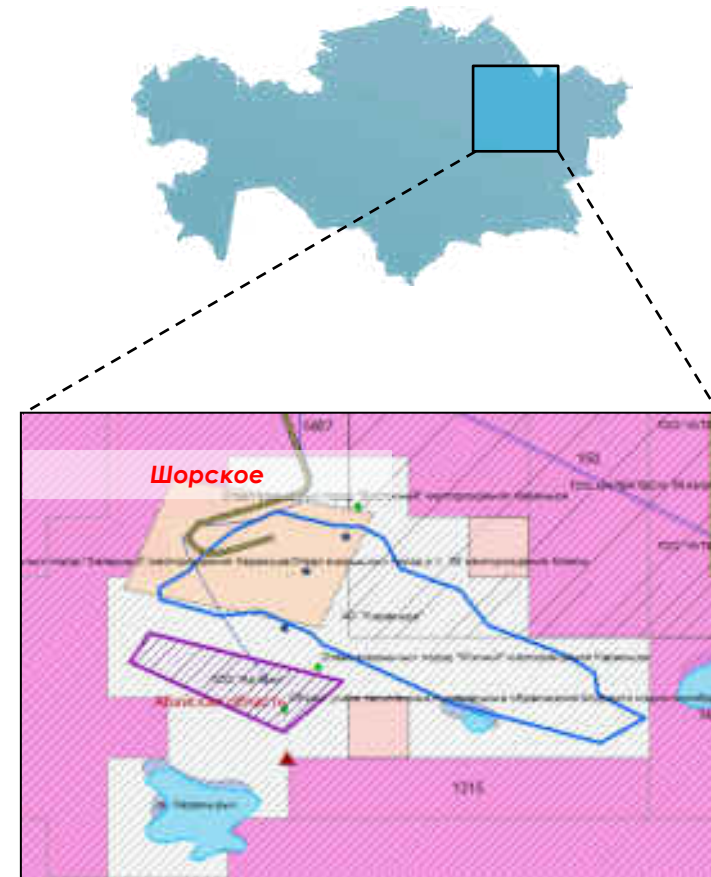


# Shorskoye deposits in the Abay region






**Location:** It is located in the East Kazakhstan region, 130 km southwest of the city of Semipalatinsk.

**Brief geological description:** In general, the ore-containing object has the shape of a steeply falling stock extended to the northwest. The boundary of the oxidation zone and the separation of ore types were determined based on the results of phase analyses; ores with an oxidized molybdenum content of more than 75% were classified as oxidized, less than 10% were classified as sulfide, the remaining differences were attributed to the semi-oxidized type of ores. According to the results of phase analyses, the lower boundary of the oxidation zone is on average at a depth of 9.25 m, and the lower boundary of semi-oxidized ores is beaten off on average at a depth of 13.2 m. The material composition of copper-molybdenum ores was studied throughout the entire period of the deposit study. According to the latest data based on the study of flotation products of technological samples, the prospects for further study of selenium and tellurium in the ores of the deposit are recognized. The issues of extraction of rhenium, silver and tungsten from ore processing products and their corresponding study remain open and require priority solutions in the process of ongoing geological exploration. The flow rates of wells are low 0.02-0.15 /sec, the water output of rocks is weak, the specific flow rates do not exceed 0.003 l/sec.

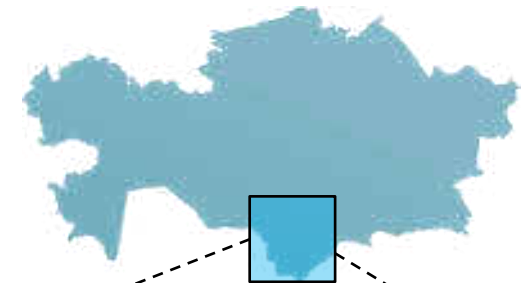


## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance sheet stocks		Off balance
	A+B+C1	C2	
Copper	A+B+C1 – 4,8 thous.t	C2 – 2,4 thous.t	-
Molybdenum	A+B+C1 – 8260,7 t	C2 – 4122,6 t	-
Silver	-	C2 -13 t	-

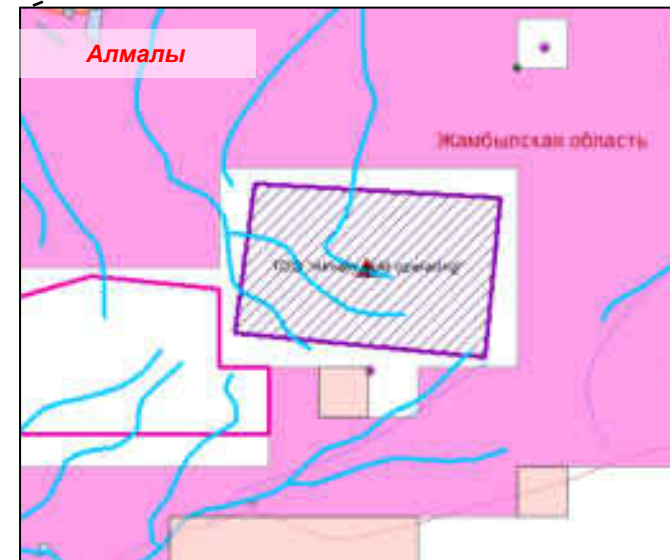
-  - the balance sheet of the Shorskoye field
-  - revoked contract territory of Ar-Man LLP, Shorskoye field, Vostochny uch.. Contract No. 2452 dated 08/21/2007 for the exploration of copper and molybdenum.
-  - contract territory of JSC "Karazhyra" Karazhyra deposit. Contract No. 107 dated 03.03.1997 for coal mining




# Almaly deposit in Zhambyl region



**Location:** The Almaly deposit is located in the Zhambyl district of the Zhambyl region, 25 km west of the regional center.

**Brief geological description:** The deposit is confined to the northwestern endocontact of the Almaly granitoid massif of Silurian age, traced by a submeridional dike field of rocks of variegated composition with a width of more than 700 m and a length of at least 5-7 km, presumably Devonian age. The rocks of the exocontact are represented by sand-shale deposits of Ordovician age. Quartz-vein mineralization and linear quartz veining zones. Ore-bearing are beretized dikes of granite porphyry and dacite of a submeridional strike with a thickness from 10 to 80-90 m. Morphologically, it is a zone of quartz formation, folded in the core part with short quartz veins. In the core part, the zone is represented by a quartz vein with a thickness of 0.5-2 m, saturated with fine inclusions of hematite, pyrite, chalcopyrite, cinnabar and native gold. The average gold content in the zone is 4.2 g/t, silver 40g/t, mercury up to 0.01%. The deposit is small, the ores are flux.



-  - Almaly balance deposit
-  - the revoked contract territory of Almaly gold operating LLP is the Almaly ore deposit. Contract No. 4876 dated 14.06.2016 for exploration of gold-bearing ores.
-  - the contract territory of SHAR Group LLP is the Botamoinakskaya Square deposit. Contract No. 587-R-TPI dated 03.02.2016 For exploration of copper ores. (at the stage)

## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance sheet stocks		Off balance
Gold	A+B+C1 – 536 kg	-	145 kg

# The TYMLAY deposit in Zhambyl region

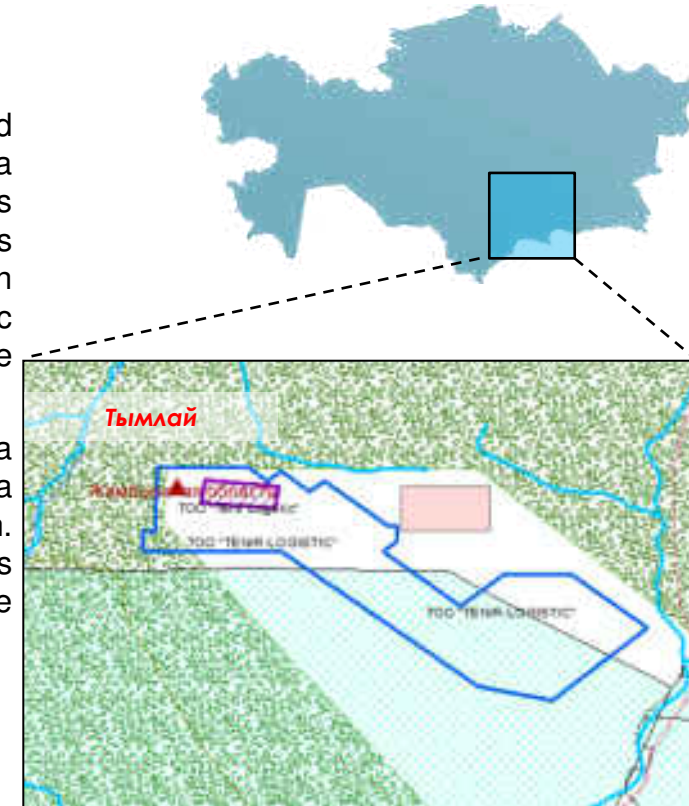





**Location:** it is located in the Zhambyl region northwest of the Khantau railway station

**Brief geological description:** The deposit is confined to the interplastic intrusion of basic and ultrabasic rocks lying among the Upper Cambrian sediments. The intrusion is composed of mica peridotites of ultramafic alkaline series. Large-crystalline gabbro, gabbro-diorites and diorites with poor inclusions of titanomagnetite are deposited in the sole of the intrusion. The intrusion is underlain by quartz-sericite shales of the Dzhambul formation of the Upper Cambrian, overlain by diabase porphyrites of the Aschisui formation of the Upper Cambrian. Siltstones, polymictic sandstones and conglomerates of the Middle and Upper Ordovician lie inconsistently on the rocks of the Cambrian.

Mineralization in the form of inclusions of titanium minerals is localized mainly in mica peridotites, the body of which is gently sinking to the west. The plate-shaped ore body has a plan size of 0.8 x 2.0 km, a thickness of 20 m on the southern flank and 200 m on the northern. Stripping ratio 1 : 3. Mining can be carried out in an open way. The main ore mineral is titanomagnetite. The second most common is ilmenite. Leucoxene, sphene, rutile and anatase are often found. The content of titanomagnetite reaches 70-80% (in schliers).

- Contract No. 2235** dated 22.12.2006 for exploration of titanium-magnetite ores ((Notification of the Ministry of Foreign Affairs of the Republic of Kazakhstan on the early termination of the contract with ex. No. 04-2-18/7981 dated 20.11.17 (due to the expiration of the exploration period))
- Contract No. 2552** dated 21.01.2008 for the exploration of iron, titanium, and related components Partially (about 45% of the total contract territory) is located on the territory of lands for the needs of defense and national security (Matybulak)



-  - balance deposit of Tymlay
-  - the withdrawn contract territory of Tenir Logistic LLP is the Tymlay deposit. Contract No. 2235 dated 22.12.2006 for the exploration of titanium-magnetite ores.
-  - the contract territory of TENIR-LOGISTIC LLP is the Tymlay ore field deposit. Contract No. 2552 dated 02.12.2006 for the exploration of iron, titanium, and related components.

## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance sheet stocks		Off balance
Titan	A+B+C1 – 21543 thous. t.;	C2 – 166,3 thous. t.	-
Iron	A+B+C1 – 226 100 thous. t.;	-	1800 thous. t.

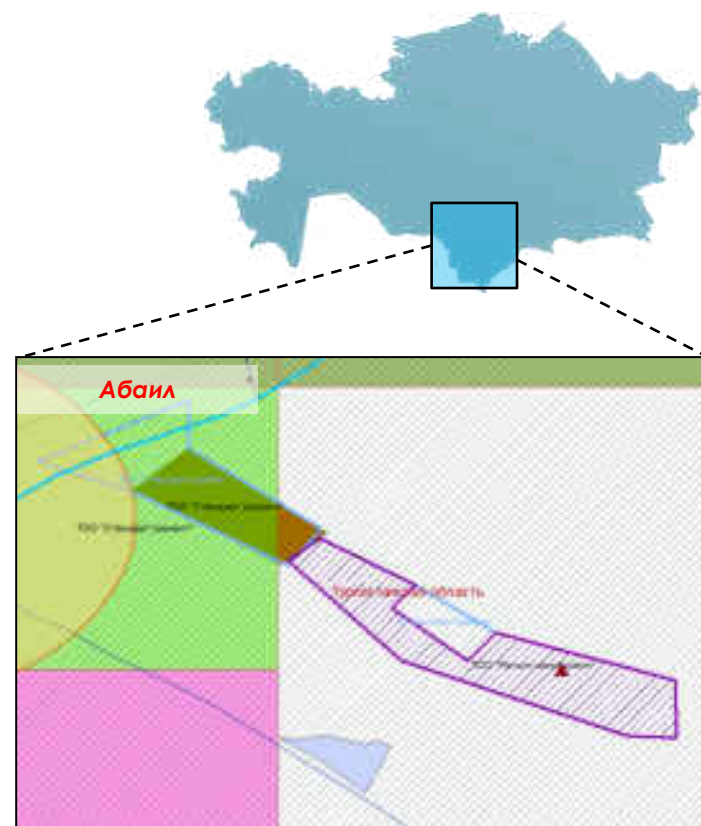
# ABAIL deposit in Turkestan region





**Location:** The Abail deposit is located in the Tulkubas district of South Kazakhstan region, 8 km northeast of the Abail railway station and 15 km northeast of the Tulkubas railway station.

**Brief geological description:** The deposit is located in the northwestern castle part of the Abail anticline. The rocks containing mineralization are represented by limestones of the Kokbulak formation of the Cambrian. The rocks are collected in large folds of the north-western direction. The deposit has developed a large number of crushing zones, crumpling, steep-falling faults, breaking ore pillars into separate blocks. There are 6 sections: Western, Transitional, Central, Intermediate, Eastern and Abail II. Two types of ores are distinguished at the deposit: primary and oxidized (up to a depth of 20-175 m). The primary ores composing the lower horizons of the deposit are divided into pistomesite-sideroplesite (industrial) and ankerite (poor non-industrial). In both types of ores, the main minerals are ankerite, siderite, quartz and pyrite are present in the form of impurities, less often calcite, dolomite, sericite, barite, chalcopryrite, chalcosine, single - arsenopyrite, galena, sphalerite. The primary ores contain (%): iron - 36.9, sulfur - 0.37 to 5.27, phosphorus - 0.022, arsenic to 0.23, manganese - 1, copper - 0.073, lead - 0.03, titanium - 0.3.

**Ferrum Construction LLP** Contract No. 5404 dated 10/22/2018 for the extraction of iron ores (Notification of the NAM of the Ministry of Foreign Affairs of the Republic of Kazakhstan on the early termination of the contract with ex. 04-2-18/4639-I dated 06/23/2022)



-  - Abail balance deposit
-  - withdrawn contract territory of Ferrum construction LLP Abail deposit. Contract No. 5404 dated 10/22/2018 for the extraction of iron ores

## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance sheet stocks		Off balance
Iron	A+B+C1 – 20 320,6 thous. t.	C2 – 7 936 thous. t.	8984 thous. t.




# The "Old" tailings dump of the Zyryanovsky lead mill in the East Kazakhstan region



**Location:** Administratively, it is located on the outskirts of Altai in the East Kazakhstan region.

**Brief geological description:** Tailings storage began from the moment of commissioning of the Zyryanovskaya concentrating plant from 1953 to 1968, where ores of the Zyryanovsko-Bukhtarma ore district were processed, as well as imported ores of the Zmeinogorsky, Loktevsky districts (Altai Krai), from numerous mines and deposits of the Balkhash district. TMO is a solid phase of waste from the Zyryanov processing plant. The section of the tailings dump is represented by a pulp of stale tails, with alternating silty-sandy deposits of yellow and yellow-brown color; clay-sandy deposits of purple-gray color; sandy deposits of yellow color; sandy-silty deposits, clays, loams of violet-gray color and buried deposits of the soil-vegetation layer. The gold content in TMO is up to 0.3 g/t and high (more than 6 g/t) in the watered part of the sands. The maximum dimensions of the tailings dump are 1250 x 1500 m. TMO is represented by two technological types of ores: oxidized and sulfide ores in mixed form. The content of oxidized forms of minerals reaches: copper 0.44%, lead 1.54-1.57%, zinc 1.60-3.86%. The tailings are aluminosilicate (SiO<sub>2</sub> – 63.7%, CaO – 3.9%, Fe<sub>2</sub>O<sub>3</sub> – 8.2%, MgO – 23.2%, BaO – 1.2%, Al<sub>2</sub>O<sub>3</sub> – 5.2%) with a high silica content. Ore minerals in the tailings are represented by sulfides (pyrite, marcasite, sphalerite, chalcopryrite and its oxidation products). Non-metallic minerals are represented by: quartz, chlorites, carbonates, rarely feldspar, zoisite, epidote., biotite, muscovite



-  - balance deposit "Old" tailings storage
-  - the withdrawn contract territory of Gold Mining Corp LLP is the tailings enrichment deposit of the Zyryanovsky lead combine. Contract No. 1850 dated 16.09.2005 for the exploration of gold and silver.
-  - contract territory of Kazzinc LLP field Revnyushinskaya square. Contract No. 5342 dated 03.07.2018 for exploration of polymetallic ores and precious metals.

Approved by the Protocol of the State Customs Committee of the Republic of Kazakhstan No. 2413-22-U dated 02/15/2022.

Useful component	Balance sheet stocks		Off balance
Gold	A+B+C1 – 42 253 kg	-	-
Silver	A+B+C1 – 242,1 t	-	-
Zinc	-	C2 - 215,7 thous. t.	-
Copper	-	C2 - 25,602 thous. t.	-
Lead	-	C2 - 51,204 thous. t.	-

# TMO deposits of **Miyaly** in the Abai region



**Location:** they are located in the Zharma district of the East Kazakhstan region. The nearest settlements are the settlement of the former Oktyabrsky mine, located 18 km to the southwest.

**Brief geological description:** The deposit was discovered in 1949 while searching for gold in the basin of the Muzdy-Bulak and Karaozek rivers. The deposit is located in the central part of the Zaisan folded system in the northeastern part of the West Kalba structural formation zone. Exploration was carried out by mining: ditches, pits on the surface. In fact, the exploration network was 20-20x20-30m. Ore zones are gold-bearing areas of tectonically disturbed and hydrothermally altered terrigenous-sedimentary and volcanogenic-sedimentary rocks. With sufficient completeness, the material and mineral composition of the Miyaly deposit TMOs are presented in the following varieties: stony fragments of sedimentary rocks – 20%, stony fragments of vein gold-bearing quartz – 15%, clay – 10%, sand fraction - 55%. Among the loose mass there are sulfide grains of chalcopyrite, pyrite, galena and single signs of sphalerite, chalcocine and covellin.



## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance sheet stocks		Off balance
Gold	A+B+C1 – 285,8 kg	C2 – 563,39 kg	-



- the contract territory of KazGold Minerals LLP is the Kalba site deposit. Contract No. 4543R dated 09.02.2015 for gold exploration.



- the withdrawn contract territory of Samir-Altyn LLP, the TMO deposit of the Miyaly deposit. Contract No. 5283 dated 20.04.2018 for gold mining.



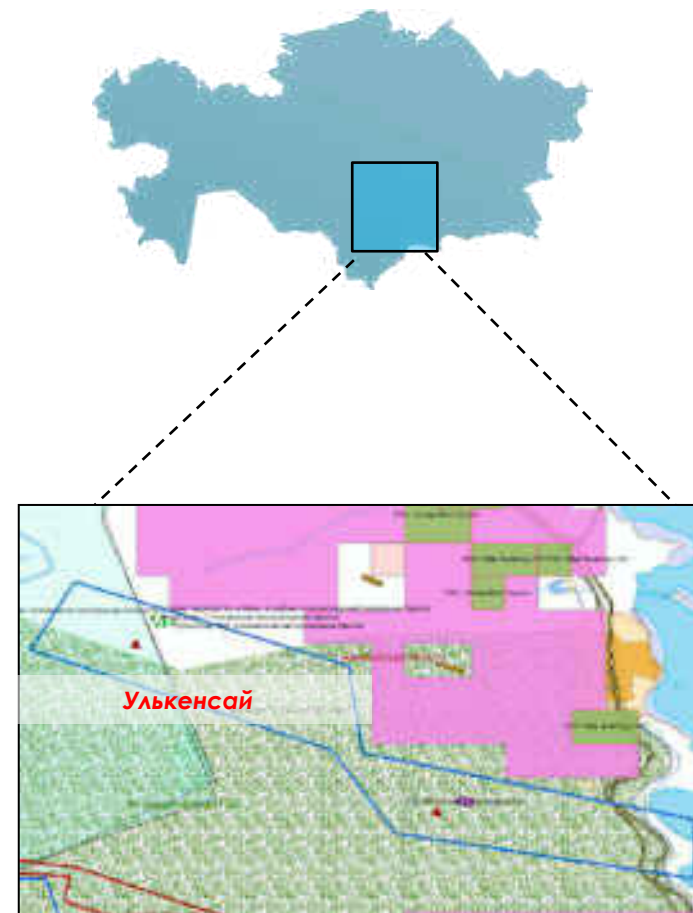
- Miyaly balance deposit

# Ulkensai deposit in Zhambyl region



**Location:** it is located in the Moyinkum district of Zhambyl region, 15 km from the railway station Chiganak.

**Brief geological description:** The deposit was discovered in 1970-1972 during prospecting operations within the Burultas-Chiganak baritone-bearing area. The deposit is located in the middle part of the Burultas-Chiganak baritone-bearing area, located in the southeastern part of the Sarytum tectonic zone. The shape of the ore bodies is lenticular with slight compression along the strike and fall, turning into a formation in sections. The distribution of barite in ore bodies is uneven. Ores are not prone to soaking, swelling, do not melt during prolonged storage, do not ignite and are not gas-bearing. According to the material composition of the ore deposits belong to the proper-barite type. According to the content of the main components of barite and quartz in the deposit, the following are distinguished: substantially-barite and quartz-barite. The quantitative ratio of these ore grades at the deposit is 49.4% and 50.6%, respectively. Minor minerals are: chalcedony, pyrite, hematite, limonite, psilomelan, chlorite, kaolinite. According to the types of textures, barite ores are divided into massive, brackish and striped.



## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance sheet stocks		Off-balance sheet stocks
Barit	A+B+C1 – 306,9 thous. t.	-	318,5 thous. t.



- the withdrawn contract territory of Vostochnoye Ore Management LLP, the Ulkensai deposit (the Western and Eastern sections). Contract No. 5582 dated 04.07.2019 for the extraction of barite ores.



- contract territory of Vostochnoye RU, LLP, KATEP, AOOT Chiganakskoye field. Contract No. 88D dated 06.06.2003 for the extraction of barite.



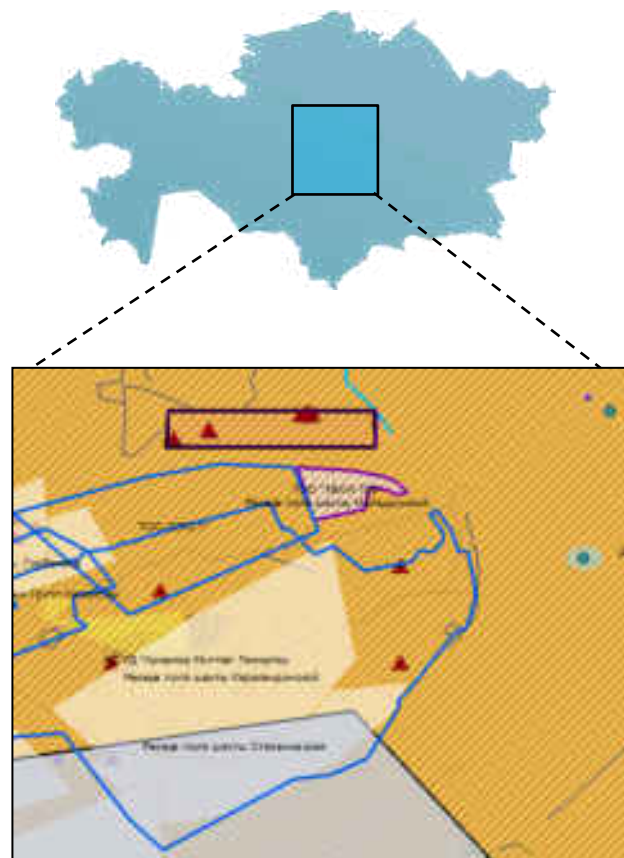
- Ulkensai balance deposit

# Decommissioned coal reserves of the **K12 liquid reservoir.sh. Maikudukskaya** in the Karaganda region






**Location:** Administratively, the site is located on the lands of the Oktyabrsky district of Karaganda.

**Brief geological description:** The site of geological exploration on the area of decommissioned reserves of the former mine "Maikudukskaya" is located within the eastern part of the Industrial site of the Karaganda coal basin. Exploration work on the site in question began in 1931 almost simultaneously with the start of operational work on it and continued intermittently until 2006. Carboniferous, Neogene and Quaternary age deposits were developed on the area of the estimated site. According to facies features and coal content, the Karaganda formation is divided into three sub-formations: lower, middle and upper. The K12 formation, with a capacity of 6 - 8 m, lies above the K10 formation. The separating stratum is represented by sandstones, the roof of the K10 formation and the soil of the K12 formation are mudstones. The thickness of the dividing layer in the west is 30-35 m, in the east 12 -18 m. A thick layer (70-100 m.) lies above the K12 formation, separating it from the K13 formation, composed of sandstones with pebbles, siltstones, mudstones; it contains one or two coal layers (K121, K122) that do not have working capacity and are ubiquitous. The coal-bearing thickness on the estimated area lies at angles of 10-25°. Coal of the K12 stone formation, in accordance with GOST 25543-88, belongs to the CSN brand. The K12 layer is divided into two layers: upper and lower. The quality of coal varies by layers. The lower one refers to coking, the upper one to energy. The ash content of coal packs varies within the lower layer – 15.1-16.9%, upper – 20.3-29.8%, commercial coal of the upper layer -15.8% - 21.9%, lower – 21.2-35.6%. The yield of volatile upper layer is 25.1-29.8%, lower - 26.5-33.5%. The sulfur content of the upper layer is 0.53, the lower one is 0.35-0.54%, the phosphorus of the upper layer is 0.-034%, the lower one is 0-0.20%. The thickness of the plastic layer of the upper layer is 10 mm, the lower layer is 6-13 mm. The enrichment capacity of K12 formation coals is very difficult.



Extract from the state inventory accounting as of 01.01.2022			
Deposit (site)	Balance reserves, thousand tons		Off-balance sheet reserves, thousand tons
decommissioned coal reserves of the K12 formation of the liquidated Maikuduk mine	A+B+C1 – 1155	-	-

-  - the balance deposit of the Maikuduk mine
-  - revoked contract territory of LLP "TBKI-700" field field of the former mine Maikudukskaya plast K12. Contract 4239 DATED 16.07.2013 for the extraction of coal.
-  - - contract territory of JSC UD "ArcelorMittal Temirtau" field field of the mine named after. Kostenko. Contract No. 1283 dated 05.12.1997 for the extraction of coal, methane

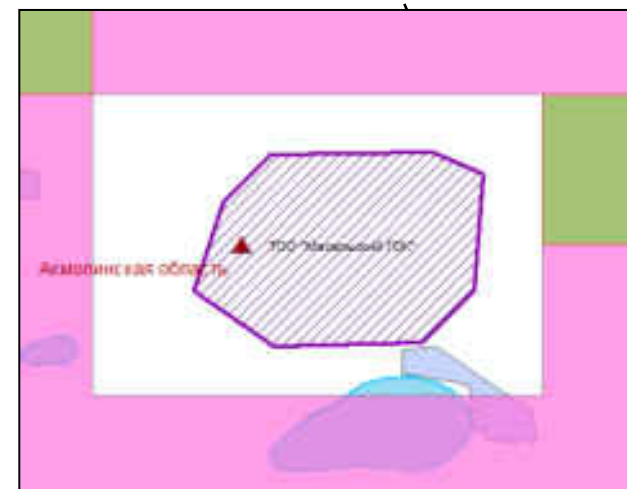
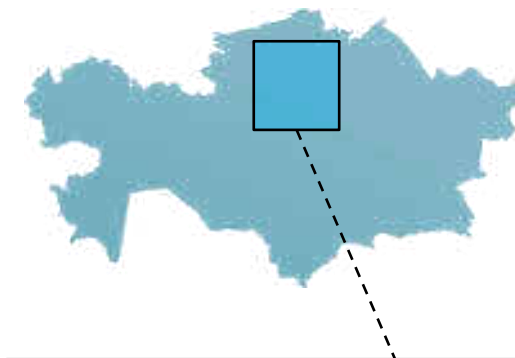




# Masalskoye field in Akmola region



**Location:** Administratively, the Masal iron ore deposit is located in the Zharkainsky district of the Akmola region, south of the city of Yesil, 16 km east of the Priishimskaya railway station.

**Brief geological description:** The Masalskoye deposit is located in the southern part of the Zharkainagach anticlinorium and is confined to an array of gabbro-pyroxenite composition. The geological structure of the deposit involves ultrabasic rocks of the Ordovician, a metamorphosed complex of volcanogenic sedimentary rocks and intrusive formations of medium-basic composition; mineralization is associated with ultrabasic rocks. According to volcanogenic-sedimentary and intrusive rocks, the weathering crust of areal and linear types, with a thickness of up to 45 m, is developed. Mineralization has been traced by wells to a depth of 500 m and is predicted to depths of 1000 m. The ore-containing array has the shape of a rod. The distribution of the useful component in the ore massif is uneven, against the general background of the iron content at the level of 10-17% there are isolated lenses and small bodies with an iron content of 30-40%. The main component of the ores of the deposit is iron. A very insignificant non-industrial content of the associated components of titanium and vanadium in the concentrate does not impair the quality of the commercial product.



-  - the Masalskoye balance deposit
-  - the withdrawn contract territory of Masalsky GOK LLP, the Masalskoye field. Contract No. 2519 dated 24.12.2007 for the extraction of iron ores.

Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance reserves, thousand tons		Off-balance sheet reserves, thousand tons
	A+B+C1	C2	
Iron ores	528 464	200 691,7	36 795

# Olympic deposit in Zhambyl region






**Location:** It is located 100 km east of the Kiyakhty railway station of the Zhambyl region. Opened in 1980.

**Brief geological description :** Mineralization is localized in the cracks of cleavage, separation, fracture zones associated with the plicative complications of the Akmanglai anticline. Ore veins and veins tend to endo- and exocontact sills of diorite-diabase porphyrites.

Near-ore changes of rocks are represented by chloritization, sericitization, weak calcification; sulfide mineralization is represented by pyrite, arsenopyrite, galena, chalcopyrite, pale ores, sphalerite. The thickness of ore bodies ranges from 0.3-0.5 m to 1.5-3.0 m. There are inflations and clamps, the wedging of ore bodies is gradual. All ore bodies have developed an oxidation zone to a depth of 8-15 m. Mineral composition of ores: gold, pyrite, arsenopyrite, galena, pale ores, chalcopyrite, pyrrhotite, sphalerite, hematite, leucosene, scheelite, molybdenum, cassiterite, vanadinite. Non-metallic minerals are represented by quartz, sericite, chlorite, barite, carbonate, epidote, tourmaline, sphene, albite. Ores are interspersed, veined-interspersed, nest-interspersed. Gold is free, lumpy, spongy in quartz microcracks and in the intergranular space; less often-fine-scaled dendrites on films of iron hydroxides. Rarely – abundant dispersed inclusions in arsenopyrite. Ores of gold-quartz type, low-arsenic (arsenic up to 0.05-0.14%).



Extract from the state inventory accounting as of 01.01.2022			
Useful component	Balance reserves, kg		Off-balance sheet reserves, kg
	A+B+C1	-	
Gold	A+B+C1 – 186,8	-	-

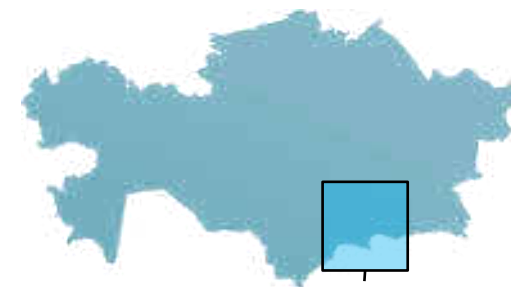
-  - Olympic balance deposit
-  - the revoked contract territory of "RUDGORMASH" LLP is the Mynaral deposit. Contract No. 148D dated 08.12.1997 for gold mining.
-  - - the contract territory of Mineral Resources LLP is the Mynaralskoye ore field deposit. Contract No. 1822 dated 01.09.2005 for the exploration of gold and silver.

# Akkuduk deposits in Zhambyl region



**Location:** The Karakuduk iron ore deposit is located in the Shusky district of Zhambyl region, 10 km southwest of the Shokpar railway station.

**Brief geological description:** The Akkuduk skarnovo-magnetite deposit is confined to the northeastern flank of the Shu-Kendyktas geoblock, in the zone of influence of the South Kerbulak deep fault. 9 main ore bodies and more than 2 dozen small ore bodies and lenses have been identified. Relatively larger bodies 1 and 2 have a length of 640 m and are traced to depths of about 200 m with an average power of 6.7 and 7.0 m, respectively. In total, these bodies account for more than 70% of the estimated ore reserves of the deposit. The Akkuduk deposit is composed of rocky, complexly dislocated metamorphic rocks (crystalline shales, gneiss, skarns containing magnetite, calcifires), fractured, with the presence of crushing zones. The occurrence of ore bodies is consistent with the host rocks. Tremolite-magnetite ores predominate among the skarns. The content of iron oxides in ores ranges from 52.15 to 89.82%. The conducted studies of the iron ores of the deposit have established that in order to obtain a high-quality iron ore concentrate with an iron content of at least 62%, wet magnetic enrichment of this ore with fine grinding of it to a fineness class of -0.071 mm (60%) is required. Copper and zinc are also present in the ores at the level of 0.18 and 0.32%, which are relatively evenly distributed between the magnetic and non-magnetic fractions. The share of reserves of category C1 from the total in categories C1+ C2 is: ore – 14.1%, iron – 13.8%.



- revoked contract territory of Zhambyl Minerals LLP Akkuduk site deposit. Contract No. 5497 dated 19.03.2019 for exploration of iron-bearing ores.

## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance sheet stocks		Off-balance sheet stocks
	A+B+C1	C2	
Iron ores, thousand tons	1 055,3	6 446,4	-

# Ushalyk deposit in Zhambyl region



**Location:** It is located in the Moyinkum district of Zhambyl region, 140 km southeast of the village of Akbakai and 30 km northwest of the Khantau railway station.

**Brief geological description:** The deposit was discovered in 1984 . When conducting general searches. Geologically, the deposit is located in the axial part of the Zhair-Naiman suture zone, composed of dislocated volcanogenic-terrigenous rocks of the Ashchisui formation of the Lower Cambrian age. The deposit consists of three steeply falling ore deposits, of which ore bodies No. 1, 1a, 2 carry industrial tools. The largest is ore body No. 1, which is a steeply falling deposit to the southwest, splitting to the northwest and to a depth of two branches. The deposit is confined to a fault zone with flexure-like kinks. Oxidized and primary types of ore are isolated at the deposit. According to industrial grades, the ore belongs to sulfide. The hydrogeological conditions of the deposit are complex. According to the conditions of development, the deposit belongs to a complex type – a deposit composed of rocky, partially dislocated rocks with the presence of crushing zones.



- balance deposit Ushalyk



- the withdrawn contract territory of KhanTauMinerals LLP, the deposit site is New. Contract No. 4927 dated 04.07.2016 for exploration of gold, silver and platinum group metals, diamonds and other precious stones, copper and polymetals

## Extract from the state inventory accounting as of 01.01.2022

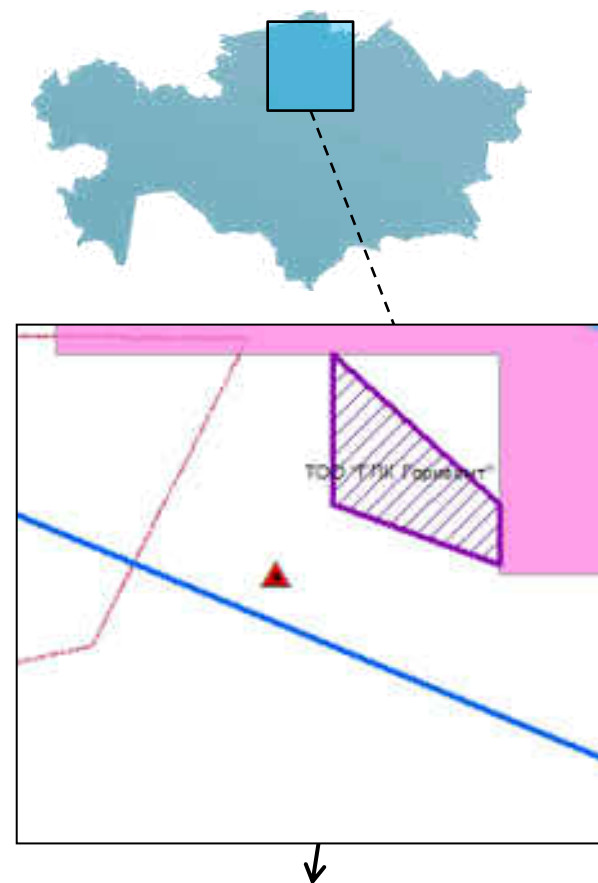
Useful component	Balance sheet stocks		Off-balance sheet stocks
	A+B+C1	C2	
Gold, kg	823,1	532,1	-




# Berezovskoye field in Akmola region



**Location:** The Berezovskoye gold - polymetallic ore deposit is located in the Zerendinsky district of the Akmola region, 30 km north of Kokshetau.

**Brief geological description :** The deposit was revealed initially as an ore occurrence during geological survey of 1:50,000 scale in 1967- 1971. The deposit is confined to volcanites of Ordovician age, stretched along the Alekseevskaya fault zone of the sublatitudinal strike, and is localized mainly in the weathering crust, forming two ore zones. The distribution of useful components in the zones is very uneven. Mesozoic weathering crusts are widely used in the field area, their average thickness is 30.0 - 35.0 m (from 5.0 m to 40.0 m), the thickness of linear weathering crusts reaches 120.0 m. The weathering crusts are overlain by red-brown clays with a thickness of 0.5 m on the eastern flank of the deposit, up to 7.0-9.0 m on the western flank. The thickness of modern sandy loams, loams and soil-vegetation layer is 0.5 - 0.8 m. 90% of the deposit consists of mixed-oxidized ore, gold is ultrafine and finely dispersed. The engineering and geological conditions of the Berezovsky deposit belong to the medium category of complexity with the development of semi-horizontal and rocky rocks weakened by fracturing, poorly watered, overlain by connected rocks of unstressed capacity. The shallow occurrence of ore bodies allows open-pit mining operations to be carried out for the most part without the use of drilling and blasting operations and without special measures to strengthen the sides of the quarry with a depth of up to 105 m. The slope angle of the sides of the quarry up to 30-35 m will be 45°, below – 38°. The radioactivity of rocks ranges from 10 to 30 microns / hour. The ores of the deposit are not explosive, the formation of gases is not expected.



-  - Berezovskoye balance deposit
-  - the withdrawn contract territory of GPC Horizon LLP Berezovskoye field. Contract No. 2720 of 2720 dated 21.07.2008 for gold exploration.
-  - contract territory of Altai Geo LLP " Kokshetau area deposit. Contract No. 5249 dated 06.02.2018 for exploration of gold, copper, polymetallic ores.

## Extract from the state inventory accounting as of 01.01.2022

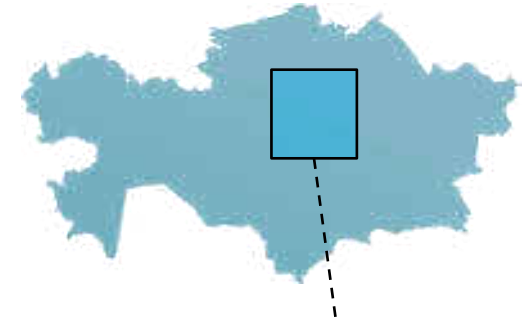
Useful component	Balance sheet stocks		Off-balance sheet stocks
	A+B+C1	C2	
Gold, kg	221,04	64,81	-



# Tesiktas deposit in Karaganda region



**Location:** The Tesiktas Ore deposit in Karaganda region field is located in the Aktogay district of the Karaganda region, 30 km from the Aschiozek station of the Balkhash-Aktogay railway line.

**Brief geological description:** Three ore zones have been identified within the deposit, successively stretching from the southeast to the northwest at a distance of about 5 km. Industrial copper contents and reserves are established in the first and third ore zones. The thickness of ore bodies is variable, ranging from the first meters to 35 m. Along the strike, ore bodies 1, 2 and 3 are the largest, branch, have clamps and inflations. Intrusive formations of Precambrian and Lower Paleozoic age, as well as subvolcanic bodies and dikes of the Upper Ordovician are distinguished on the area of the ore field. The ore bodies of the deposit have a complex morphology and are represented by lenticular and vein-like deposits with sharply variable thickness, with extremely uneven copper content. Hydrogeological conditions are simple. Mining conditions of mining deposits of medium complexity. Ores and overburden rocks are represented by volcanic formations and products of their changes in the oxidation zone. The thickness of the overburden, represented by the host rocks and the oxidized ore of the oxidation zone, varies from 30 to 38 m, averaging 35 m. The technological properties of sulfide ores have been studied. The technological properties of oxidized ores have not been practically studied.



-  - balance sheet **Tesiktas** deposit
-  - the withdrawn contract territory of LLP "Uly-tau K" Tesiktas deposit. Contract No. 2940 dated 29.12.2008 for copper mining.

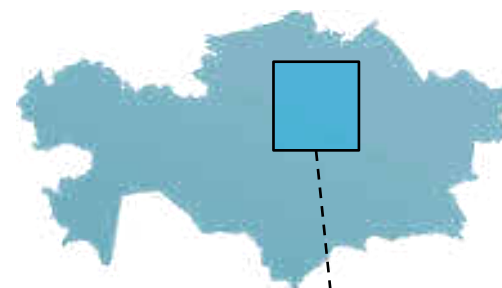
Extract from the state inventory accounting as of 01.01.2022			
Useful component	Balance sheet stocks		Off-balance sheet stocks
	A+B+C1	C2	
Copper, thousand tons	A+B+C1 – 119,2	C2 - 22,5	27,6

# Zhaksylyk deposit in Akmola region



**Location:** The deposit is located in the Zharkainsky district of Akmola region, 3-5 km from the Zhaksy station.

**Brief geological description:** Structurally and tectonically, the deposit is confined to the northeastern wing of the Zharkainagach anticlinorium. Two structural tiers are distinguished on the studied area, differing in the degree of dislocation and metamorphism. The formation consists of red, brownish-red, lilac-brown, grayish-brown, gray and greenish-gray clay-siliceous, siliceous shales, sometimes hematitized, quartzites, jasper, jasper, rarely quartz and quartz-feldspar sandstones. Ore layers are separated, separate interlayers and lenticular bodies, with a thickness of 0.1 to 1.0 m, rarely up to 2-3m. The ore bodies involved in the total folding of the rocks of the deposit are not formed by a single powerful layer, but consist of numerous low-power layers of ores forming an ore-bearing bundle. The ores of the deposit are mainly represented by psilomelan and brownite, in approximately equal quantities, but more often, brownite slightly predominates (up to 1%, in single samples - up to 8-9%). Also, iron oxides, pyrite, chalcopryrite are noted. Iron-containing minerals are represented by a group of hematite, which forms a fine pigmentation of rock sections with varying degrees of saturation. The impurities in these ores consist mainly of chalcedony, quartz, clay minerals and hydrosilicates. Hydrogeological conditions of development are considered as simple. Ore formations of the deposit are represented by oxide minerals: , brownite, psilomelan, pyrolusite and hausmannite. Non-metallic - quartz, chalcedony and clay minerals. The peculiarity of manganese ores of the deposit is the low content of harmful impurities: phosphorus, sulfur and non-ferrous metals. Associated useful components in the ores have not been established.



- The revoked contract territory of TKS-Zhaksylyk LLP is the Zhaksylyk field site. Contract No. 4131 dated 31.07.2012 for exploration of manganese ores;
- The revoked contract territory of TKS-Zhaksylyk LLP is the Zhaksylyk field site. Contract No. 4131 dated 31.07.2012 for manganese exploration; отозванная контрактная территория LLP "TKS-Zhaksylyk" location Zhaksylyk. Contract No. 5510 dated 22.04.2019 for the extraction of manganese;

## Выписка из государственного учета запасов по состоянию на 01.01.2022 г.

Полезный компонент	Балансовые запасы		Забалансовые запасы
	A+B+C1	C2	
Марганцевые руды, тыс.т	A+B+C1 – 1786,3	C2-414,3	537,6

# Adayevskoye field in Kostanay region

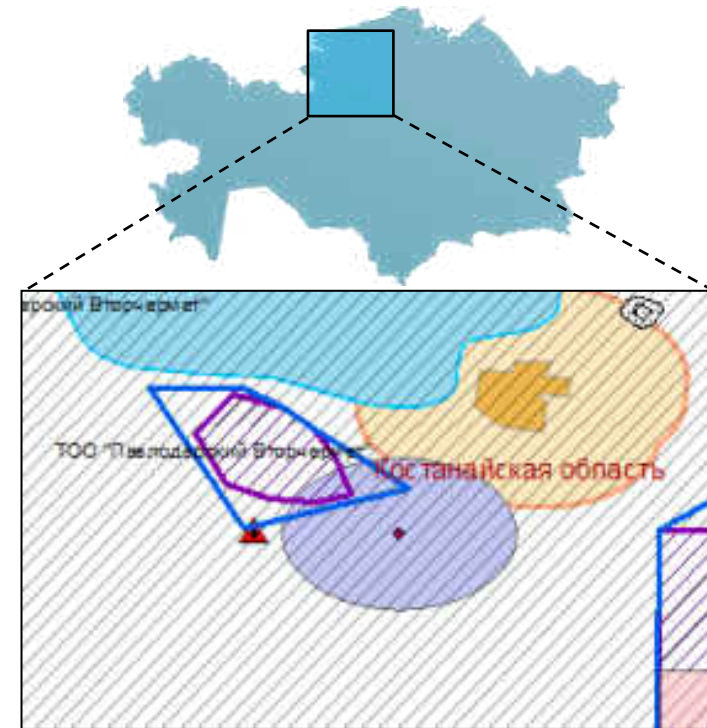





**Location:** The Adayevskoye field is located in the Kostanay region, 72 km south-east of the city of Dzhetysay.

**Краткая геологическая характеристика:** The magnetite ore deposit consists of three separated sections: Northern, Central and Southern, spaced from each other from 5 to 12 km. The northern section is located 2 km south of the village of Adayevka, the Central section is 6-7 km away, and the Southern section is 8-9 km south of the Central One.

Scanning, and then mineralization occurred in the most favorable places of the section, that is, along the planes of separation of the host rocks, in areas of wedging or narrowing of the horizons of carbonate rocks. An important role in the placement of mineralization was played by the bodies of andesite porphyrites, which served as a screen during the formation of ores.

In total, 5 deposits are allocated within the site: Eastern, Main, Central, Western and Southern. They have a northeastern strike and a western fall at angles from 40° to 10°. The ore deposits of the Central section of the deposit represent a complex of contact-metasomatic and metamorphic formations consisting of magnetites, mineralized and oreless skarns, marbled limestones and their tuffs. The shape of the bodies is plastic and lenticular. Ore bodies are represented by massive and interspersed magnetite ores interspersed with sulfides, the latter sometimes form independent bodies with a capacity of up to 3.5 m. Ore deposits are characterized by an unstable composition of ores.



-  - balance deposit Adayevskoye
-  - revoked contract territory of Pavlodar Vtorchermet LLP Adayevskoye field. Contract No. 2451 dated 08/21/2007 for the extraction of iron.
-  - contract territory of Alakolsky Redmet LLP Adaikolskaya ploshchad deposit. Contract No. 4713 dated 29.10.2015 for exploration of non-ferrous and precious metals

Extract from the state inventory accounting as of 01.01.2022			
Useful component	A+B+C1	C2	Off balance
Iron ores	48251,1	33634,8	27962,7

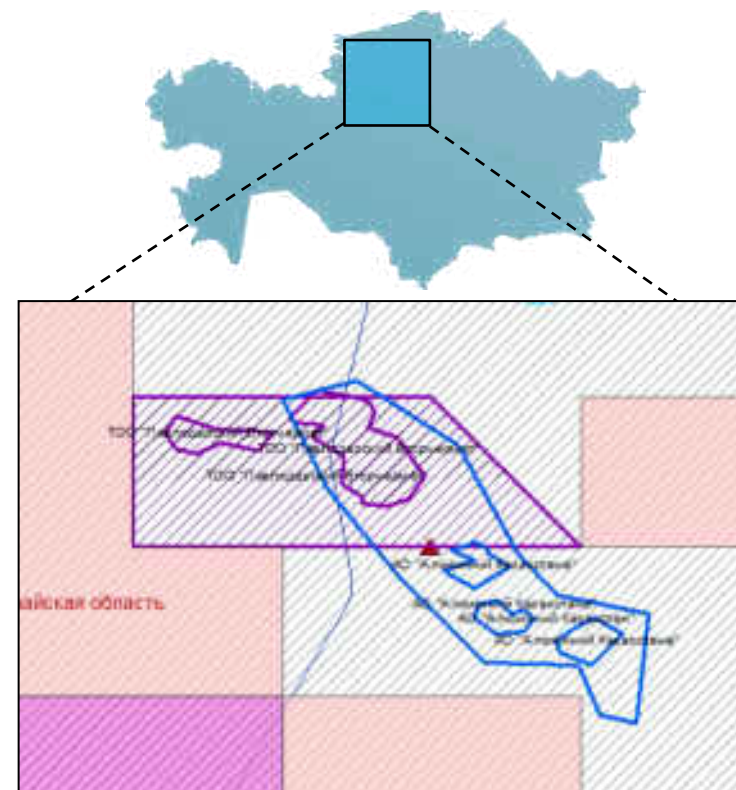





# Kropotkinskoye field in Kostanay region



**Location:** Kovyktinskoye field is located on the territory of Taranovsky district of Kostanay region, 30 km south-east of Lisakovsk.

**Brief geological description:** The deposit was identified based on the results of a detailed aeromagnetic survey and subsequent verification of the anomaly in 1959-1960. In 1975-1976, prospecting and evaluation works were carried out at the field, and in 1978-1980, preliminary exploration was carried out. At the stage of preliminary exploration, based on the results obtained, exploration work was discontinued due to their inexpediency. Subsequently, the deposit was not studied. The deposit consists of Western and Eastern sections.



-  - Kapustinskoye balance deposit
-  - recalled contract LLP "Pavlodar Vtorchermet" Kropotkinskoye field. Contract No. 2170 dated 10.10.2006 for iron mining
-  - the contract territory of Aluminum Kazakhstan JSC is the Belinskoye field. Contract No. 187 dated 15.04.2015 for the extraction of bauxite.

## Extract from the state inventory accounting as of 01.01.2022

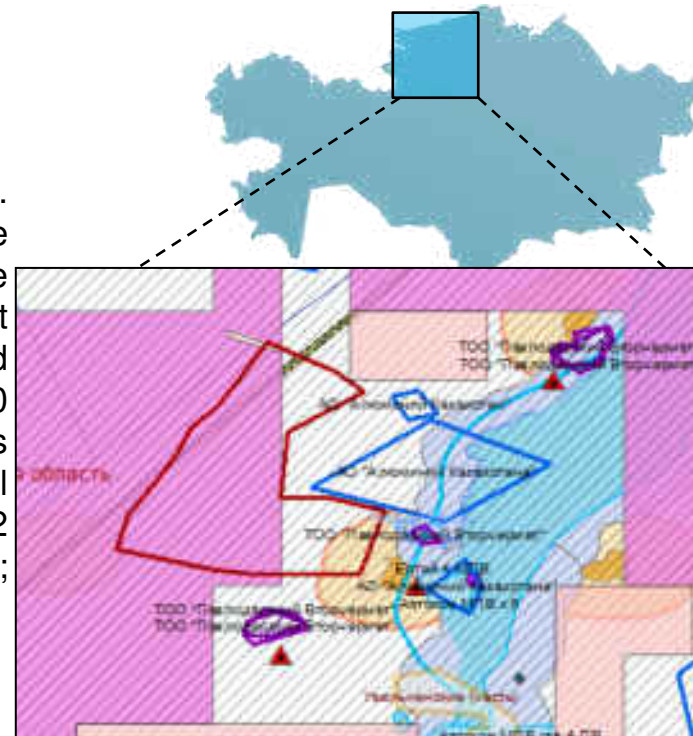
Useful component	Balance sheets		Off balance
Iron	A+B+C1-17324,0 тыс. т.	C2 – 16403,0 thous. т.	29314,2 thous. т.

# Altayskoye field in Kostanay region






**Location:** 17 km south of the railway station Tobol, Kostanay region.

**Brief geological description :** The Eltayskoye deposit is timed to the Kokshetau uplift. It is represented by the areal weathering crust on microclinized plagiogranites of the third phase of the Altybai granitoid massif of the Zerendinsky complex. The productive thickness is kaolin with an admixture of feldspars of Triassic-Jurassic age. The deposit consists of 4 industrial deposits. The useful thickness is represented by normal and alkaline kaolins. On an area of 3.5 km<sup>2</sup>, kaolins have been studied to a depth of 100 m. The average capacity of overburden rocks is 8 m. Overburden and useful thickness are practically waterless. Reserves were calculated separately for alkaline and normal kaolin by the method of geological blocks. Chemical composition of raw kaolin, %: SiO<sub>2</sub> – 70.8; TiO<sub>2</sub> – 0.3; Al<sub>2</sub>O<sub>3</sub> – 18.6; Fe<sub>2</sub>O<sub>3</sub> – 0.35; CaO – 0.15; MgO – 0.15; Na<sub>2</sub>O -0.2; K<sub>2</sub>O – 4.3; pp – 5.1. Kaolin is alkaline.

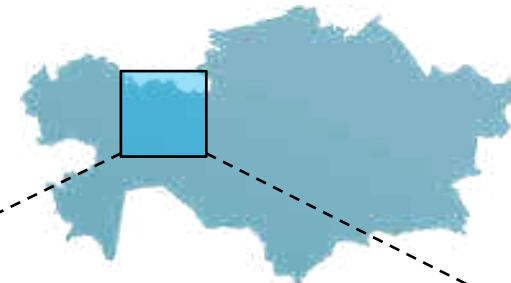


## Extract from the state inventory accounting as of 01.01.2022

Useful component †	Balance sheet stocks		Off balance
Altai II			
Iron ores	A+B+C1 – 7407,1 thous. t.	C2 – 5146,1 thous. t.	6162,7 thous. t.
Altai III			
Iron ores		C2-10842,0 thous. t.	9182,0 thous. t.

-  -- Altai balance deposit
-  - revoked contract territory of Pavlodar Vtorchermet LLP, Yeltayskoye field I,II,III. Contract No. 2171 dated 10.10.2006 for the exploration of iron.
-  - the contract territory of Aluminum Kazakhstan JSC is the Ayatskoye field. Contract No. 557D dated 15.04.2015 for the extraction of bauxite.


# Taldyk-Aschisayskoye field in Aktobe region




**Location:** it is located in Chelkarsky district of Aktobe region, 75 km northeast of the railway station Berchogur.

**Brief geological description:** The deposit is associated with continental bauxite-bearing deposits of Apt-alba, performing karst and erosion-karst depressions in dolomites and limestones of the lower and middle carboniferous. These rocks perform the axial part of the Balkymbai graben-syncline. The width of the strip of carbonate rocks in the area of the deposit is 2.5 km. The deepest and longest karst depressions are located in limestones and dolomites in the contact zone with effusive sedimentary rocks. On the latter, red-colored weathering crusts of ochre-kaolin composition with a capacity of up to 40 m are developed. 7 formation-shaped ore deposits have been established at the deposit. Their length along the stretch is up to 900 m, width up to 200 m, capacity from 0.1 to 54 m (average 12.63 m). Bauxites are represented by clay, loose leached and stony differences. The structure of the ores is leguminous and latent leguminous. Mineral composition of bauxite: gibbsite (53-90%), kaolinite, iron hydroxides. As mineralogical finds, there are galloisite, hydrosilicates, calcite, quartz, zircon, tourmaline, rutile, sphene, ilmenite, leucosene, garnet, anatase, epidote, hornblende, apatite, distene, magnetite, martite. differences.



 -- Taldyk-Aschisayskoye balance deposit

 -- the withdrawn contract territory of Didar LLP is the Taldyk-Aschisayskoye field. Contract No. 1380 K dated 30.06.1999 for exploration of bauxite.

## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance sheet stocks	
	Bauxite	A+B+C1 – 7171,3 thous. t.

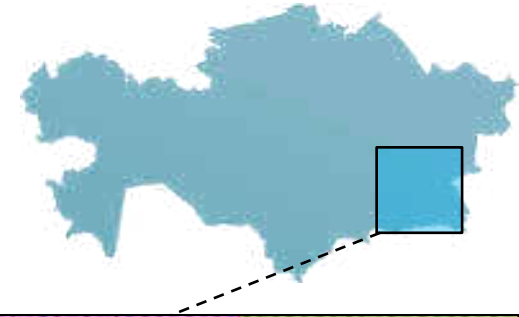
# The Predgorny Ketmen deposit in the Almaty region





**Location :** It is located in the Rayymbek and Uygur districts of Almaty region and on the southern slopes of the Ketmen ridge and covers the lower foothill part of the Ketmen River basin (right and left sides) and the area of its confluence with the Shalkudysu River.

**Brief geological description :** According to mineragenic zoning, the rivers are included in the South Ketmen gold-bearing area. The mountain zone of the Ketmen River valley rises 300-500 m above the foothill part, and 500-1000 m above the valley of the Shalkudysu River. The absolute marks of the peaks of the Ketmen range from 2800 to 3450 m .

The alluvial formations of all cycles of accumulation of the Ketmen River Valley are dominated by sands and boulder-pebble deposits, as well as washed Neogene clays with crushed stone, sand and pebbles. The thickness of these deposits ranges from 2-3 m to 4-5 m, and on high above-floodplain terraces (second and third) varies up to 20-25 m (within the modern valley). At the same time, the alluvium capacity increases not only downstream of the river, but also during the transition from lower young floodplain terraces to higher ones. The raft for all gold-bearing boulder-pebble deposits are dense red-brown clays of the Neogene.



-  - Ketmen balance deposit
-  - The withdrawn contract territory of Tau Ketmen LLP is the Predgorny Ketmen deposit. Contract No. 4134 dated 31.07.2012 for gold exploration;
- the withdrawn contract territory of Altyn Ketmen LLP, the Shalkodesu River Basin deposit. Contract No. 4992 dated 10/25/2016 for exploration of gold-bearing ores.

## Extract from the state inventory accounting as of 01.01.2022

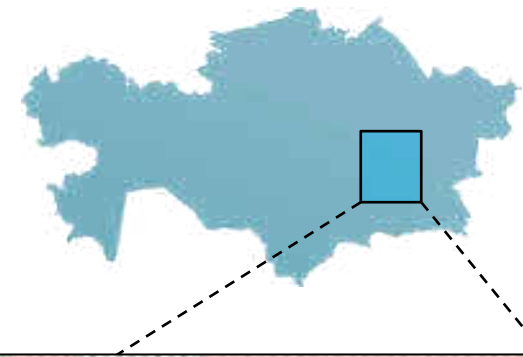
Useful component	Balance sheet stocks	
	C2	off - balance sheet
gold	329,05кг	90,29

# Dalabai deposit in the Jetysui region



**Location:** it is located on the territory of the Koksus district of Almaty region, 18 km northwest of the district center of po.Saryozek.

**Brief geological description:** The Dalabai deposit was discovered in 1957 during a geological survey. Based on the results of geological exploration in 1987-1993, an operational calculation of reserves of rich gold-bearing quartz (flux) ores and poor ores for heap leaching was carried out. Upon completion of exploration, the reserves were transferred to the Quartz gold mining enterprise (ZDP) for development. At the same time, the CCZ MGION RK (Protocol No. 41-PP of January 5, 1994) reserves were accepted on the state balance sheet as an increase. From 1994 to 1998, the reserves of flux ore were completely extracted and processed by ZDP Quartz, the reserves of poor gold-bearing ore were partially extracted and processed by heap leaching. In 2008-2009, Zhetysumining LLP carried out geological exploration at the deposit with the involvement of contractors, according to the results of which this calculation of reserves for Southern ore zones IV and V was carried out as of 01.06.2009 and a preliminary geological and economic assessment was carried out. Conditions have been developed on the basis of the variant inventory calculation and comparison of technical and economic indicators (TEP).



- balance Dalabai deposit



- the withdrawn contract territory of Zhetysugeomining LLP is the Dalabai deposit. Contract No. 2618 dated 23.04.2008 for gold mining.

## Extract from the state inventory accounting as of 01.01.2022

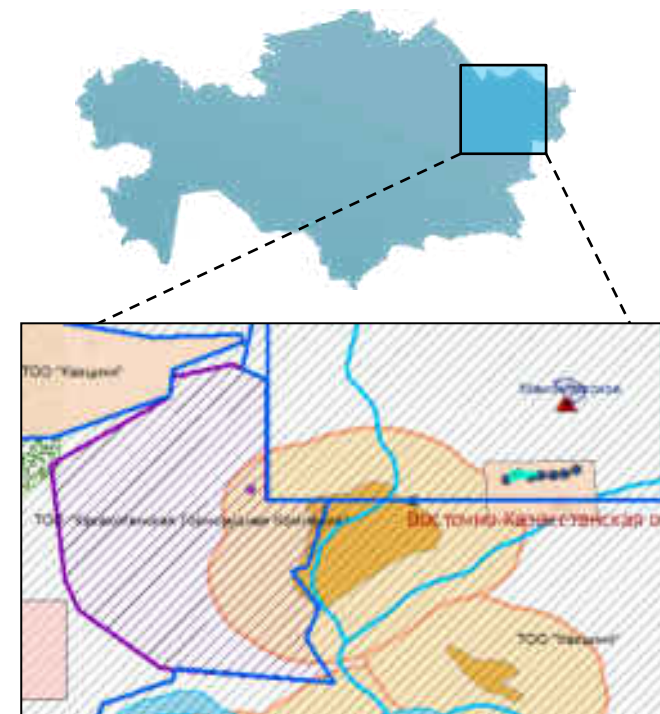
Useful component	Balance sheet stocks	Off balance
Gold	A+B+C1 – 836,05 kg	64,79 kg




# Putintsevskoye field in East Kazakhstan region



**Location:** It is located in the Altai (Zyryanovsky) district of the East Kazakhstan region, 14 km north of Altai (Zyryanovsk).

**Brief geological description:** It is dated to the Maleevo-Putintsevskaya anticline in the northwestern part of the Revnyushinsky anticlinorium. The structure is complicated by numerous discontinuous disturbances and higher-order folds. The structure of the deposit involves calcareous-clay shales, sandstones, lavas of rhyolitic composition and their tuffs of the Maslyansk formation of the Middle Devonian; thin-layered siltstones, sandstones, carbonaceous-clay shales of the Khamir formation of the Upper Devonian. Intrusive formations are represented by interplastic deposits of diabases and gabbro and secant dikes of diorite and diabase porphyrites of Upper Devonian age. The ore-bearing zone of intensive rock shale was traced laterally at 600 m with a width of 80-100 m. Seven industrial ore bodies have been identified within its boundaries, accompanied by a series of small lensing deposits. The length of the ore bodies along the strike is 60-250 m, the capacity is 0.5–9.0 m. The strike of the deposits is northwest, the fall is steep (70-80°) to the southwest.



-  - the Putintsevskoye balance deposit
-  - revoked contract territory of Kazakhstan Mining Company LLP Putintsevskoye field. Contract No. 5365 dated 24.08.2018 for the extraction of polymetals.
-  - contract territory of Kazzinc LLP field Revnyushinskaya square. Contract No. 5342 dated 03.07.2018 for exploration of polymetallic ores and precious metals.

## Extract from the state inventory accounting as of 01.01.2022

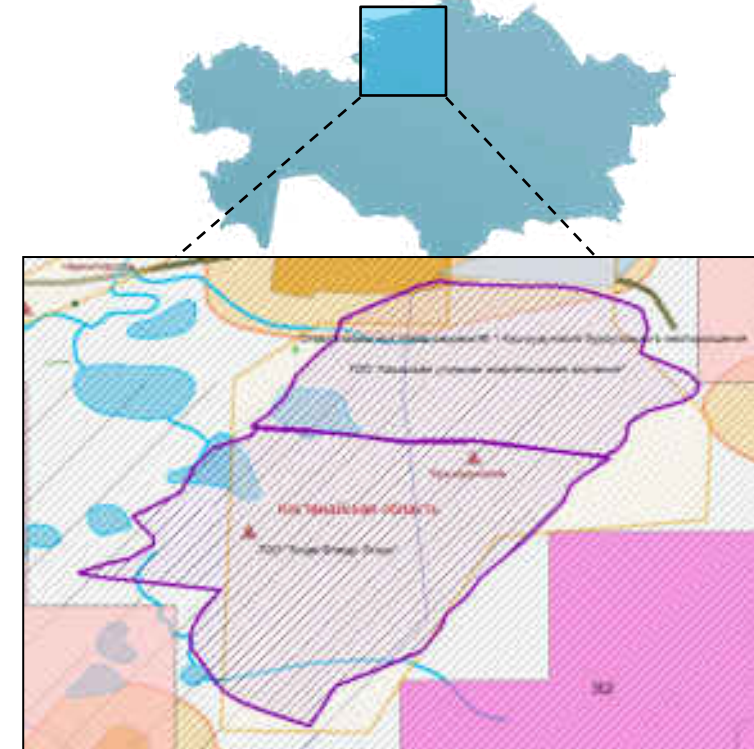
Useful component	Balance sheet stocks		Off balance
	A+B+C1	C2	
Copper	13,6 тыс. т.		2,7 тыс. т.
Lead	17,5 тыс. т.		0,7 тыс. т.
Zinc	25,5 тыс. т.		1,1 тыс. т.
Gold	388,0 кг		94,0 кг


# Kushmurunskoye field in Kostanay region




**Location:** : 5 plots Auliekolsky district, south of the lake.Kushmurun, 40 km from the village of Auliekol; the northern part of the village in the area of the Kushmurun station intersects the railway

**Brief geological description:** The deposit is confined to a depression in the fendment rocks made by Jurassic coal-bearing deposits. The length of the depression is 20 km, width 4-5 km, depth about 500 m. The main productive strata of the deposit is the Kushmurun formation with a capacity of 110-270 m . Coal - bearing sediments are overlain by Cretaceous and Cenozoic formations with a thickness of 30-120 m . The coal-bearing deposits are folded into the brachysynclinal fold of the SV strike, complicated by tectonic disturbances. The occurrence of rocks is flat with angles of 3-50, rarely 100. In the zones of tectonic disturbances, there is a crumpling and fragmentation of rocks with steep angles of incidence (600). 28 conditioned and 6 substandard formations were identified (34 in total): in the Chernihiv formation - 5, Kushmurunskaya - 19, Duzbayskaya - 10. Oil shale was found in the formations: NM, Pr1, Pr1a, 8 and 8a. In the NM formation, it composes the upper and lower parts, in Pr1 it consists of 2-3 packs of sapropel coal and oil shale, in the remaining layers it composes the upper part or is completely composed of oil shale. 6 aquifers have been established, the most watered are Paleogene flanks and Upper Cretaceous sands. The total water flow will be 1300 cubic meters/hour. The development depth is 500 m, the development method is open. The stripping capacity is 60-195 m, the stripping coefficient is 4.5 cubic meters/t.



 - balance field Kushmurunskoye

 - The recalled contract territory of Kazakh Coal Energy Company LLP is the Kushmurunskoye field. Contract No. 4185 dated 28.08.2015 for the extraction of brown coal. The recalled contract territory of Torgai Energy Group LLP is the Kushmurunskoye field. Contract No. 4333 dated 09/19/2016 for the extraction of brown coal.

## Extract from the state inventory accounting as of 01.01.2022

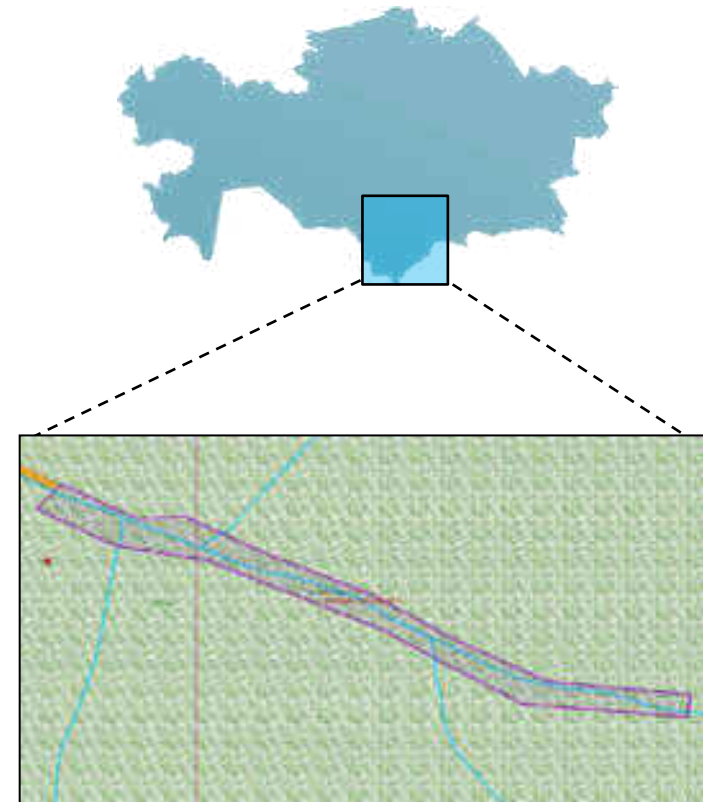
component	Balance reserves, thousand tons		Off-balance sheet reserves, thousand tons
coal	A+B+C1 – 2636205,8		94101



# Karakystak deposits in Zhambyl region



**Location:** The deposit is located in Lugovsky and Merkensky districts of Zhambyl region, 30 km west-northwest of the village of Granitogorsk and 22 km southwest of the village of Oital.

**Brief geological description:** The placer of the valley type, of Holocene age, is confined to the valley of the Karakystak River within the Kyrgyz anticlinorium (Fig. 61). The length of the Karakystak valley is 20 km, the transverse profile is trough-shaped in the lower part of the river and V-shaped in the upper part. The sides are high, steep. The slope of the valley is 36 m by 1 km. The alluvium thickness in the modern floodplain is up to 28 m. Terraces (5 levels) preserved fragmentary. The placer is confined to the floodplain of the middle part of the valley with a length of 6.4 km. Possible sources of gold are a zone of quartered tuffs near contact with a granosienite dike, scarred zones made of magnetite bodies and quartz veins. Alluvial deposits are composed of boulder-gravel-pebble formations. Peat and sand are identical in composition. There is no clay fraction in the sands. The fraction content of 200 mm reaches 35%. The raft is composed of fractured tuffs of acid composition of the Middle Devonian, granites and diorites. Two sections are allocated within the placer: the first is floodplain, 2000 m long, 20-60 m wide, containing 23% of the total gold reserves, the second is talweg, 400 m long, 5-80 m wide, contains 77% of the total gold reserves. Goldenrods have a lamellar, lumpy, well-rounded shape. Their sizes range from 0.5 to 3.0 mm. The average gold content in the placer is 1.1 g/m<sup>3</sup>.



-  -- Kara kystyk balance deposit
-  - the withdrawn contract territory of JSC "SEC Taraz" is the Karakystak deposit. Contract No. 5046 dated 20.02.2017 for the extraction of placer gold.

## Extract from the state inventory accounting as of 01.01.2022

Component	Balance reserves, thousand tons
GOLD	A+B+C1 – 503 kg

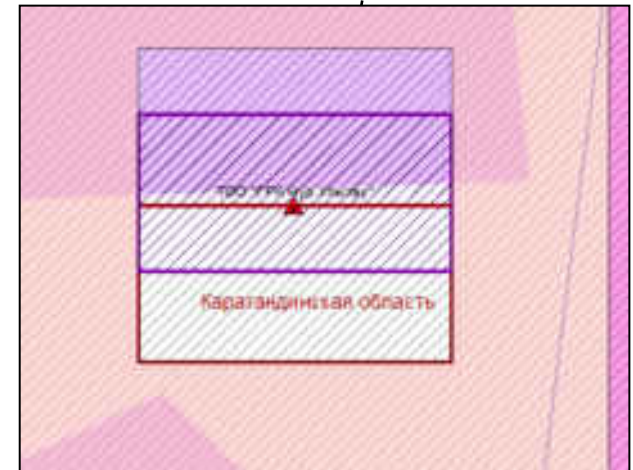
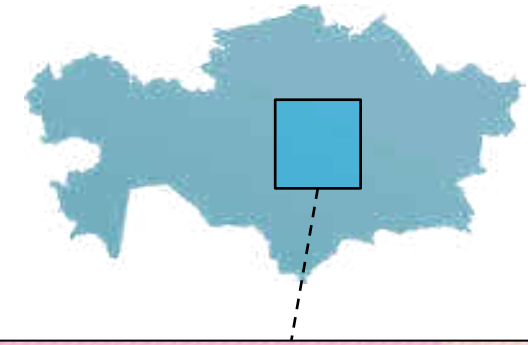





# Kaskyrkazgan deposit in the Karaganda region



**Location:** The copper and molybdenum deposit of the Kaskyrkazgan Group is located 30-40 km northeast of Balkhash and 20-30 km from the Konrad mine.

**Brief geological description:** Famene deposits and granitoids of various ages and compositions participate in the geological structure of the deposit. Basically, these are granites, granite-porphyry, granodiorite-porphyry. Ore-bearing plutons are often exposed over large areas, have a multiphase structure and a relatively deep erosion section. They belong to the Balkhash and Kaldyrmin complexes and have a two- and three-phase structure. Copper-molybdenum mineralization is veined and interspersed. Ore stockwork has a complex internal structure, which is expressed in the fact that, along with evenly dispersed mineralization, zones of increased fracturing with more intensive hydrothermal processing (mainly by quenching) and, accordingly, with an increase in the concentration of copper and molybdenum are distinguished within it. The length of the stockwork is up to 800 m, the power is up to 330 m. according to the composition of the veins, they are divided into quartz-sulfide, quartz-syracite-sulfide and sulfide. Their thickness is usually 1-3 mm, rarely 2-5 cm, the length does not exceed several meters. The average copper content at the Kaskyrkazgan site is 0.32%, the molybdenum content is 0.018, 0.012 and 0.017%, respectively. Sometimes the molybdenum content rises to 0.15%. The ratio of molybdenum to copper varies from 1:19 to 1:25. Tungsten was found in significant quantities. In addition, silver (1.8g/t), selenium (2.6g/t) are present. Compared with other copper-porphyry deposits, this group is characterized by an increased content of molybdenum and tungsten.



-  - Kaskyrkazgan balance deposit
-  - the withdrawn contract territory of GRK Nur Ulytau LLP, the Kaskyrkazgan deposit. Contract No. 5541 dated 06.06.2019 for copper exploration.
-  - objects put up for auction in 2017

Extract from the state inventory accounting as of 01.01.2022

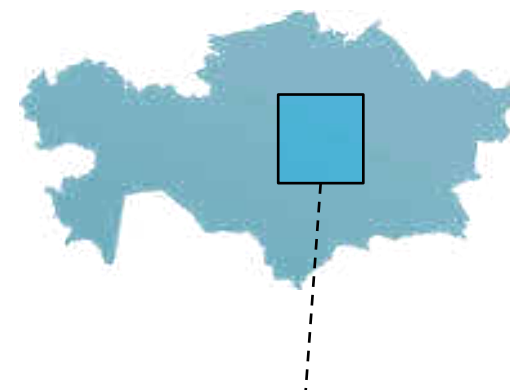
component	Balance reserves, thousand tons		Off-balance sheet stocks
Copper		C2-133,1	
molybdenum		C2-3,696	

# Dolinskaya deposit in the Karaganda region



**Location:** the deposit is located in the Karaganda region of the Sherubainurinsky coal district

**Brief geological description:** The Dolinskaya mine field is a large brachiscladka of a meridional stretch of more than 7 kilometers in length and about 4 kilometers in width. The maximum immersion is 470 meters from the daytime surface to the coal seam D1. The coal bearing capacity of the mine field is associated with deposits of the Dolinsky formation of the middle carboniferous. Carboniferous deposits on the entire area of the work site are inconsistently overlapped by Cenozoic formations, represented by variegated clays of Neogene age with a thickness of 20-70 meters and quaternary alluvial sediments with a thickness of 8 to 12 meters. In the south of the site there are no Neogene clays and quaternary deposits lie directly on the productive thickness. The productive Dolinsky formation on the mine field is composed mainly of dark gray siltstones and mudstones with an abundance of plant residues. Sandstones are of subordinate importance. Occasionally there are gravelites. The coal seams of the Dolinsky formation are located in three separate groups. The lower (D1 - D5) and middle (D6 – D8) groups of strata are common in the Dolinskaya mine field; the upper group (D9 - D11) is absent as a result of continental sediment washout. Industrial significance in the area under consideration are coal seams D1, D2, D4, D5, which in terms of capacity belong to the group of thin (0.7 - 1.3 m). The D3 formation is thin with a capacity that meets the requirements of the conditions for off-balance sheet reserves, and therefore is completely excluded from the calculation of reserves. The D7 and D8 layers have a very limited distribution, besides they are worked up during the excavation of the underlying D6 formation.



## Extract from the state inventory accounting as of 01.01.2022

Useful component	Balance reserves, thousand tons		Off-balance sheet reserves, thousand tons
coal	A+B+C1 – 78719		17558



- balance deposit Dolinskaya mine



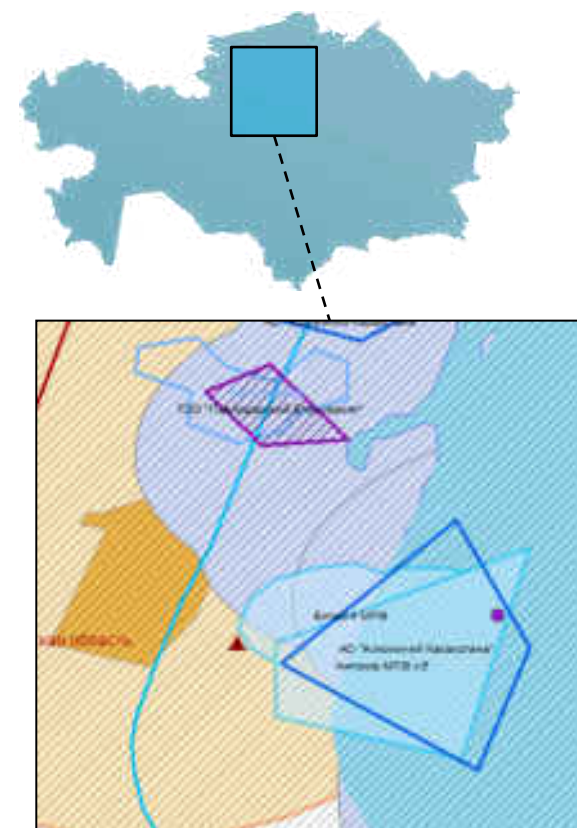
-the contract territory of the Dolinskaya Mine LLP is the formation D1-D6 deposit of the Dolinskaya mine, the mine field No. 42-42 bis by cutting the reserves of the mine field 5/15 Kar. ug. bas-na. Contract No. 3644-tpi dated 24.06.2010 for the extraction of coal.




# Altai-4 deposit in Kostanay region



**Location:** The Altai-4 deposit is located in the Taranovsky district of Kostanay region east of the railway station Tobol, 36 km southwest of Rudny.

**Brief geological description :** Prospecting and exploration works at the deposit were carried out in 1958-1967, according to their results, the reserves of C1+C2 martite ores were taken on balance by the protocol of the NTS of the North Kazakhstan Geological Department dated 24.01.1968. From 1966 to 1970, the deposit was worked out by the Sokolov-Sarbay mining and Processing Plant. In 1971, the remaining reserves in the amount of 1,455 thousand tons of category C2 with an iron content of 59.38 % were written off from the balance sheet by the protocol of the Central Committee of the Ministry of Agriculture of the USSR dated 01.04.1971 . No. 24, as falling into the flooding zone of the Karatomar reservoir and not profitable for further development. However, the reservoir did not reach the design marks and the area of the location of the decommissioned reserves of the martite ores of the Yeltai deposit and the 8th ore section of the Ayat bauxite deposit remained not flooded. In modern conditions of increased demand for iron ore raw materials and an increase in its cost, it becomes economically feasible to restore the written-off reserves of martite ores on the State Balance sheet for their subsequent processing. In 2008, the reserves were recalculated and re-approved.



-  -- Altai-4 balance deposit
-  -- revoked contract territory of Pavlodar Vtorchermet LLP Altayskoye field I,II,III. Contract No. 2171 dated 10.10.2006 for the exploration of iron.
-  - the contract territory of JSC "Aluminum of Kazakhstan" is the Ayatskoye, Belinskoye, Krasnooktyabrskoye deposits. Contract No. 557D dated 29.05.1998 for the extraction of bauxite.

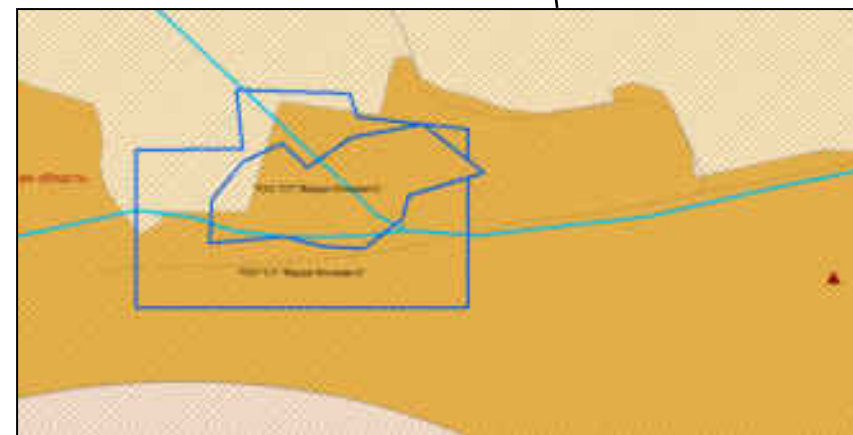
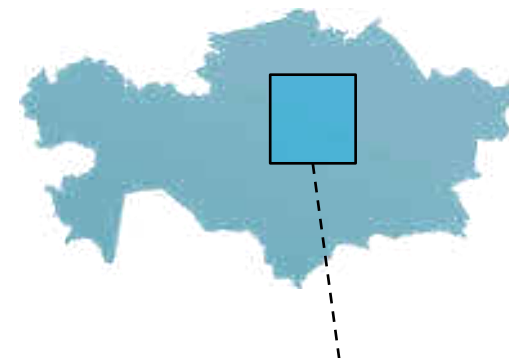
Extract from the state inventory accounting as of 01.01.2022		
Useful component	Balance reserves, thousand tons	
Iron ores	A+B+C1 – 1068,5	C2-430,8

# TMO deposit of the Karsakpai copper smelter in the Karaganda region




**Location:** it is located on the territory of the village of the same name in the Ulytau district of the Karaganda region, 120 km west of the city of Zhezkazgan.

**Brief geological description:** The TMO Dump is formed in one tier, its dimensions on the surface are 480 × 160-230 m, the area is 102574 m<sup>2</sup>, the capacity is from 8.0 m to 17.0 m. In the northern part of the dump there is a small quarry (S-941 m<sup>2</sup>) with a depth of 13.0 m, which reached the base of the deposit. The dump is underlain by alluvial deposits - sand, gravel, loam, sandy loam, ash slags, weathered bedrock. According to the results of exploration in 2010, two types of slags were identified at the dump, sharply differing in copper content and physico-mechanical properties: vitreous slags of various colors with a copper content of 0.24-1.7%, constituting 99.8% of the volume of TMO; porous slags, represented by weakly expanded rich ore with a copper content of 4.21-6.27%, comprising 0.2% of the volume TMO and locally occurring. The bulk of slags and other rocks are medium-sized formations of 5-15 cm in size, interspersed with small fragments of the same composition, formed in the period from 1930 to 1977 (before the shutdown of the plant). According to the complexity of the geological structure, TMOS are assigned to the 2nd group of complexity. To study the material composition and technological properties, 2 technological samples weighing 206 and 166.9 kg were selected. In the T-1 sample of vitreous slags, the copper content is 0.57%, in the T-2 sample of porous slags – 4.52%. The samples are representative in terms of copper content.



Extract from the state inventory accounting as of 01.01.2022		
Useful component	Balance reserves, thousand tons	
Copper	A+B+C1-9,0	C2-6,1

 - Karsakpai Group balance deposit

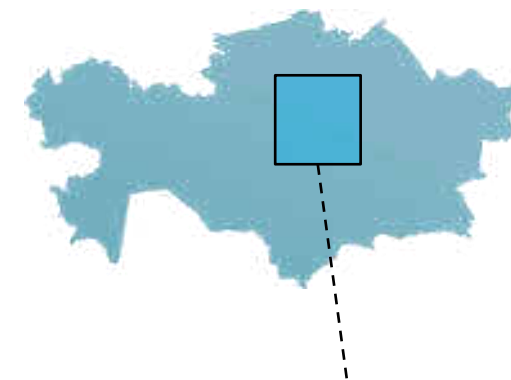
 - contract territories of LLP "JV "VardaMinerals" TMO deposit of the Karsakpai copper smelter. Contract No. 2967 dated 21.01.2009 for copper mining.

# Pervomayskoye field in the Karaganda region





**Location:** It is located in the Ualikhanov district of Akmola region, 20 km northeast of the Aksu mine.

**Brief geological description:** The deposit is located in the zone of influence of the meridional fault and through north-eastern disturbances among the terrigenous-volcanogenic rocks of the Ordovician. It is represented by vein mineralization of gold-quartz-sulfide composition. Quartz veins of meridional strike, 50-250 m long, up to 0.5 m thick. The composition of sulfides: pyrite, chalcopyrite, galena, sphalerite. The average gold content in spent ore bodies is 8.4 g/t. A linear-areal weathering crust with a capacity of 20-30 m, bearing a weight content of gold, is developed on the area of the deposit. The deposit deserves interest in cow gold.



Extract from the state inventory accounting as of 01.01.2022

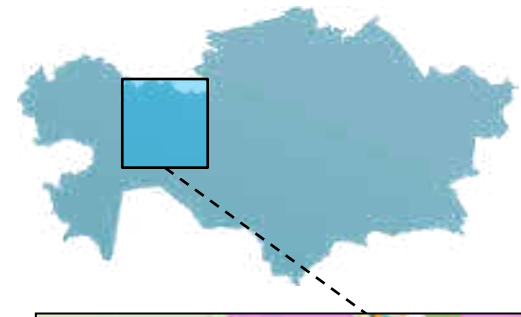
Useful component	Balance reserves, kg
gold	A+B+C1-731,55



-  - Pervomayskoye balance deposit
-  - the contract territory of Silk Road Saryarka Venture LLP is the Atbas site, Belinskoye, Krasnooktyabrskoye field. Contract No. 4618 dated 10.06.2015 for exploration of gold and copper-containing ores.

# Chilisayskoye field in Aktobe region



**Location:** The **Chilisayskoye** field is located in the Oktyabrsky district of the Aktobe region. In the center of the deposit area is the railway station of the phosphorite mine, located on 17 km of the Kandahach–Atyrau railway line crossing the deposit from northeast to southwest. The area is economically developed. The deposit is the largest in the Aktobe phosphorite-bearing basin. The useful thickness is represented by the horizon of concretionary phosphorites of Santon-Campanian age. In the roof there is a slab of nodular phosphorites. The maximum size of the nodules is 7 cm. The thickness of the formation varies from 0.4 to 1.6 m. The phosphorite formation is overlain by carbonate clays of the campana with a thickness of 0.35–7 m. The area of the phosphorite formation at the deposit is 1555 km<sup>2</sup>. In a significant part of it, the phosphorite layer reaches the daytime surface and is covered only by modern sandy loams or loams with a thickness of 0.0 to 1 m. The average content of P<sub>2</sub>O<sub>5</sub> in natural ore is 10.27%, in washed concentrate – 17.5%, in flotation concentrate – 23.8%. Phosphorite ore contains on average 9-11% P<sub>2</sub>O<sub>5</sub> and harmful impurities – Fe<sub>2</sub>O<sub>3</sub> (2-4%), Al<sub>2</sub>O<sub>3</sub> (2.5-4%), CO<sub>2</sub> (2-5%). Depending on the contents of harmful components, the following types of ores are distinguished: easily enriched weakly iron ores with a content of Fe<sub>2</sub>O<sub>3</sub> 13%, CO<sub>2</sub> 13.5%; ferruginous ores with an average content of Fe<sub>2</sub>O<sub>3</sub> 13.8%, carbonate and carbonate-ferruginous ores with a content of CO<sub>2</sub> 4.5-5.2%, Fe<sub>2</sub>O<sub>3</sub> 2.7-3.6%.



-  - Chilisayskoye balance deposit
-  - the withdrawn contract territory of Temir-Service LLP is the Chilisayskoye field. Contract No. 1872 dated 13.10.2005 for the extraction of phosphorites.

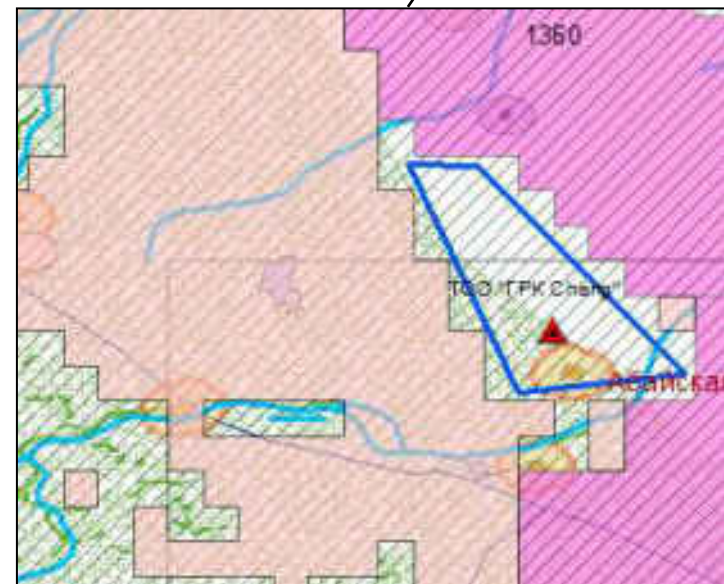
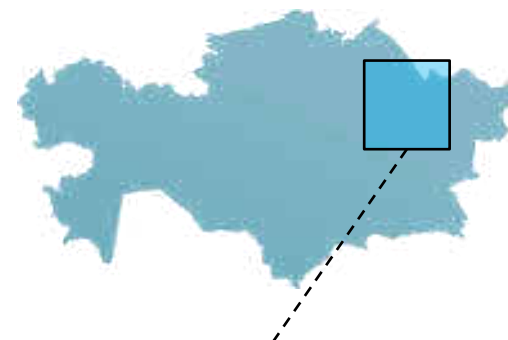
## Extract from the state inventory accounting as of 01.01.2022

Deposit (site)	Balance reserves thousand tons		Off-balance sheet reserves, thousand tons
	A+B+C1 – 89699,05	C2 – 16174	
Chilisai (phosphorites)	A+B+C1 – 89699,05	C2 – 16174	40495



# CHANG sites in the Abai region



**Location: Chang** it is located 20 km east of the village . Algabas, East Kazakhstan region. At the Chang drilling site with hydraulic core transport, peripheral parts of known zones overlain by loose sediments were studied. No noticeable increases in noble metals were found in them. The zones established from the surface in the so-called 7666 (5 g/t of gold) and 7283 (80 g/t) were traced by pneumatic smoking. Drilling data showed the absence of increased gold content. In the Chang-4 ore zone along quartz vein No. 43, high gold contents were established by pneumatic drilling. The length of the zone is 200 m, the capacity is 2.7 m, the average gold content is 5.4 g/t, up to a depth of 60 m, the resources of category P1 are 440.9 kg, up to a depth of 100 m - an additional 293.9 kg (category P2), a total of 734.8 kg.



Extract from the state inventory accounting as of 01.01.2022			
Deposit (site)	Balance reserves , thousand tons		Off-balance sheet reserves, thousand tons
Chang (gold)	A+B+C1 – 65,5	-	-

-  - Chang balance deposit
-  - contract territory of LLP "GRK Chang" deposit Site Chang. Contract No. 4167 dated 29.12.2012 for gold exploration.

# Kutyukhinskoye plots in Kostanay region



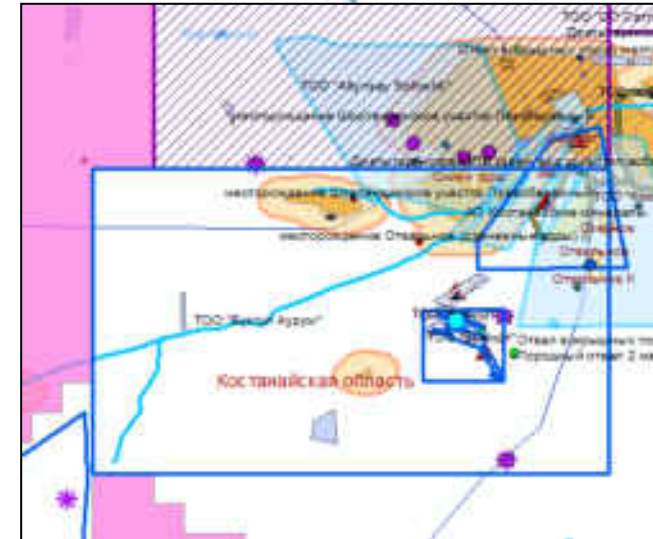
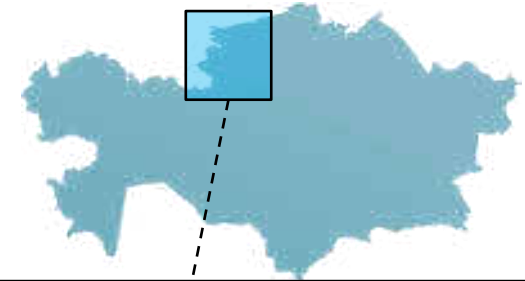
**Location:** The Kutyukhinsky deposit of gold-bearing ores is located in the Zhitikarinsky district of Kostanay region. The deposit is located 15 km southwest of the town of Zhitikar and 18 km north of the village of Milyutinka. 5 km to the east there is an asphalt road from the town of Zhitikara to the village of Milyutinka, connecting with the highway Zhitikara – Kostanay. The distance to the regional center is 255 km. The railway branch of Kostanay - Tobol – Zhitikara leads to the city of Zhitikara.




The climate of the district is sharply continental, hot and dry summers are replaced by cold and little snow in winter. Zhitikarinsky district belongs to the industrially developed. The following industries are leading: mining, production of building materials, light and food industries.

In 2003-2004, prospecting and evaluation works were carried out at the expense of the republican budget at the Kutyukhinsky and Kovylny sections of the deposit.

In 2007, when reviewing the materials for the justification of pilot (trial) operation, the reserves of oxidized ores of the Kutyukhinsky deposit within the geological branch of the Brandt LLP were clarified.

In 2007-2009, Brandt LLP conducted a detailed exploration of the Kutyukhinsky section of the deposit by sinking surface mine workings and drilling core wells within the oxidation zone.



-  - balance field Kutyukhinskoye
-  - revoked contract territory of Altynsay Soltistik LLP, Baymenovskaya Ploshchad deposit. Contract No. 4804 dated 16.03.2016 for gold exploration.
-  - The contract territory of "Brandt" LLP is the Kutyukhinskoye field. Contract No. 2181 dated 23.10.2006 for gold mining;
- The contract territory of Buzgul Aurum LLP is the Buzgul area deposit. Contract No. 1809 dated 08/16/2005 for gold exploration;
- The contract territory of Kostanay Minerals JSC is the Dzhetysayarskoye deposit. Contract No. 434D dated 09.12.1997 for the extraction of chrysotile asbestos, talc, nephritoids.

Extract from the state inventory accounting as of 01.01.2022			
Deposit (site)	Balance reserves , thousand tons		Off-balance sheet reserves, thousand tons
	A+B+C1	C2	
Kutyukhinskoe (gold)	-2221,99	395,30	252,90



# Borla plots in the Karaganda region



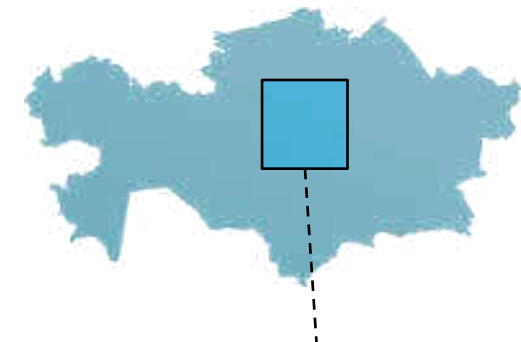
**Location:** Borly is a molybdenum-copper deposit located in the Karaganda region, 50 km from Balkhash and 30 km from the Balkhash-Konrad railway. It is considered as an auxiliary raw material base of the Balkhash Mining and Metallurgical Combine, instead of the retiring capacities of the Kounrad mine. The beginning of industrial development of the field is scheduled for 1983-1985.

The deposit was discovered in 1931, its exploration was conducted intermittently – in 1931-1934, 1950-1951, 1964-1967 and 1974-1982.

The results of the conducted studies indicate the relatively complex internal structure of ore bodies, the alternation of sites with conditioned and substandard mineralization, the development of linear zones of poor ores, the presence of waste rocks inside the ore bodies. According to the features of the geological structure and the nature of the distribution of mineralization, the deposit belongs to the 2nd group of Classification of reserves of deposits and forecast resources of solid minerals.




A forecast engineering-geological map and sections have been compiled: very unstable and unstable areas composed of weakened rocks of the weathering crust and zones of tectonic disturbances account for 12.4%.

The mining and technical conditions of the deposit are favorable for its open-pit development.



## Extract from the state inventory accounting as of 01.01.2022

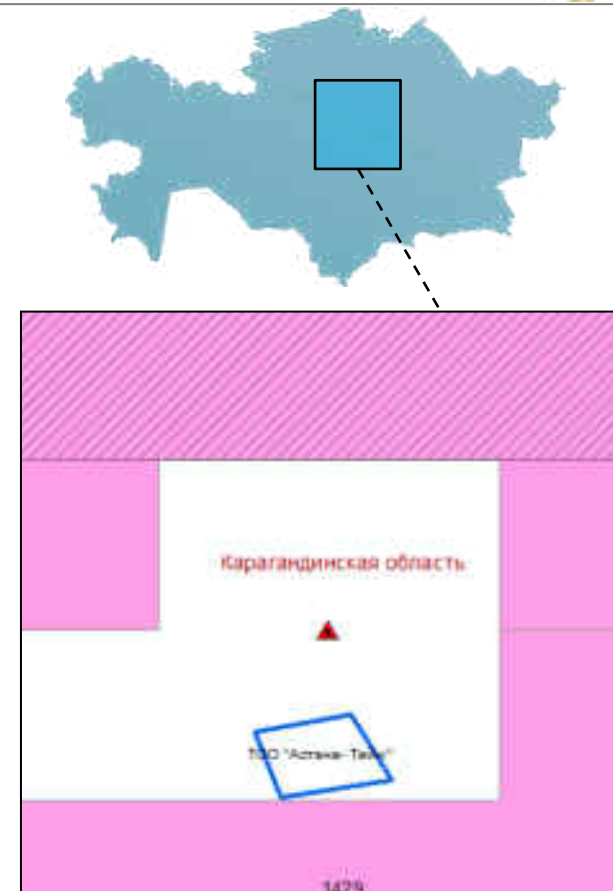
Deposit (site)	Balance sheet stocks		Off-balance sheet stocks
<b>Borly (gold) kg</b>	A+B+C1 – 1637	-	2084
<b>Borly (copper) thousand tons</b>	A+B+C1 – 310,7	C2 - 6,6	175,2
<b>Borly (silver) t</b>	A+B+C1 – 171,5	-	218,2
<b>Borly (molybdenum) t</b>	A+B+C1 – 4352,0	-	15052



-  - Borly balance deposit
-  - contract territory of Copper KZ-CA LLP Borly deposit. Contract No. 3709 dated 06.09.2010 for copper exploration
-  - the licensed territory of Copper KZ-CA LLP is the Borly deposit. License No. 51-ML dated 09/29/2022 for the extraction of TPI.

# Mystobe plots in the Karaganda region



**Location:** The Mystobe deposit is located in the immediate vicinity of the Almaty-Karaganda railway route, 530 km northwest (by road) of Almaty and 120 km west of Balkhash. It is confined to the junction zone of the Kyzylespin anticlinorium and the West Balkhash synclinorium. Early carboniferous volcanites of acid composition and middle carboniferous granitoids participate in the geological structure of the deposit. A sublatitudinal fault passes through the entire area of the ore field, with which the ore bodies of the submeridional and northeastern strike are spatially associated. In the fault zones, rocks are intensively modified and are accompanied by halos of calcification, chloritization, epidotization and carbonation. The ore bodies are confined to quartz-sericite metasomatites. In total, more than ten ore bodies have been identified at the deposit, represented by tourmaline-pyrite-quartz and sulfide-quartz veins. The former perform a system of intersecting submeridional and sublatitudinal cracks and, as a rule, are weakly gold-bearing. The latter form independent ore-bearing zones of submeridional orientation and complex morphology. Sections of veins with maximum power are replaced by pinches and zones of veining. Their length reaches the first hundreds of meters. With depth, steeply falling veins often flatten out to a horizontal occurrence. The composition of veins: pyrite, chalcopryite, molybdenum, galena, sphalerite, bismuthin, tetradimite. The main non-metallic minerals are quartz, carbonates and tourmaline. The mineral concentrate of gold is pyrite, to a lesser extent quartz II. The content of ore minerals is 1-3%. The gold content is 32.3 g/t, the trial value is 950-1000. The field has an intensively developed hypergenesis zone with a capacity of up to 10-20m. Limonite, goethite, malachite, azurite, chrysocolla, covellin, chalcosine, bismuthite and bismuth are widely represented (up to 20%) in it.



-  - Mystobe balance deposit
-  - the contract territory of Astana-Time LLP is the Mystobe deposit. Contract No. 5376 dated 03.09.2018 for gold mining.

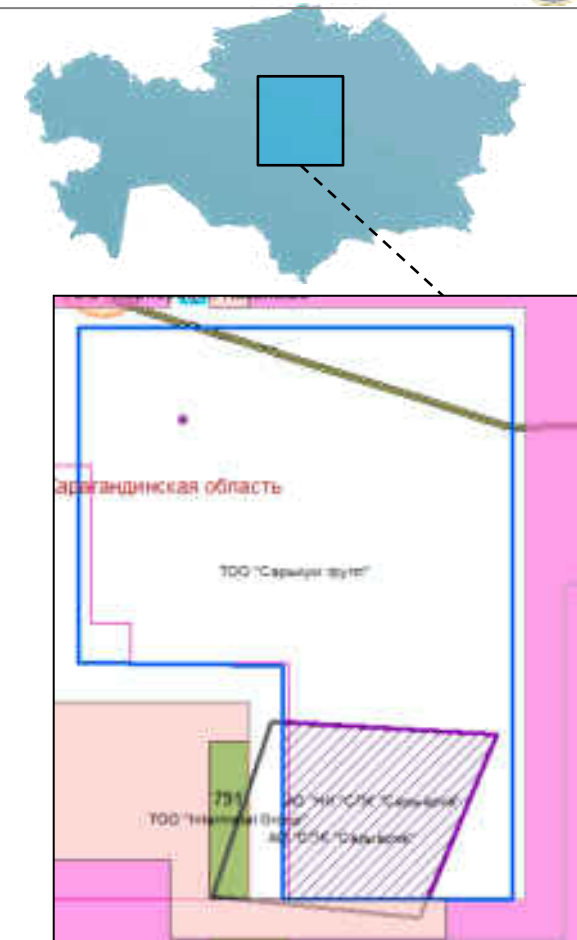
## Extract from the state inventory accounting as of 01.01.2022

Deposit (site)	Balance reserves , kg		Off-balance sheet reserves, kg
	A+B+C1	-	
Mystobe (gold)	808,7	-	246,5




# Sarykum plots in the Karaganda region



**Location:** The Sarykum deposit is located in the Aktogay district of the Karaganda region, 70 km west of Balkhash, 15 km from the Sarykum railway station. The geological structure of the deposit includes terrigenous-carbonate and amphibolite -shale rocks of the Upper Proterozoic age, as well as sedimentary rocks of the Cambrian, Ordovician, and Silurian. All these rocks are broken through by the granite intrusion of the Kyzylespinsky complex and diorites, granodiorites of younger complexes (Toparsky and Kokdombaksky). A common feature of the deposit is the gentle (10-20°) angles of fall of the layers in the southern and eastern parts of the mulda and steeper (30 - 70 °) in the northern part of the western side of the mulda. Structurally and tectonically, the deposit is a superimposed Jurassic graben of a wedge-shaped shape, elongated in a north-westerly direction. From the northeast and southwest, the graben is bounded by thrust faults that can be traced in Paleozoic and Mesozoic formations. The deposit is a large muld. The coal bearing capacity of the deposit is associated with deposits confined to the lower part of the Visei quarry of the lower carboniferous tier, with a capacity of 0.7 to 13.5 meters and a total capacity of 15 to 22.3 m. The hydrogeological conditions of the deposit area are directly dependent on its position relative to the valley of the Zhamshi River, as well as on the influence of the semi-desert climate of the region. The capacity of the aquifer in the northern part of the deposit is 0 – 6 m, in the sides of the valley (in the area of the projected quarry) 0 – 1 m, and in the central part of the valley of the Zhamshi River – up to 12.0 - 13.0 m. The water content varies widely from 0.03 to 2.4 l/s with a decrease in the level by 0.2 - 8.5 m. The aquifer is fed by infiltration of winter –spring precipitation and heavy rains in the summer – autumn periods. The spring rise reaches 0.05 - 0.15 m . Water is used to water pastures. Mining and hydrogeological operating conditions of the deposit are favorable for its open-pit mining.



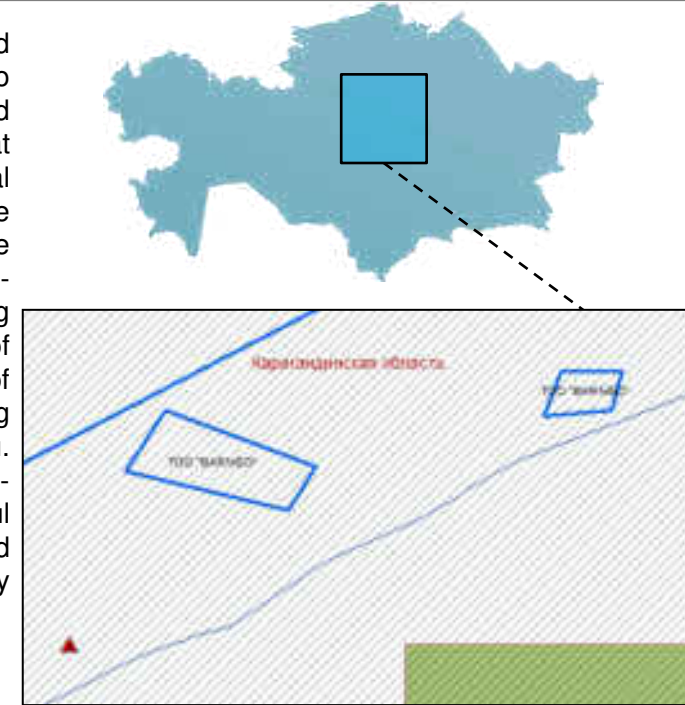
Extract from the state inventory accounting as of 01.01.2022			
Deposit (site)	Balance reserves , thousand tons		Off-balance sheet reserves, thousand tons
Sarykum (coal)	A+B+C1 –170633	-	-

-  - Sarykumskoye underground water deposit
-  - withdrawn contract territory of JSC NC SEC Saryarka Musketovitovoye deposit. Contract No. 5123 dated 10.07.2017 for exploration of iron-containing ores.
-  - The contract territory of Sarykum Group LLP is the Sarykum deposit. Contract No. 4232 dated December 23, 2015 for coal exploration.

# Itmurynda plots in the Karaganda region





**Location :** The Itmurynda contract territory, together with the jadeite deposit of the same name, is located in the Aktogay district of the Karaganda region. The first finds of jadeite in the region date back to 1932. Since 1966 and up to the present time, planned prospecting works for this mineral have been carried out periodically in the Northern Balkhash region. Since 1975, exploration works have been carried out at the industrially significant objects of the deposit (jadeite-bearing zone 5-8 and tele 20). The geological structure of the deposit is characterized in sufficient volume. The deposit is located in the axial part of the Itmurundin branch of the North Balkhash anticlinorium, where the oldest ophiolite rock complex in the described region is exposed, consisting of mafic-ultramafic massifs of Early Ordovician age and spilite-siliceous oceanic formations of the Middle Ordovician Itmurundin formation. The jadeite-controlling structural forms of the Itmurynda jadeite-magmatic system are the Canterlau and Arkharsu massifs of ultrabasic rocks. The jadeite-centering structural form is serpentinite melange containing fragments of jadeite and other rocks immersed in the serpentinite shale. In the process of geological prospecting mapping, two jadeite-bearing fields were contoured as part of these structures: Zhasyltas and Arkharsu. Zones of chlorite-actinolite-phlogopite tectonites containing jadeite beads of various sizes act as jadeite-localizing forms (mineral bodies). Actually, the mineral is raw jadeite - a durable jadeite stone. Useful components in its composition are varieties of commercial jadeite: technical jadeite (bath stone) and varietal jadeite (gemstone raw materials: ornamental, jewelry, jewelry jadeite). According to the complexity of the geological structure, the deposit is assigned to group 3 for exploration purposes.



## Extract from the state inventory accounting as of 01.01.2022

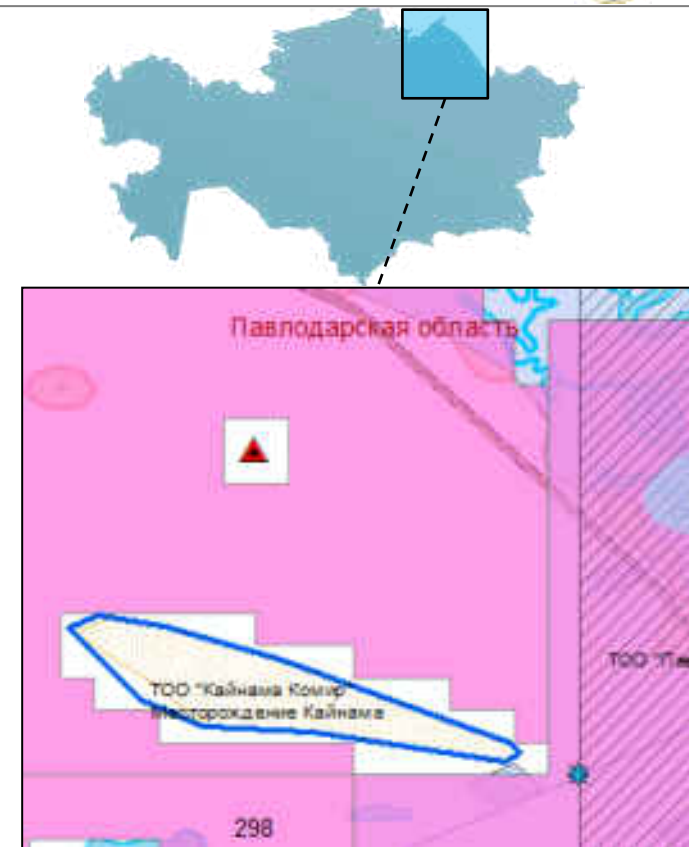
Deposit (site)	Balance reserves , t		Off-balance sheet reserves, t
	A+B+C1	C2	
Itmuryndy (raw jadeite, t)	-170927,6	67784,9	-
Itmuryndy (jadeite –varietal, t 2%)	-4000,9	1422,0	-
Itmuryndy (jadeite -technical, bath t)	-51021	12389	-

-  - Itmuryndinskoye balance field
-  - the contract territory of "BARNEO" LLP is the Itmuryndy deposit. Contract No. 2641 dated 07.05.2008 for the extraction of jadedent.



## Kainam sites in Pavlodar region



**Location:** The Kainama coal deposit is located 135 km southeast of Pavlodar. The deposit was discovered in 1942 by Gavrilin A.M. The structure of the deposit is presented in the form of a syncline elongated from the south-east to the northwest, complicated by small brachyclades. Shifts and discharges with amplitudes up to 1 m are recorded. The coal-bearing formation with a capacity of 500 m, contains 17 layers and interlayers of coal in the lower part, of which two - the Main one and the Meter One have working capacity. The useful capacity of the Meter layer is 0.7-1.74 m, the depth of the roof is 0-600 m. The useful capacity of the Main reservoir is 1.5-5.4 m, the depth of the roof is 0-600 m. Mudstones, less often sandstones and siderites are deposited in the roof and soil of the Meter formation. The soil of the Main layer is mudstones and siltstones, less often sandstones, the roof is mudstones and carbonaceous argellites. The rock layers are represented by carbonaceous argelites, sandstones. Carbon in the coals of the main reservoir is 77-80%, Meter – 74%, hydrogen, respectively, 4.2-5.0 and 4.9%. The melting point of the ash is 1300 degrees. The coal enrichment capacity of the Main reservoir is light, the meter – medium. The specific gravity is 1.48 – 1.51. Coal ash contains SiO<sub>2</sub>-73.4%, Al<sub>2</sub>O<sub>3</sub>-12.1%, Fe<sub>2</sub>O<sub>3</sub>-10.8%, CaO-0.92%, MgO-1.36%. The Main layer is composed of matte (42%) and semi-matte -39% coals; semi-shiny differences are 8%, rock layers -11%. The Meter layer is composed entirely of semi-matt coal, with rare strips of vitrene and fusena 5-6 mm wide. The brand of coal is G-energy. The hydrogeological conditions are favorable. It is most rational to mine coals. The high yield of volatile substances indicates that the mines are methane and dust hazardous.



Extract from the state inventory accounting as of 01.01.2022			
Deposit (site)	Balance reserves , thousand tons		Off-balance sheet reserves, thousand tons
	A+B+C1	C2	
Kainama (coal)	-113037,1	84583	-

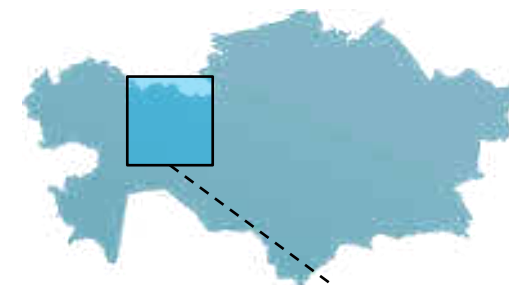
-  - Kainama balance deposit
-  - the contract territory of Kanoma Komir LLP is the Kainama deposit. Contract No. 4555 dated 12.12.2017 for coal mining.

# Akpan sites in Aktobe region



**Location:** Akpan deposit. It is located in the Aitekebi district of Aktobe region, 70 km southwest of the district center - the village of Karabutak and 95 km northeast of the Jubilee mine. It was worked out by prospectors until 1955. It is located in the central part of the East Mugodzhar mountain anticlinory in the endocontact of the Akpan granite massif of the Esekzhal complex of the Middle-Upper Paleozoic. It is dated to the eastern side of the Balkymbai prirazlomny graben of meridional strike, fixed by a narrow band (up to 200-400m) of volcanites of basaltoid composition of the Toyman suite of Silurian age. The ore bodies are represented by quartz veins, from which Reliable and Mongol were worked out with a length of 900 and 1200 m, respectively, with a capacity of 0.5-0.8 m (up to 2.3 m in puffs), meridional strike, framed by berezites with a capacity of up to 5 m. Ore composition: pyrite, chalcopryrite, bismuthin, pale ore, sphalerite, galena, gold, quartz, sericite. The content of sulfides is 2-5%. The distribution is nesting in the near-band parts of the veins. The gold content is 7.2- 14.5 g/t. Quartz veins are selectively worked out to a depth of 15-20 m.

The estimated reserves for ore bodies correspond to a small deposit with an average gold content of 9.1 g/t. The flanks and deep horizons of the deposit are understudied. Structurally, the deposit is located in the zone of influence of the regional West-Mugodzhar deep fault of the submeridional strike. The ore-bearing rod of plagiogranite-porphyry is located at the junction of the Aulin north-eastern and Fractured north-western fault zones. Geological and economic express assessment of the reserves of the Akpan deposit allows them to be classified as active.



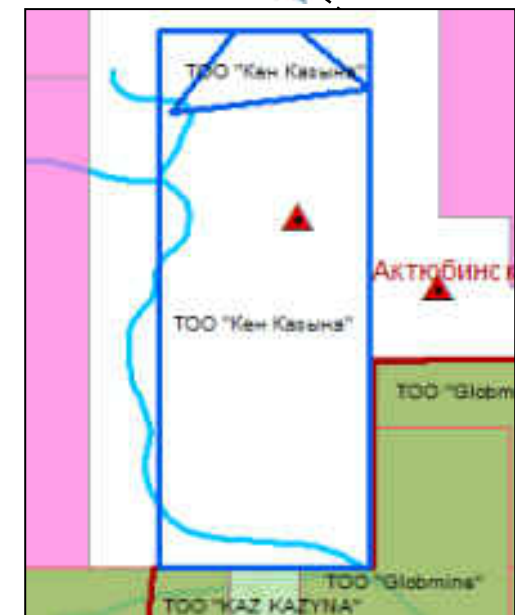
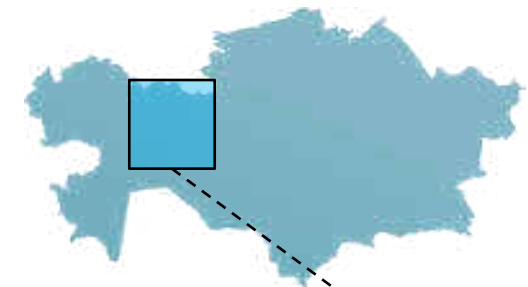
-  - Akpan balance deposit
-  - The contract territory of Ken Kazyna LLP is the Akpan deposit. Contract No. 4253 dated 01.08.2013 for gold exploration;
- The contract territory of Ken Kazyna LLP is the Akpan Severny deposit. Contract No. 4254 dated 01.08.2013 for gold exploration..



Extract from the state inventory accounting as of 01.01.2022

Deposit (site)	Balance reserves , kg		Off-balance sheet reserves, kg
	A+B+C1	C2	
Akpan (gold)	A+B+C1 –1301	C2 – 856	589



**Location:** Akpan Severny deposit is located 90 km south of the district center of the village . Karabutak, 98 km south of the railway station Tokmansai West Kazakhstan railway, 100 km south of the Jubilee mine. Communication with settlements by dirt roads. The area is being developed economically. The ore bodies are located in the interface zone of the East-Balkymbai (Anapa) regional deep fault with the Kairakta-Oysylkarinsky fault zone. Productive veins of the mine are associated with intrusions of granitoids of the Yesekzhal complex and the metamorphic rocks of the Sholak-Kairakta complex containing them. Mineralization is represented by a gold-sulfide-quartz formation. Gold is finely dispersed, pulverized, rarely reaches a size of 1.5 mm.



-  - Akpan Severny balance deposit
-  - The contract territory of Ken Kazyna LLP is the Akpan deposit. Contract No. 4253 dated 01.08.2013 for gold exploration;
- The contract territory of Ken Kazyna LLP is the Akpan Severny deposit. Contract No. 4254 dated 01.08.2013 for gold exploration.




Extract from the state inventory accounting as of 01.01.2022			
Deposit (site)	Balance reserves , kg		Off-balance sheet reserves, kg
Northern Akpan (gold)	A+B+C1 –87	C2 – 83	362

# Anisimov Key plots in the East Kazakhstan region



**Location:** The Anisimov Klyuch polymetallic ore deposit is located in the Glubokovsky district of the East Kazakhstan region, 4 km southeast of the Yubileyno-Snegirikhinsky deposit, 90 km from the nearest Cheremshanka railway station and 100 km from the Belousovskaya concentrating plant. The deposit was discovered in 1976, preliminary exploration was carried out by the Irtysh GE in 1978-1980, and detailed – in 1980-1983. A total of 511 wells have been drilled at the field, including 174 exploration, 245 mapping, 25 hydrogeological and 67 wells for technological sampling. Based on the size of ore bodies, the variability of their parameters in strike and fall, the deposit is justified and assigned to group 3 of the Classification of reserves of deposits and forecast resources of solid minerals.



-  - Anisimov key balance deposit
-  - the recalled contract territory of Gold Stone Minerals LLP is the Ubinsky deposit. Contract No. 410 dated 24.02.2000 for the exploration of placer gold.
-  - the contract territory of Anisimov Klyuch LLP is the Anisimov Klyuch deposit. Contract No. 4780 dated 02/18/2016 for the extraction of polymetals.

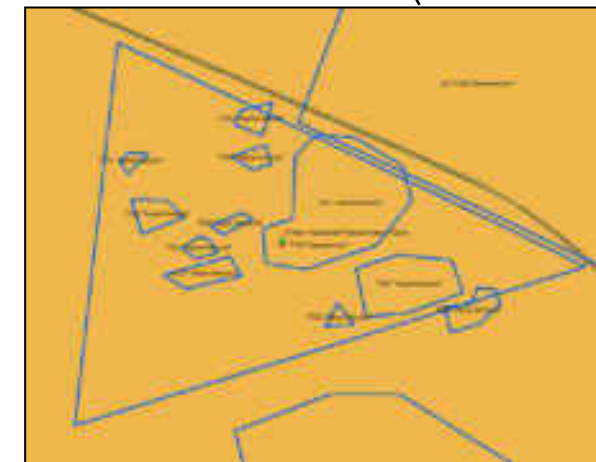
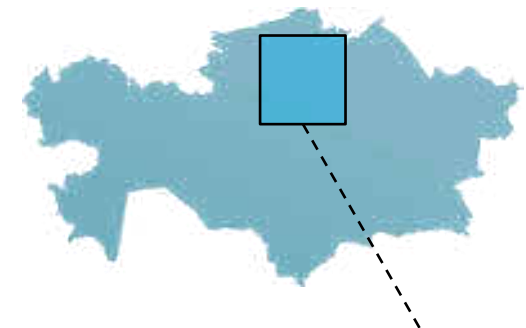
Extract from the state inventory accounting as of 01.01.2022			
Deposit (site)	Balance reserves , kg		Off-balance sheet reserves, kg
Anisimov Key (gold)	A+B+C1 –858	C2 – 103	51



# Sites of TMO dumps of poor ores Quartzite hills in Akmola region



**Location:** Technogenic mineral formations (hereinafter referred to as TMOS) of the Quartzite Hills deposit are administratively located in the Seletinsky district of the Akmola region, 3 km northeast of the village of Aksu. An asphalt road and the Aisarly–Ermentau railway line pass near the dumps. TMOS were accumulated in the period from 1959 to 1965 and are represented by overburden dumps №1, №2, №3, №4, №5, №6, №7, №8, №9, №10, №12, №13, №14, №15, №16, received during the development of the Quartzite slides deposit. Piles of overburden rocks and off-balance ores of automobile, bulldozer type are located within 100 - 400 m around quarries, have different shapes (from almost regular isometric to elongated in one direction or complex irregular shape), single-tiered structure, unbroken rocks. According to the complexity of exploration work, the degree of distribution of useful components of TMOS are assigned to group I. gold, pyrite, arsenopyrite, sphalerite and antimonite; secondary – pale ore, chalcopyrite and about 15 rare minerals. Technological studies were carried out on a sample weighing 57 kg. The gold content in the initial sample was 1.12 g/t. A bottle test of cyanide leaching of gold from ore crushed to a size of 0.074 mm was carried out. The degree of dissolution of gold on the balance sheet was 31.25%. The results of the sieve analysis of the initial sample of the dumps showed a sufficiently large number of large class (-100 + 40 mm) 24.25% and small class (-0.63 mm) 28.06%. Percolation leaching tests were carried out on a sample weighing 25 kg of ore. The total extraction of gold into the solution for 12 days, taking into account the washing solutions, was 37.1%. The granulometric characteristics of the column test tails showed that the largest gold contents remained in the largest (0.86 g/t) and the smallest (0.82 g/t) classes of leaching tails. The results of the study showed the fundamental possibility of using the heap leaching process for the processing of gold-containing dumps. The extraction of gold from the dumps was not high. The degree of dissolution of gold according to the balance from dumps with a size of -75 mm, -25 mm and -12 mm was - 37.82%, 41.26% and 42.76%, respectively. For implementation in industrial conditions, it is more appropriate to use dumps with a size of more than 25 mm.



- - The center of TMO Dump rock Quartzite Slides
- The contract territory of JSC "MMC Kazakhaltyn" is the Quartzite Hills deposit. Contract No. 145 dated 07.12.1997 for gold mining;
- The contract territory of Arka Kenshisi LLP is the Quartzite Hills deposit. Contract No. 5330 dated 15.06.2018 for gold mining

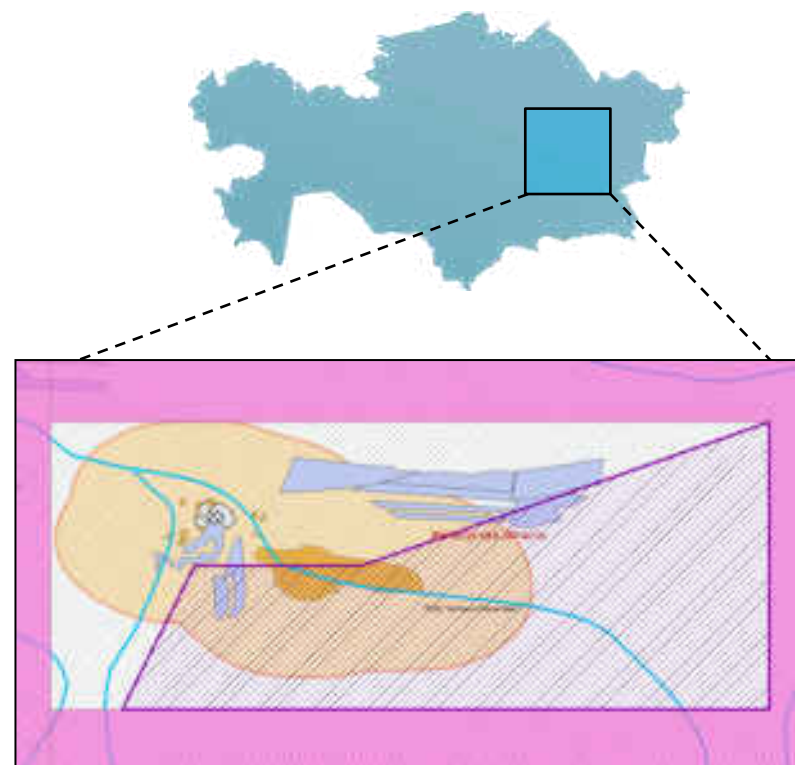
Extract from the state inventory accounting as of 01.01.2022			
Deposit (site)	Balance reserves , kg		Off-balance sheet reserves, kg
TMOS of dumps of poor ores Quartzite slides (TMOS) (gold)	-	C2 - 2100,5	-

# Onzhas deposit in Almaty region



**Location:** it is located in the Guards district of Almaty region, 3 km east of the village of the same name.

**Brief geological description :** As a promising gold object, the Onzhas (Akzhar) site was identified by the Dzungarian Party. The geological structure of the area includes deposits of Devonian, Carboniferous, Neogene and Quaternary systems, represented by sedimentary and volcanogenic-sedimentary formations of various composition and varying degrees of variability. Regionally, the work area represents the northeastern end of the structures of the Dzungarian Alatau, bounded from the east by the regional deep Main Dzungarian Fault. Numerous streams, lithochemical and dressing halos of scattering of lead, zinc, copper, manganese, molybdenum, mercury, numerous points of mineralization and ore manifestations of various genetic types are widely developed in the area of work. The size of the revealed halo was 06x0.25 km, its morphology reflected the contours of the outputs of beretized quartz albitophyres.



Extract from the state inventory accounting as of 01.01.2022	
Useful component	Balance reserves, kg
gold	C2-3614,0



- revoked contract territory of Alтын Olzha-Ken LLP Onzhas area deposit. Contract No. 2157 dated 13.09.2006 for exploration of gold, polymetals.