons programme. There was a small sulphur mustard production facility at Pionki, and a plant for filling landmines and artillery shells at Skarzysko Kamienna. Several sources indicate that diluted mustard was used for chemical defence training by the Polish army.

It is possible that Jaslo was an act of desperation by outgunned and outmanned soldiers who had some dilute blister agent at hand. Casualties were low and there is no mention in the vague accounts of a serious decontamination effort to enable the use of the bridge for the Wehrmacht's advance, so a diluted agent hypothesis is plausible. Wehrmacht documents from later in the war indicate that over 3,000 chemical mines had been seized in Poland by the end of the campaign.

The Jaslo incident is illustrative of the curious place that chemical landmines occupy in the history of chemical munitions. They are odd things with a vague role in doctrine, and when they were used, the results were similarly vague.

Despite being available in the Cold War the doctrine of laying chemical mines lagged behind the technology ©DoD

