



CRM of Ukraine Database Supplements

Mineral target:	Troyitske deposit
Commodity:	Graphite

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Location: Zaporizhzhia region, Berdyanskiy district, near the Troyitske village, on the banks of the Berestova River (right tributary of the Berda River).

Study: The Troyitske deposit is known since 1869, and was developed until 1917. In 1955-1956, geological exploration works were carried out at the deposit.

Geological characteristics: Troyitske deposit is located within the Azov Block of the Ukrainian Shield. It is confined to the strip of graphite gneisses of the Temryutska Suite of the Central-Pryazovska Series, which is traced for 25 km along the western flank of the Berestovska syncline. The geological structure of the deposit includes metamorphic rocks represented by amphibole, biotite and garnet-biotite gneisses and calciphyres, which contain layers of biotite and amphibole gneisses enriched with graphite - ore bodies.

Two sites are distinguished: the northern Berestovska (on both banks of the Berestova River in the estuary part) and the southern Troitska (on the left bank of the Berestova River and the northeastern part of Troyitske village). Graphite-bearing bands are relatively long-lasting and uniformly enriched in graphite. Angles of rock dipping are 60-85°. The thickness of overburden ranges from 0.2 to 8 m.

On Berestovska site, graphite-bearing rocks make up an ore zone 3.5 km long, with a thickness of 120-230 m (the central part of the area), which decreases to 20-100 m in the peripheral parts. The ore bodies extend north and northeast. The dip of rocks is steep at an angle of 75-87°. The total thickness varies from 10 to 160 m. The graphite-bearing strip consists of 5 bodies with a graphite content of 2.4 to 4.1%. They are separated by layers of amphibole gneisses from 15 to 80 m thick with low graphite content. In places, these layers are pinched out, and the ore layers merge into a single, thicker body. The internal structure of the ore bodies is complex and is characterized by layering of graphite ores with a graphite content of more than 2% and low-strength layers of graphite-bearing gneisses with a graphite content of 1-2% and less.

On Troitska site graphite-bearing rocks are traced in the area for 3.5 km - graphite-enriched amphibole-biotite gneisses, which make up a number of lenses and layers. Their extension varies from sublatitudinal to southeast (azimuth 140-160°). The rocks dip steeply to the north-east, at angles of 70-85°. The thickness of the graphite-bearing zone varies from 10 to 300 m. It consists of 6 ore bodies with a thickness of 5 to 140 m. The graphite content varies from 2 to 17%. The ore beds are separated by amphibole gneisses with a thickness of 5 to 120 m. The structure of the ore bodies is quite complex. Ore bodies are divided by vein formations and ore-free gneisses into several branches. All ore bodies have a steep northeast dip at an angle from 60 to 85°.

Overburden is mainly represented by Quaternary loams and a soil-vegetable layer, in some places by conglomerates. The total thickness of overburden is from 0.2 to 8.0 m.

Graphite ore reserves are estimated at the deposit up to 100 m. The deposit is promising, further exploration to depth is possible.

Assessment of resources/reserves: reserves of graphite ore of the Troyitske deposit approved by the DKZ of the USSR (protocol dated 14.01.1961 No. 3250) in the amount by category (thousand tons):

graphite ore B+C1 – 2,027.0, including graphite – 86.0; C2 – 252.0, including graphite – 14.0; off-balance – 740.0, including graphite – 47.0.