

Exploration at Europe's Largest Zinc Mine at Boliden Tara Mines, Navan, Ireland: from Soil Geochemistry to Seismics

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The Navan Orebody in Ireland is a world-class carbonate hosted Zn-Pb deposit and is currently the largest Zn mine in Europe producing ca. 2.5mtpa at grades up to 6.0% Zn, 1.5% Pb using underground open stoping.

The deposit was discovered in late 1970 using shallow soil trace element geochemistry. Development started in 1974 with production starting in 1977. Since that time production rates of up to 2.6Mt have been realised with the total mined tonnage to end 2018 amounting to 94.8Mt @ 7.9% Zn, 1.8% Pb. At end 2018, PERC classified Mineral Resources comprised 23.0Mt @ 7.2% Zn, 1.7% Pb and Mineral Reserves stood at an additional 19.0Mt @ 5.7% Zn, 1.5% Pb. This presentation, including some 3D visualizations, will provide a case history on how geological insights, drilling and most recently, seismic technology can promote near-mine discoveries.

Historically, resource growth has been accomplished by geologically guided diamond drilling which discovered the major ca. 30Mt South West Extension in the early 90s. By the late 00s however, exploration drilling was becoming ineffective. Following a review meeting with in-house geologists and consultants in 2010 new ideas emerged including a proposal to conduct seismic surveys. By 2013, seven 2D seismic lines (totalling 101 km) had been acquired, processed and interpreted. The seismic imaging proved a 'game changer' in terms of subsurface interpretation and a target was identified 2 km south of the mine near a large basin-margin fault. The first hole intersected 34 m with 14% Zn+Pb. Further drilling, utilizing extensive navigational deflections, outlined a mineralized zone at depths of 1 to 2 km. Inferred resources at end 2018 were estimated at 18.2 Mt at 7.6% Zn and 1.6% Pb. Underground exploration development commenced in April 2017 and will allow accurate delineation of this significant discovery.

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