Yuriivska block of gold ore

Mineral: gold ore.

Type, period of subsoil use: geological study, including exploration and production license of subsoil deposits of national significance.

Location: Kropyvnytskyi district of Kirovohrad region, the southern outskirts of Zelene village.

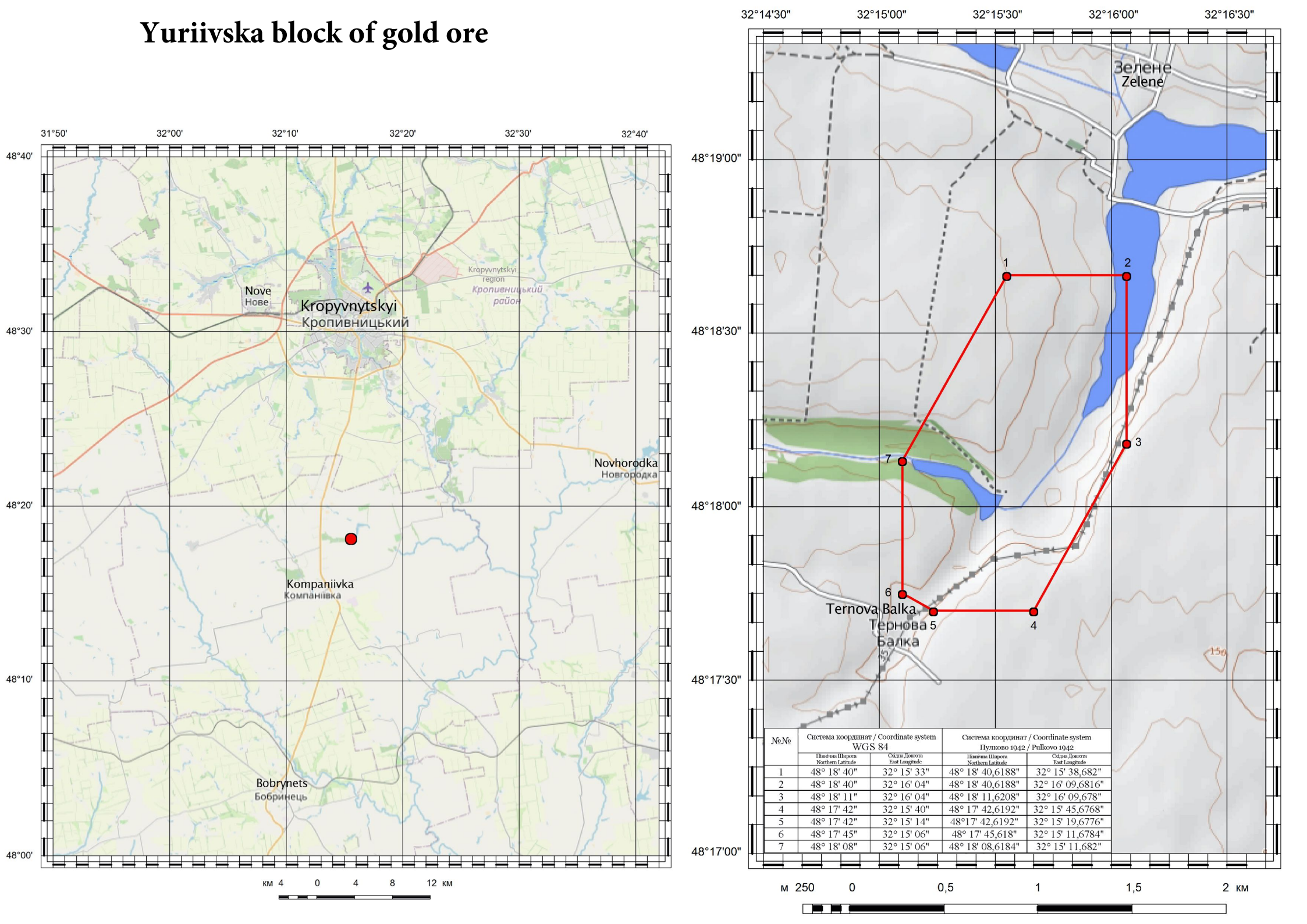
Land plot area: 163.6 ha.

Geological information. Structurally and tectonically, the block is located within the Kompaniivka branch of the Kirovohrad fault, in a rather narrow strip of gneiss stratum of the north-eastern extension with a drop to the south-east at angles of 60-80°, which is located between the Kirovohrad granite massif in the northwest and Sasivsky in the southeast. Within the block, 21 ore (mineralized) zones are distinguished by a complex of geological and geochemical features, which are characterized by gold content of more than 0.1 g/t and are sufficiently sustained for stretching and falling. Gold ore formation is confined to quartzed gneisses, as well as quartz feldspar and quartz veins, and often tends to contact pegmatoid bodies. The number of sulfides in mineralized intervals reaches 5 - 7%. Structural and lithological control of gold ore formation lays in a clear spatial confinement of ore zones and bodies to zones of tectonic development and hydrothermal-metasomatic changes of potassium-silicon composition (K-feldsparization, quartzification) with increased sulfide mineralization. Satellite elements of gold mineralization are arsenic, bismuth, silver, copper, zinc. Mineral indicators of gold ore formation are, first of all, sphalerite, chalcocite, less often arsenopyrite and galena. The source of the initial accumulation of gold was apparently graphite-containing gneisses and in later stages of gold ore formation was a geochemical barrier to gold-containing fluids. ПIold content in the ores is uneven - from deciles to 77.1 g t, and in some samples - up to 153.8 g/t. Ores of the block are aluminosilicate, non-oxidized and belong to the gold-quartz low-sulfide type. They are characterized by finely interspersed texture, which sometimes turns into spotted. The interspersed texture is characterized by uneven distribution of small ore aggregates (individual grains or their growths). The size of mineral aggregates of spotted textures does not exceed 1 cm. More seldom in the ores of the block there is a veined texture identified characterized by the development of ore veins, sometimes compatible with vein minerals in cracks that cross the rock. Ore association is represented by native gold, pyrrhotite, chalcopyrite, pyrite, arsenopyrite, lollingite, sphalerite, galena, marcasite, native bismuth, bismuth, faded ores (tenanthite, tetrahedrite), bornite, chalco. Native gold is characterized by a very uneven distribution. It is noted in the contact part of metasomatically changed gneisses and quartz veins, less often - directly in quartz veins. Mainly (more than 90%) is associated with quartz and only a small part (less than 10%) - with sulfides. It is represented by grains of irregular, hooked, isometric and teardrop shape. Forms small clusters, fine interspersed, tracks of 3 - 5 small gold pieces, separated from each other. Characteristic rare growths with sulfides (pyrrhotite, chalcopyrite, pyrite). It is noted that small golds are located near the nests of finely interspersed sulfides, while larger golds are associated with large nests and streaks of sulfides. Directly in quartz veins gold is noted in a free kind (more than 90%) and in splices with sulfides. According to the grain size, gold is divided into three classes: up to 0.005 mm (predominant), 0.005 - 0.01 mm and 0.01 - 0.05 mm. Larger gold grains (up to 0.7 - 1.5 mm) are found in isolated cases. Finenessof native gold is high - 930 - 990. Pyrrhotite is widely developed and is the most common sulfide mineral in ore zones, its content is up to 3 - 5%. Chalcopyrite is also found everywhere, but in small quantities - up to 0.5% (5 - 15% of all ore minerals). Pyrite is a fairly common mineral in ore zones, its content is 3 - 10% of the amount of ore minerals. Arsenopyrite is observed almost everywhere, but in small quantities (up to 0.5%), mainly in single grains. Lolingitis is closely related to arsenopyrite. Sphalerite is almost always present in ore zones, where it accounts for from rare grains to 0.5 - 1%. Marcasite is relatively rare, accounting for less than 0.5% of all ore minerals. Galena is extremely rare, accounting for less than 0.2 - 0.5% of all ore minerals. Other ore minerals are extremely rare and isolated. Graphite is also observed in up to 2% in ores. Mining and geological conditions of the block determine the underground method of ore mining and are generally favorable. Hydrogeological conditions of the block are simple and are characterized by low water content of loose sand deposits and medium ore-bearing fractured aquifer. In terms of technology, ore of the block is rated as high-tech and easy to enrich. Ore processing is expected to be carried out according to the gravity-flotation technological scheme, which allows to extract 86.8% of gold in the concentrate: The arsenic content in the ore does not exceed 0.021%, which is not a harmful impurity in terms of technological properties. According to complexity of the geological structure, the Yuriivska block of gold ore corresponds to the 3rd group.

Available geological information. The block was discovered and searched as a result of audits and exploration for uranium and gold, performed by the exploration expedition #37 of the Kirov Industrial Geological Association in 1988-1993. In 1993-1994, greenfield exploration was performed within the block. In 1994-2000, drilling was conducted, which was not completed due to lack of funding. During the entire period of the exploration of Yuriivska block, a total of 71,841.5 m of inclined deep wells and 17 000 m of vertical exploration and mapping wells were drilled. The exploration network of deep wells is 100-200 x 200-200 m with thickening in some places up to 50-100 x 100-100 m. Gold ore formation has been studied to the mark of -450 m (600 m from the daytime surface). This block covers a gold ore object, which in the geological literature is called as St. George's gold deposit.

Estimation of reserves/stock. Contingent gold resources of the block are estimated as: category P_1 – 1,693 kg; category P_2 – 10,608 kg; the weighted average gold content in sections is 9,2 g/t (Minutes of the Meeting of Scientific Council on Forecasting of the Ukrainian State Geological Survey #32 dated 13.12.2001–12.02.2002). Forecast resources of gold of the block – 14,812 kg.
Available geological reports in the geological funds of KP "Kirovgeologiya"

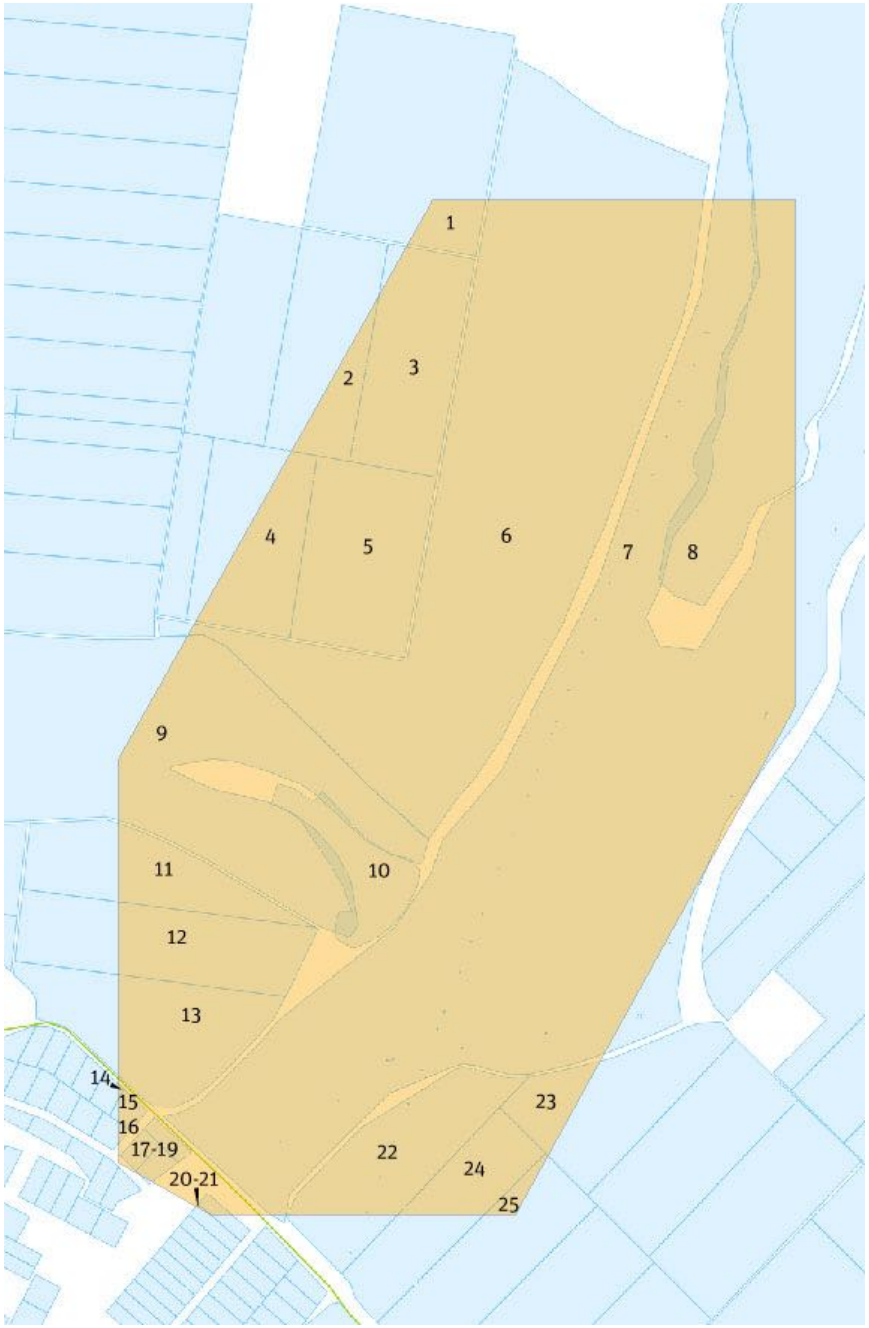
Yuriivska block of gold ore



№№	Система координат / Coordinate system WGS 84		Система координат / Coordinate system Пулково 1942 / Pulkovo 1942	
	Північна Широта Northern Latitude	Східна Довгота East Longitude	Північна Широта Northern Latitude	Східна Довгота East Longitude
1	48° 18' 40"	32° 15' 33"	48° 18' 40,6188"	32° 15' 38,682"
2	48° 18' 40"	32° 16' 04"	48° 18' 40,6188"	32° 16' 09,6816"
3	48° 18' 11"	32° 16' 04"	48° 18' 11,6208"	32° 16' 09,678"
4	48° 17' 42"	32° 15' 40"	48° 17' 42,6192"	32° 15' 45,6768"
5	48° 17' 42"	32° 15' 14"	48°17' 42,6192"	32° 15' 19,6776"
6	48° 17' 45"	32° 15' 06"	48° 17' 45,618"	32° 15' 11,6784"
7	48° 18' 08"	32° 15' 06"	48° 18' 08,6184"	32° 15' 11,682"

Yuriivska block of gold ore

List of cadastral numbers of land plots, within the contour of the deposit



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- 23 3522883000:02:000:0424
- 24 3522883000:02:000:2427
- 25 3522883000:02:000:0428

- State / municipal property
- Private property
- Not specified

Information on land plots,
in particular by cadastral number,
can be obtained on the
Public Cadastral Map of Ukraine:
https://cutt.ly/Fx0CuBg