



CRM of Ukraine Database Supplements

Mineral target:	Zakhidno-Lashivska deposit
Commodity:	Nickel and cobalt ores

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Location. Zakhidno-Lashivska site is situated by 3.6 km on northern East from Dovga Prystan village of Pervomayskiy district of Mykolayiv region, on watershed plateau between Southern Boug and Dry Tashlyk - right tributary of Sinyuha - rivers.

Research: the Zakhidno-Lashivska site was discovered by expedition No. 46 of KP "Kirovgeologiya" in 1990-1991. Geological exploration works were carried out by the Pravoberezhnaya GRE PDRGP "Pivnichgeologiya". Reserves of silicate-cobalt-nickel ores of the Zakhidno-Lashivska site were tested by the protocol of the DKZ of Ukraine dated 02.10.2014 No. 3247.

Geological characteristics. The research area of the Zakhidno-Lashivska site is located within the southwestern part of the Ukrainian Shield and is confined to the Golovanivska suture zone. In terms of metallurgy, the area is located within the Pobuzkiy ore district, specializing in nickel, cobalt, iron, and chromium. Gneiss-like granites, leucocratic granites with biotite and garnet, and aplite-pegmatoid granites of Pobuzkiy Complex take part in the geological structure of the Zakhidno-Lashivska site. Among the granites there are metamorphic rocks: amphibolites, plagiogneisses and garnet-biotite gneisses, ferruginous quartzites of the Buzka Series. In the central part of the district there is a basite-ultrabasite massif, composed mainly of serpentized peridotites and confined to the Kapitanivska fault zone, which is fixed by the presence of local linear weathering crusts up to a depth of 120 m, with developed processes of silicification, graphitization, and sulfidization. The weathering crust of crystalline rocks within the Zakhidno-Lashivska site is represented by residual eluvial varieties of rocks. Morphologically and genetically, two types of weathering crust are distinguished: linear and planar. The composition of the weathering crust varies depending on the composition of the parent bedrock. The weathering crust of migmatite granites and gneisses is represented by a layer of white and gray kaolins. The amphibolite weathering crust is represented by nontronite, variegated kaolins and clays of the montmorillonite-beidellite group. Weathering crust of ultrabasic rocks (serpentized peridotites) is represented by nontronitic clays and is the main productive horizon of cobalt-nickel ores. The weathering crust of ultrabasic rocks with an average thickness of 21.9 m has vertical zoning and is composed of (from top to bottom): brown ironstones and ochres, nontronites and ferruginous nontronites, nontronite serpentinites and carbonated serpentinites. The main nickel-bearing horizon is the zone of nontronites and iron nontronites. The main minerals of the productive horizon are nontronite, keralite, montmorillonite and jefferisite. The main industrial ores of the site are associated with them. Ore bodies are determined exclusively by test data. In the Zakhidno-Lashivska site, two ore bodies No. 1 and 2 of a layer-like shape are outlined. The bodies lie horizontally, the thickness of the deposits is odd and varies from 5 to 16 m. High nickel contents in the area are confined to the chloritization zones of the weathering crust, where they reach 2 percent or more. In section, the ore bodies mainly are confined to the upper horizons in the weathering crust, but the greatest thicknesses of the ore bodies and high nickel contents are observed in the inner parts of the ore bodies. In addition to nickel, cobalt and iron, for which reserves were calculated, research was conducted on useful components: chromium and gold. The conducted work established a low content of chromium. During the detailed exploration, considerable work was carried out to verify the reliability of the detection of gold ore mineralization both in the weathering crust and in crystalline rocks. Most of the wells showed a complete absence of traces of gold ore mineralization.

The mining-geological, hydrogeological and engineering-geological conditions for the development of the Zakhidno-Lashivska site are simple and allow the use of an open-cast method of development with one quarry. The Zakhidno-Lashivska site of silicate cobalt-nickel ores belongs to the group of deposits of a complex geological structure (group 2) in accordance with the Classification of Mineral Reserves and Resources of the State Mineral Resources Fund.

Estimation of resources/inventories. According to the State Inventory of mineral reserves, the balance reserves of silicate cobalt-nickel ores are classified as C1 (UNFC code 121) in the amount of 1,574.5 thousand tons, including Ni - 13.86 thousand tons, Co - 0.53 thousand tons.