

WESTERN EUROPE'S LARGEST UNDERGROUND BLAST

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ABSTRACT

Tara Mines Limited, in Ireland, is Western Europe's largest zinc mine. Annual metal production, from 2.5 million tonnes of ore, consists of 180,000 tonnes of zinc and 34,000 tonnes of lead.

In 1987, 314,000 tonnes were blasted simultaneously to recover a pillar affected by major ground instability. Company occupied houses and a main public roadway were situated 120 metres (394 ft.) directly above the blast location. Private residences, located on the outskirts of a major town, were within 460 metres (1,443 ft.) of the blast site. (See Fig. 1).

At Tara the statutory vibration limit for blasting operations is 7.6mm (0.30 inches)/second p.p.v. at residences. A maximum instantaneous charge of 150kg (330 lbs.) was required in order to keep within this very restrictive limit. A total of 67,000kg of explosives, 7,700 detonators and 3,000 drill holes were blasted in 13.5 seconds. This time span was achieved by combining non-electric detonators in series to extend the commercially available range, a procedure used regularly at Tara. All detonators, which were placed immediately inside the collars of the holes for protection, were initiated before blasting commenced. This was critical since ground instability would not allow re-entry into the blast area in the event of initiation cut-off.

By using this safe, reliable, simple method of blasting, Tara can achieve its production targets while still meeting stringent vibration restrictions.