



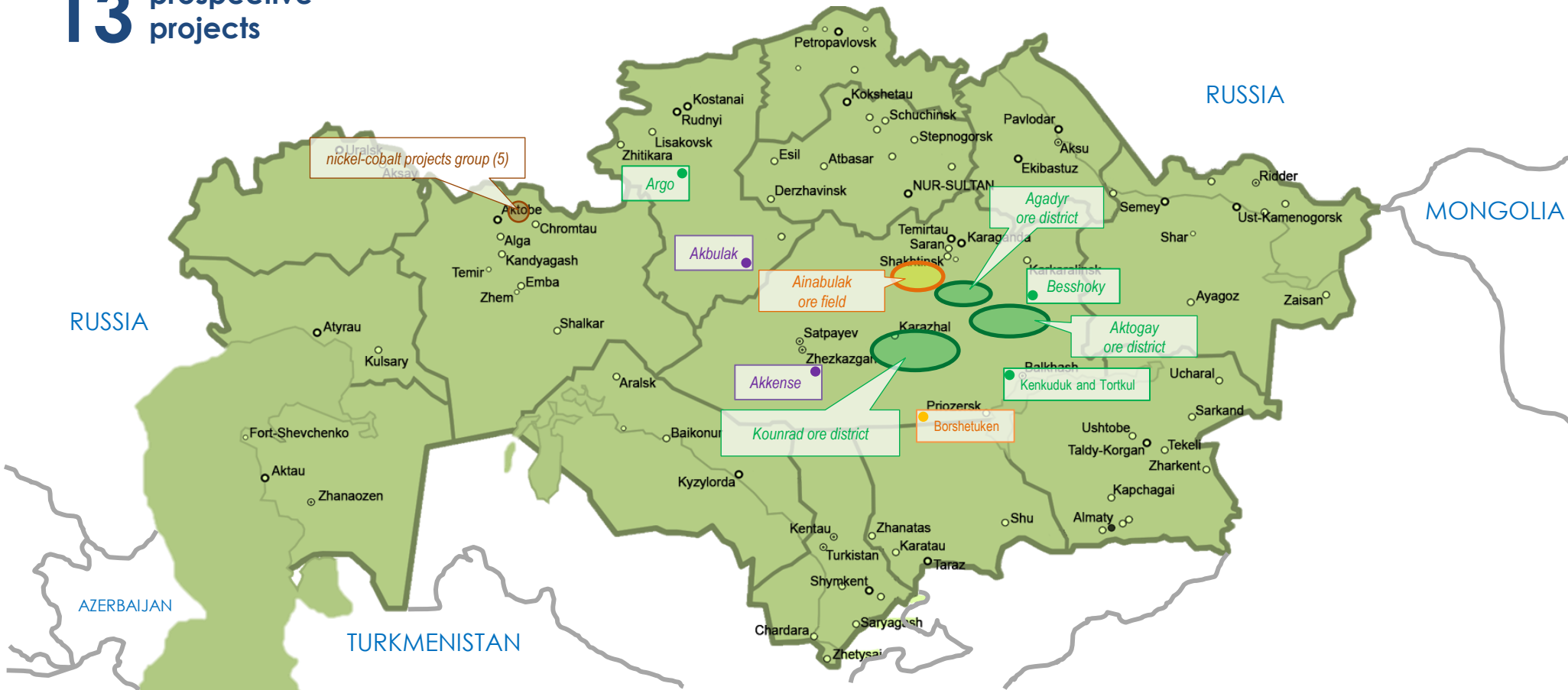
QAZGEOLOGY

PROSPECTIVE PROJECTS OF KAZGEOLOGY JSC

PROSPECTIVE PROJECTS OF KAZGEOLOGY JSC



13 prospective projects



● - gold

● - copper

● - rare earth

● - nickel-cobalt

Exploration of gold ores and associated components at **AINABULAK** ore field in Karaganda region



General information: The site is situated in northern part of Zhanaarkinskaya area of Karaganda region, 3 km southwest of Ainabulak village. Regional center is urban-type settlement Atasu, situated 80 km southeast of the site.

Total area: 61,09 sq.km

Required investments: 0,73 mln. USD (minimum investments)

Project implementation time: 3 years

Geological information: Ainabulak ore occurrence is the most critical by mineralization and gold content within the limits of predicted Ainabulak gold ore field.

Inferred resources of gold and silver of Ainabulak occurrence were estimated at depth 50 m with length of ore zones 200 m, their power 15 m and gold content 5 g/t, silver 20 g/t in 1995.

Inferred resources of gold and silver occurrence at Ainabulak will be following at current parameters:

ore – $200\text{m} \times 15\text{m} \times 50\text{m} \times 2,7 \text{ t/m}^3 = 405\,000 \text{ t}$,

gold – $405\,000\text{t} \times 5 \text{ g/t} = 2,0 \text{ т}$,

silver – $405\,000 \times 20 \text{ g/t} = 8,1 \text{ т}$.



Predicted ore resources	Predicted gold resources	Average content
405 000 tons	2 tons	5 g/t

Prospecting of gold ores and accompanying components on the site **BORSHETUKEN** in the Karaganda region



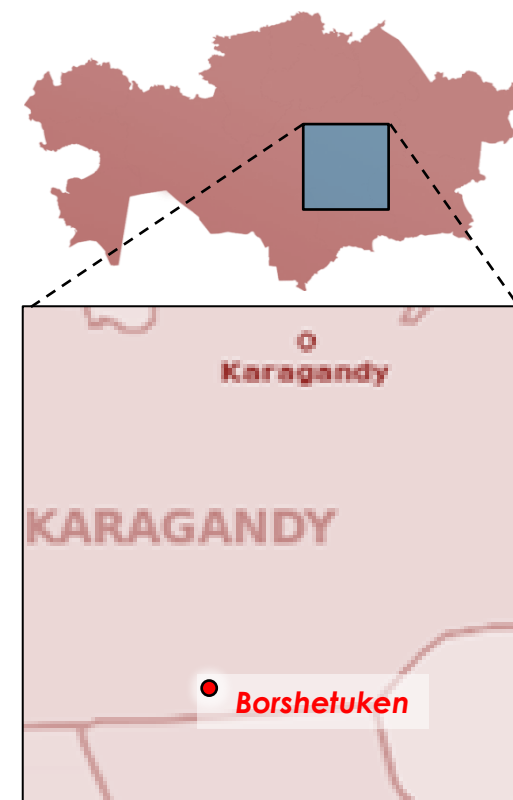
General information: The area is located 30 km from the highway, the nearest settlements are the Dzhambul mine, located 80 km to the north, and the Saryshagan town, located 165 km to the east of the site.

Total area: 69.82 square km

Project implementation period: 3 years.

Required investments: 481 million tenge / 1,3 million US dollars

Geological information: In the South Kazakhstan part of the belt, a large number of gold-sulphide-quartz veined deposits are known, including large - Akbakai, a number of medium - Aksakal, Svetinskoye, Kenzhem and small - Altynsay, Zhaksy. The combination of indirect and direct search signs for gold mineralization at the site allows to consider the area as promising for identifying the Akbakai - type average reserves of gold (availability of gold up to 3.0-5.0 g / t) on Au, Bi, Ag manifestation No.12 allow to predict on the Borshetuken site two ore zones with a medium-sized gold deposit of the Akbakai type, similar to the Kenzhem deposit, with reserves of about 40 tons of gold with a grade of 5.0 g / t.



Resources	Average content
40 tons gold (forecast)	Gold content - 5.0 g / t



Exploration of non-ferrous and precious metals on **ARGO** area in Kostanay region



Useful component: non-ferrous and precious metals

Area: 387,727 sq. km.

Required investments: 4,8 million USD

Field Information: In the 1950s and 1960s, Soviet geologists conducted major regional exploration programs throughout the Soviet Union to determine mineral reserves. The Turgay expeditions are credited with discovering numerous large mineral deposits, including large magnetite iron ore deposits near the cities of Rudny and Lisakovsk in the Kostanay region. During the course of geological exploration, geologists have recorded numerous deposits of titanium and zircon throughout the Turgay Basin.

The area of Argo was allocated by ILUKA during the 2015-2018 exploration works for the state study of subsurface resources for the search of placer titanium-zirconium deposits (ilmenite, rutile, zirconium and tin) at three sites in Kostanay, North Kazakhstan and Akmola regions. Exploration work was carried out on three sites.

One of the wells was drilled in the North-Eastern part of the prospect area, along the profile next to the boundary between the underlying Ordovician-Silurian granodiorite/diorite Intrusive complex and pre-Cambrian meta-deposits of the Borovian formation. At a depth of 30-36 m, abnormal values of copper (250 g/t) and zinc (145g/t) were determined.

The Baksy copper-gold skarn Deposit is located in the South along the same contact area. The Baksy Deposit is described in stock reports as garnet, calcite-garnet and pyroxene-garnet-magnetite scarn. Resources in the Soviet C2 category are 1.65 million tons of ore containing 2.1% copper (34,500 t), 1.59 g/t gold (2.92 t) and 5.56 g/t silver (10 t).



Exploration of precious and non-ferrous metals on **BESSHOKY** area in the Karaganda region



General information: it is located in Karaganda region 265 km South-East of Karaganda, 200 km North of Balkhash. The Deposit consists of 6 copper porphyry deposits: the Eastern, Northern, southern Besshoky, Candidacy, Satire, Zhilandy. Geologically and structurally, a group of copper manifestations of Besshoky is located in the Eastern part of the Tokrau synclinatorium in the Central Kazakhstan deep fault zone.

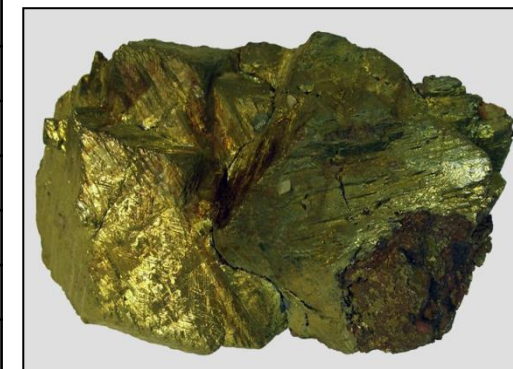
Total area: 1330.3 sq. km.

Subsoil use contract: concluded 06.03.2015

Geological information: Structurally, the manifestations form an ellipsoid hemisphere measuring 20 x 10 km and 1 to 2 km wide, extending in a northeasterly direction. The distance between the epicenters of manifestations varies from 5 to 10 km. higher sulfide mineralization with an average copper content (0.7-0.8%) is mainly associated with the cement of these hydrothermal breccias; average mineralization (0.29-0.45%) is associated with berezites and mudstones. Mineralization extends deep, traced by some boreholes to a depth of 500-700m. Mineralization is considered easy to process, predominantly pyrite-chalcopryrite, and in the secondary sulfide enrichment zone containing bornite and chalcocite.



Revealed + forecast	Cu average content, %	Cu reserves, thousand tons	Mo average content, %	Mo reserves, thousand tons
Balance sheet:		1026,38		18,65
- Eastern	0,61-0,77	191,31	0,01-0,014	3,04
- Southern	0,36-0,37	691,55	0,007-0,011	14,91
- Kaindyshoky	0,38	143,52	0,001	0,7
Off-balance sheet	-	853,11	-	5,93
TOTAL		1 879,49		24,58



Exploration of precious and non-ferrous metals on BESSHOKY area in Karaganda region



Total reserves on Beshokinskaya area (according to Wardell Armstrong International, 2012):

- Balance: Cu - 1026,4 thousand tons, Mo-18,6 thousand tons;
- Off-balance: Cu - 853,11 thousand tons, Mo-5,93 thousand tons.

During 2015-2019, only two of the 6 sites were surveyed: six manifestations, such as the Eastern and southern Beschoky, were studied in detail. The drilling depth did not exceed 250 meters.

There is a great potential for increasing the field's reserves during additional exploration activities.

Rate	Value
Sum of investments, thousand dollars of USA	302,845
NPV discount rate 10%, thousand dollars of USA	145,690
IRR, %	20%
EBITDA, thousand dollars of USA	988,676
Income before tax, thousand dollars of USA	790,456
Discount payback period, year	8

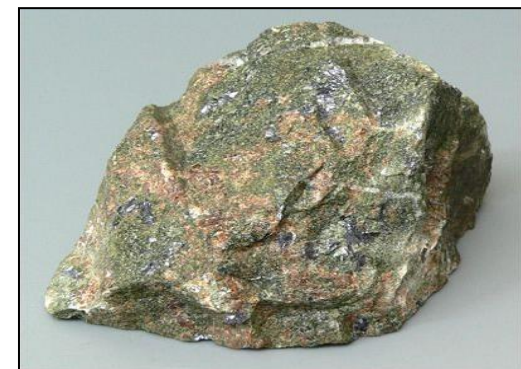
The plots of copper-molybdenum ores **KENKUDUK, TORTKUL** in Karaganda region



General information: The plots are located 20-40 km North of Balkhash city in Karaganda region. The Kenkuduk site, taking into account the proximity of the geological structure and spatial position, was merged into Kaskyrkazgan-Kenkuduk square. Tortkul site is located 7 km Northwest of the Kounrad quarry. Previous work on the site revealed a small manifestation of Tortkul gold in the eponymous array of secondary quartzites with a maximum gold content of up to 0.5 g/t. The size of the array is 3x1.5 km.

Total investments required: 0,31 mln. USD

Total area of the plots: 53,1 sq. km.



Forecast resources (C2)	Average content
23.3 thousand tons of copper with an average content of 0.37% and 1 tons of molybdenum with an average content of 0.016%	Cu - from 0,11 to 3,94 %, Mo – 0,01-0,024%
No data	Cu to 0,2% Mo 0,03%, Au to 0,5 g/t.

The plots of copper-molybdenum ores Kenkuduk, Tortkul in Karaganda region



KENKUDUK

Total area: 6,1 кв. км

The volume of initial investment: 0,11 mln. USD

Geological information: The geological structure of the Deposit includes granites, granite-porphyry, granodiorite-porphyry. The length of the rod up to 800 m, power up to 330 m. the composition of the veins are divided into quartz-sulfide, quartz-sericite-sulfide and sulfide. Their power is usually 1-3 mm, rarely 2-5 cm, the length does not exceed several meters. On Kenkuduk there are six lenticular bodies with a size of 100-370 m in stretch, 50-250 m in fall, 15-135 m in power. The main ore minerals are pyrite, chalcopyrite and molybdenum, less common magnetite, hematite, sphalerite, galenite.



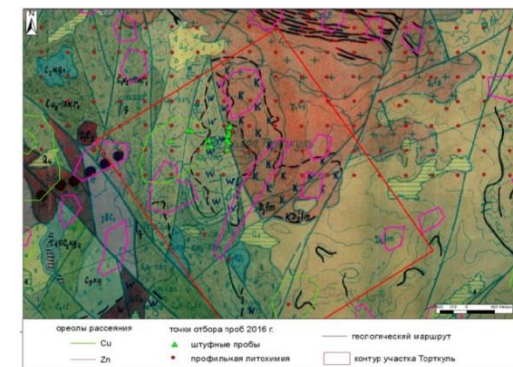
Contour of Kenkuduk site

TORTKUL

Total area: 47 sq. km

The volume of initial investment: 0,2 mln. USD

Geological information: Within the area earlier a copper mineralization point with Cu content up to 0.2% and Mo 0.03% was identified, a secondary cu scattering halo (1x1 km in size) and several Zn scattering halos were contoured. Secondary quartzites of the site develop on the granites of the kaldyrmin complex (CC3) in the Eastern part of the quartzite massif and on the effusions of acid composition in the Western part. 128 lithochemical samples were collected over a network of 400x200 m in order to clarify the distribution of elements on the surface. According to the spectrometric analysis of these samples, secondary quartzites have anomalous contents of Cu (100 and more ppm), Mo (7ppm), Pb (100ppm), Bi (20 ppm) and Au (0.01 ppm) with maximum values in monoquartzites and hydrothermal breccias at the top of Tortkul. It should be noted that the increased content of Cu (100ppm), Mo (5-7ppm), Pb (100ppm) and Zn (500ppm) also have granites.



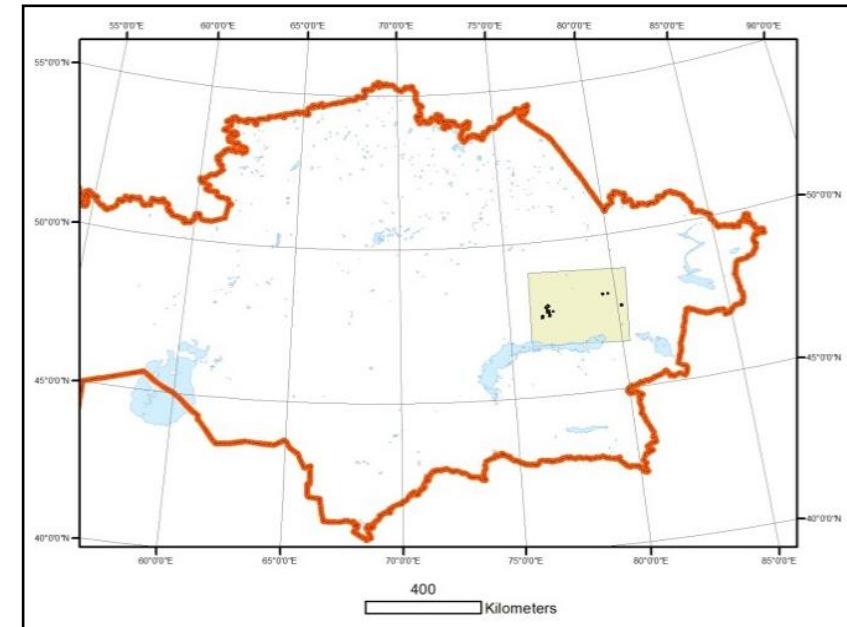
Contour of Tortkul site

The plots of copper-porphyry, gold-silver and polymetallic mineralization within **AKTOGAY, KOUNRAD** and **AGADYR** ore district in Karaganda and East Kazakhstan regions



The territory of Aktogay ore district covers the North-Eastern part of the Balkhash region (sheets L-43-A,Б, L-44-A, M-44-B, M-43-B,Г). The structure of the ore region includes pre-Paleozoic metamorphic formations and Paleozoic sedimentary and effusive sedimentary deposits, broken by numerous age-varying intrusions and overlain by Mesozoic-Cenozoic sediments of intermountain depressions.

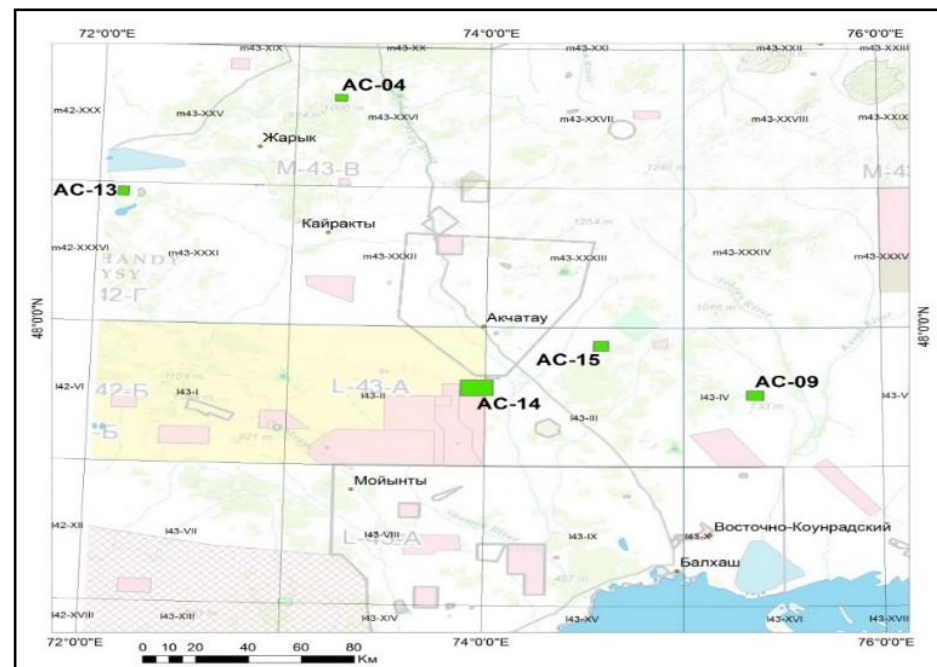
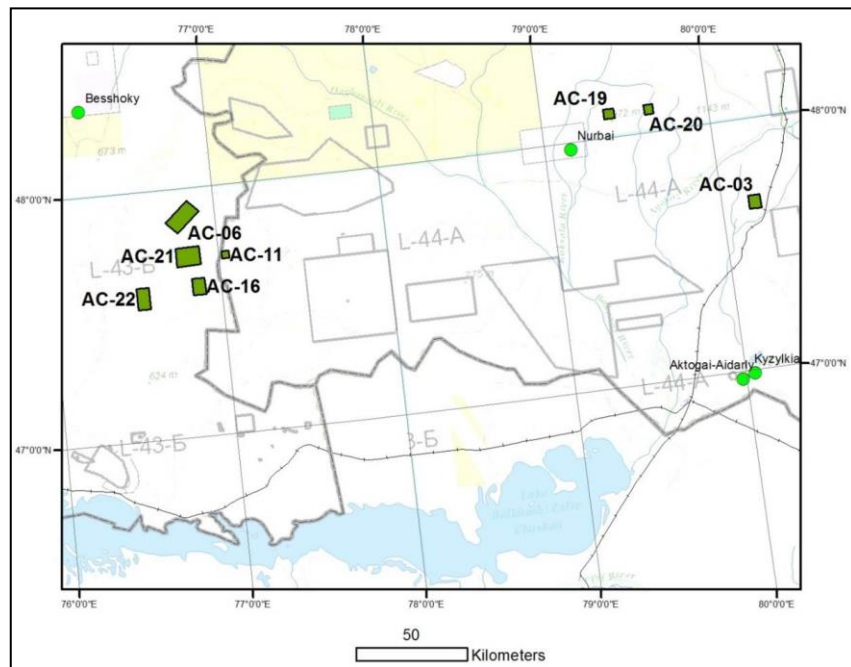
The nearest operating mining enterprises are Kounrad and Aktogay copper-porphyry ore quarries. The most significant gold mining facilities include the Dolinnoye and Pustinnoye deposits, where operational works are carried out.



On the territory of Central Asia (the Balkhash region), the USGS conducted remote studies with thematic processing of multispectral satellite images of Aster, on the basis of which 272 promising objects were identified for the detection of copper deposits (Scientific Investigations Report 2010-5090-N Porphyry Copper Assessment of Western Central Asia). Potential deposits belong to the copper-porphyry type, characterized by huge forecast resources of copper with associated molybdenum and gold.

Within this area selected ore districts of Aktogay, Kounrad and Agadyr with prospects for identifying ore objects.

The plots of copper-porphyry, gold-silver and polymetallic mineralization within Aktogay, Kounrad and Agadyr ore district in Karaganda and East Kazakhstan regions



№	Ore district	Area, sq.km.	Amount of investment, mln. tenge
1	Aktogay	65,83	291
2	Kounrad	184,8	230
3	Agadyr	284,3	249



AKBULAK site in Kostanay Region



General information: located near the Arkalyk city in Kostanay region, which is connected (via Yessil) by rail and highways with the largest centers of the Republic.

Investment amount: 1.53 mln. USD

Project implementation time: 6 years

Geological information: The area of the Akbulak deposit is about 2 sq. km. Mineralization is confined to linear weathering crusts. The power of the ore zones varies from 1.4 m to 31 m, with a total depth of the weathering crust from 10 to 50 m. the Mineral form of rare earths is xenotimum, rhabdophanite, churchite and bastnesite.

In addition to yttrium and rare earths (lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium), the ores contain tin (50-200 g/t), and zirconium (150-300 g/t). The expected stripping capacity is 13 m.



Forecast data		
Useful component	Forecast reserves	Average content
Yttrium oxide	Approved	272 g/t
Oxides of the rare earths		790 g/t



State of geological exploration and geological structure of Akbulak site



Systematic study of the area began in the late 40s of the last century with its Northern part (Arkalyk-Ashutau structures) in connection with prospecting and exploration geological and geophysical works on the Amangelda group of bauxite deposits.

Subsequently, the research extended to the South and East towards the Kurgasyn lead mine, capturing the Arganatinsky uplift of Northern Ulutau.

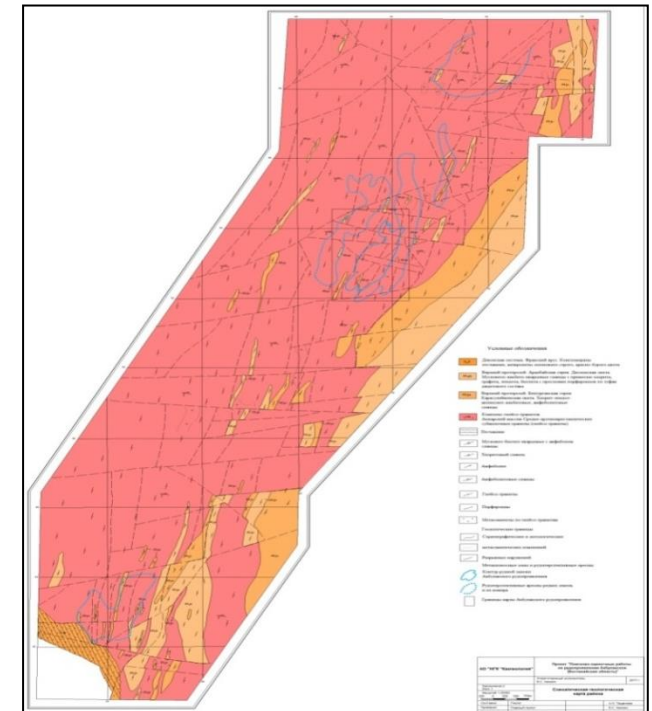
Since the late 50s in the area revealed many anomalies of rare earths, tin, lead, zinc, gold, niobium, but objects of industrial importance is not established.

In the course of geochemical searches of 1986-90, the Akbulak zone of rare earth elements was discovered, which is characterized by yttrium contents from 0.01% to 0.1%.

Not far from the Akbulak site there is a Zhanaarkalyk site. Yttrium and lanthanides, the total value of which in the ore is 90-95%, and the valuable associated components are the remaining components in the ore: zinc, gold, silver, clay and sand. In addition, the ore can be found – titanium, scandium, technical diamonds and fullerene.

Actually Akbulak mineral occurrence and anomalous halos (zone 2, 3, 4) compose the Central area. The REE halos are allocated to the South and North of the Akbulak manifestation, respectively, the Southern section (zone 1) and the Northern (zone 5).

In the geological structure of the area involve Proterozoic and Paleozoic rocks composing a folded Foundation, and meso-Cenozoic deposits form a platform cover. On the maps, the platform cover is removed.



Exploration of rare earth elements at the deposit **AKKENSE** in Karaganda Region



General information: Yttrium-rare earth ore occurrence Akkense is located in Ulytau district of Karaganda region, to South-East of Zhezkazgan city.

Project implementation time: 3 years

Required investments: 1.43 million USD

Geological information: The REE site was discovered during the search for uranium in the 90s, after testing the core of the mapping well 17541, at a depth of 55-80 m from the surface in permeable Sands, REE were found. Preliminary assessment of rare earth mineralization by drilling core wells in a network of 800 x 800 m allowed us to identify a promising site.



Forecast data	
Resources	Average content
Approved	0,04%



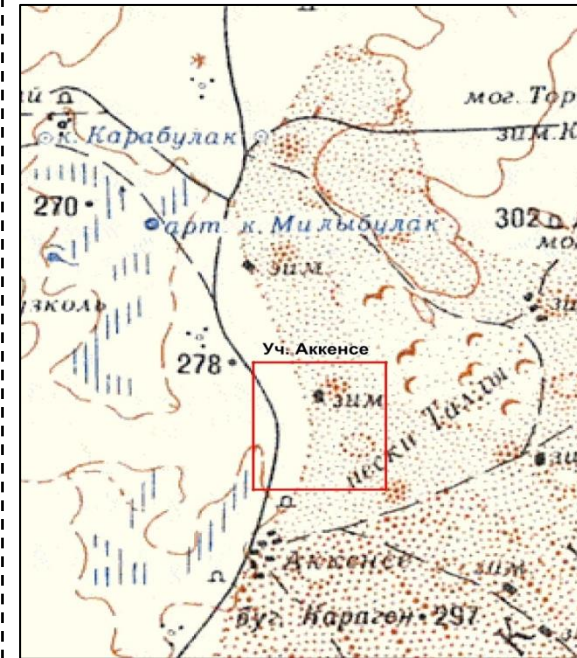


The area is fully covered with aerial photography done by State design and survey Institute of land cadastral surveys in 1977. In 1988-90 B.Slobodchikov and others carried out underground geological, geological exploration of the surface and prospecting for minerals on the areas covering the ore field Zhaman-Aibat copper Deposit and the immediate area.

Since 1969, **complex (gamma-spectrometry, magnetometry) aerogeophysical survey was carried out** with a scale of 1: 50000. By 1989 the entire area of the district was recorded by comprehensive survey of aeroparties of the company "Volkovgeology". Since the late 50s many anomalies **of rare earths, tin, lead, zinc, gold, niobium** were revealed in the area, but objects of industrial importance are not established.

In 1974, in order to study the deep structure of the earth's crust of the trust "special Geophysics" conducted seismological studies by the method of passing exchange waves of earthquakes in combination with deep seismic sounding.

In 1972-1975 and in 1987 PGA "Volkovgeology" conducted seismic experimental and methodological work in order to clarify the possibilities of seismic exploration to study the structure of the section of Mesozoic-Cenozoic deposits. As a result, the depth of occurrence and morphology of the roof of the Paleozoic Foundation was determined; the position of tectonic disturbances, the nature of tectonics in platform sediments, breaks and kinks of layers, the amplitude of displacement.

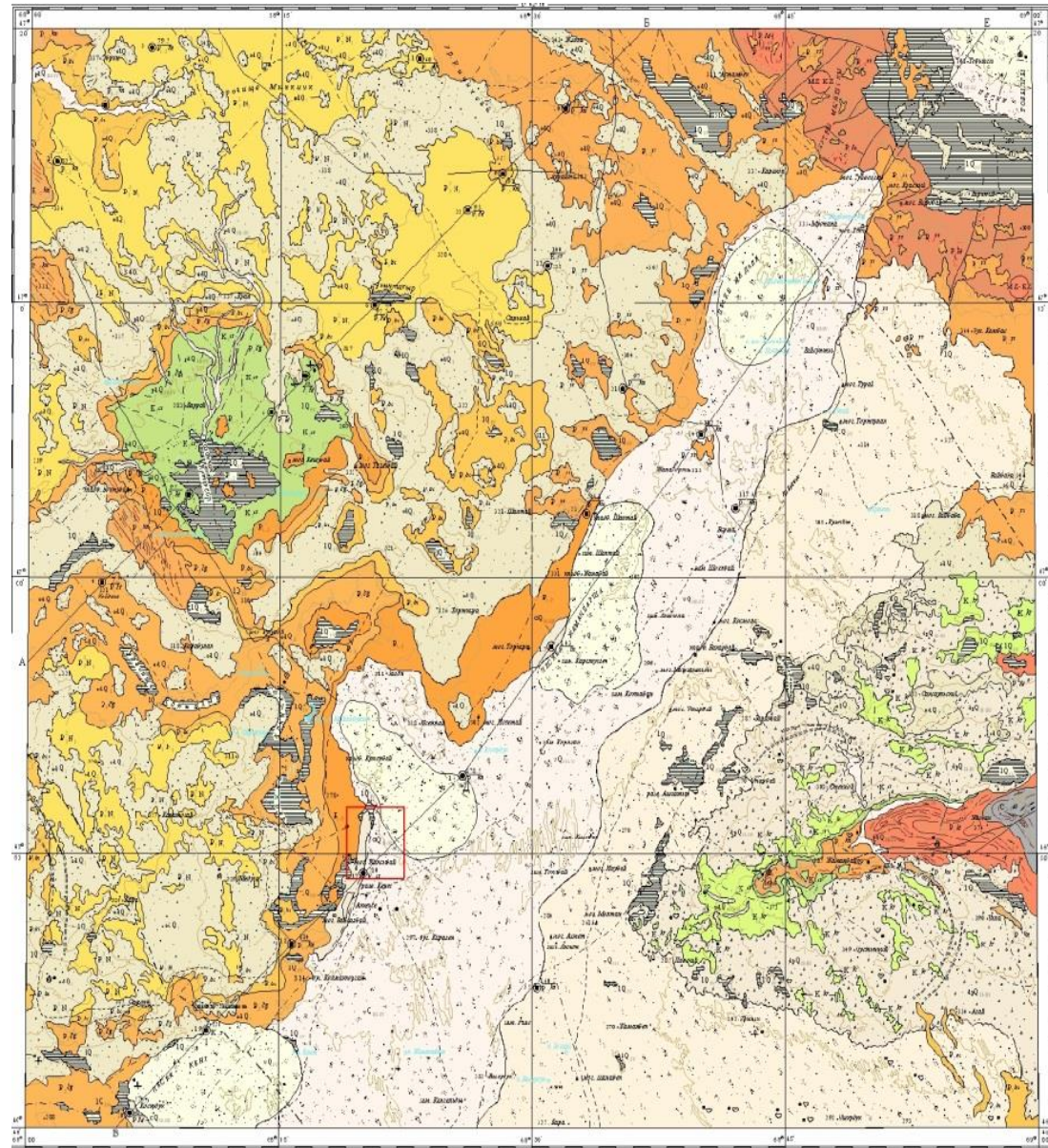


Geological structure of Akkense

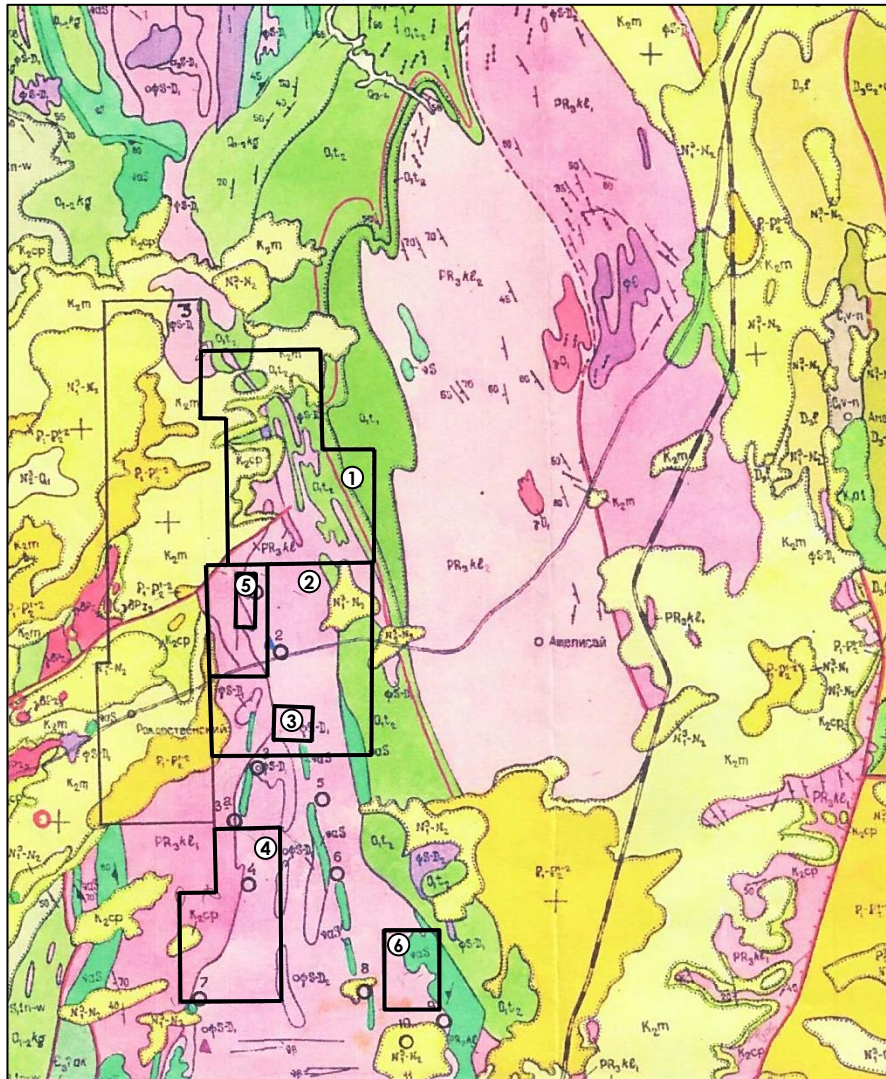


The geological structure of the region includes shales of the Proterozoic-lower Paleozoic, siltstones, sandstones, limestones of the devonian and carbon and perm, overlain by a powerful cover of meso-kainazoic deposits of continental and marine facies (clays, mudstones, Sands).

In addition to the natural association of **rare earths with yttrium**, they are most often present together with cobalt, whose content varies between **0.01-0.08%**, and **Nickel** (approximately the same concentration limits).



General layout of nickel-cobalt sites in Aktobe region



**Geological map
of the Kempirsay area**

In the period of 1977-1981 Kempirsay search intelligence party conducted a search operation in silicate nickel ores in the Northern part Kempirsay array of ultrabasites. Administratively, the work areas are located in the Leninsky district of Aktobe region.

The following **5 sites** on which search works were carried out are allocated:

1. Eastern contact;
2. North-Rozhdestvenskoe;
3. Western contact;
4. Aytpayskoe;
5. Zhusalinskoe.

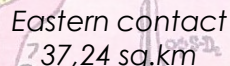
From the South-East of the plots is Badamshinsk village, in 50 km away the Donskoy village. The regional center Aktobe city is in 110 km to the South-West. In the central part of the district from NE to SW passes the railway line Orsk-Kandagach. From North-West to South-East the district is crossed by the highway Aktobe-Orsk.

Most major settlements are regional center Badamshinsk and Khromtau, which are also the centers of Kempirsay and Donskoy mining areas.

Summary information of nickel-cobalt reserves

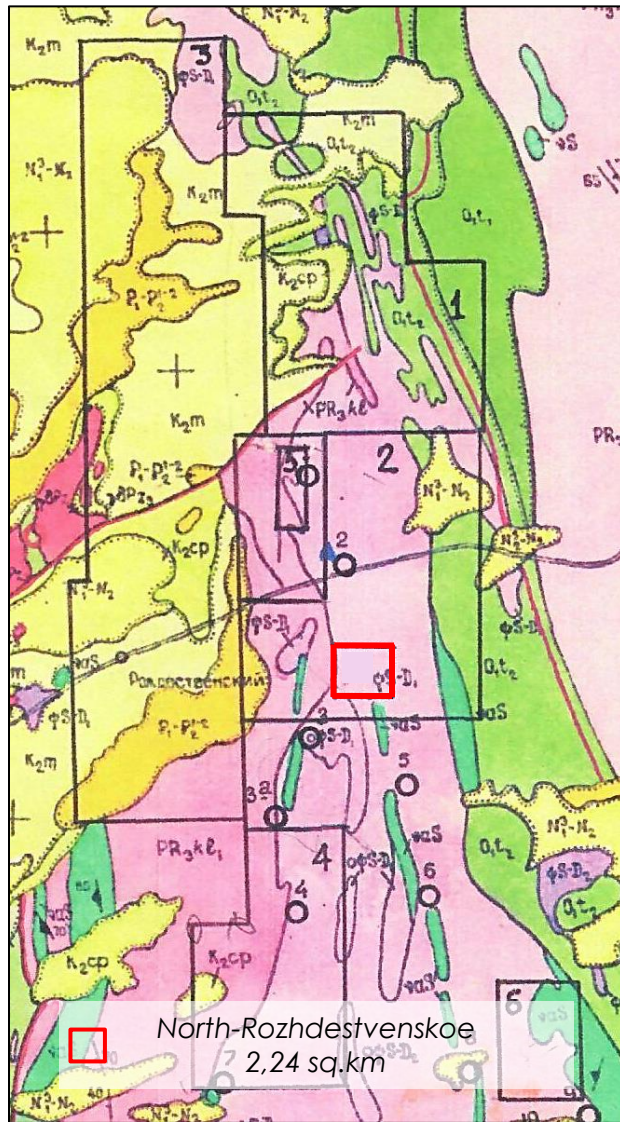


Site	Area, sq.km	Reserves, average content				
		Cutoff grade	Category	Ore, thousand tons	Nickel, tons (%)	Cobalt, tons (%)
Eastern contact	37,24	0,70%	C2 (off-balance)	3 402,1	30 329 (0,89%)	1 564 (0,046%)
North-Rozhdestvenskoe	2,24	0,80%	C1+C2 (balance)	928,71	10 826 (1,17%)	316 (0,034%)
Western contact	26,96	0,70%	C2 (off-balance)	2 378,2	21 571 (0,91%)	1 077 (0,046%)
		0,80%	C2 (balance)	385	4 351 (1,13%)	162 (0,0042%)
Aytpayskoe	1,76	0,70%	C2 (off-balance)	3 402,1	30 329 (0,89%)	1 564 (0,046%)
Zhusalinskoe	7,04	0,70%	C2 (off-balance)	4 173,4	38 667 (0,93%)	2 461 (0,059%)
		0,80%	C2 (balance)	2 629,2	26 239 (1,00%)	1 640 (0,062%)
TOTAL	75,24			17 298,71	162 312	8 784



A total of 7 blocks were allocated, for which the calculation of reserves of silicate nickel-cobalt ores of category C2 was made at onboard contents of 0.70% and 0.80%. In total, 695 wells with a total volume of 9,488.4 r.m were drilled at the site, with an average depth of 14.3 m

The reserve category C2, the cutoff grade of 0.70%, off-balance ores				
Ore	Nickel reserves, average content	Cobalt reserves, average content	Average thickness, meters	Thickness of overburden, meters
3 402,1 thousand tons	30 329 tons 0,89%	1 564 tons 0,046%	2,7-3,1	0,5-10,0
The reserve category C2, the cutoff grade of 0.80%, off-balance ores				
Ore	Nickel reserves, average content	Cobalt reserves, average content	Average thickness, meters	Thickness of overburden, meters
1 734,5 thousand tons	16 446 tons 0,94%	869 tons 0,05%	2,7-3,1	0,5-10,0



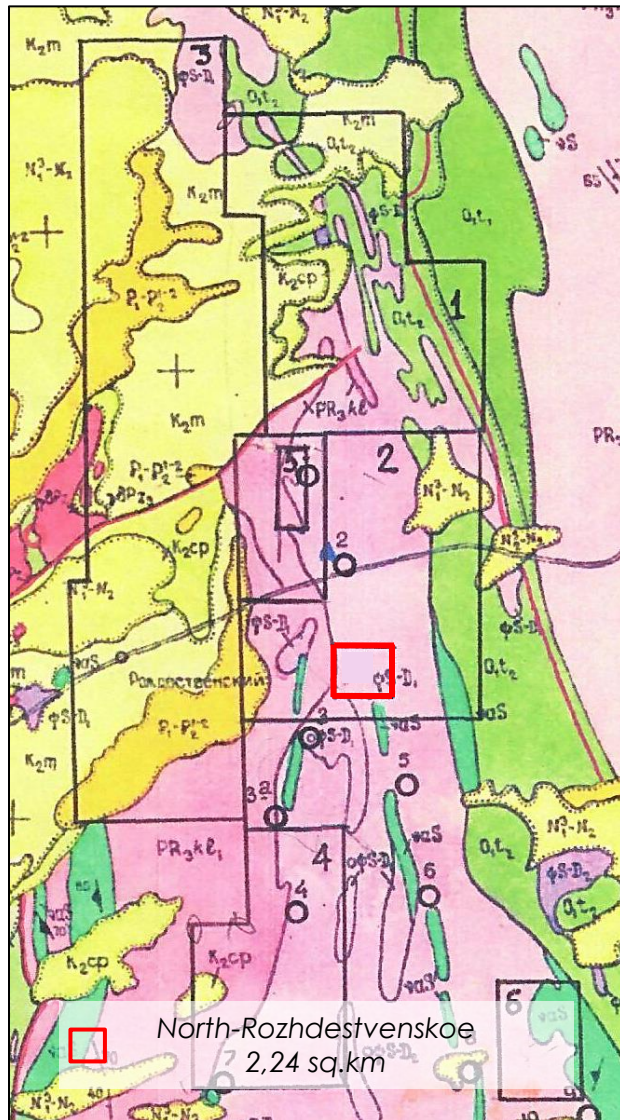
General information: North-Rozhdestvenskoe deposit is located in 27 km from the Badamshinsk village, and 1.5-2 km North-East from the development Buranovsky mine of Rozhdestvenskoe deposit. In 1979-80, prospecting and evaluation works were carried out on the area of the field by drilling wells on the network 200x50m, 100x50m, the results of which the balance reserves of category C2 were estimated at 16.0 thousand tons of nickel.

The deposit is located in the northern part of the Kempirsay ultrabasite massif and spatially gravitates closer to its western contact with the host rocks of the metamorphic strata of the upper proterozoic. The latter are represented by chlorite-quartz, sericite-chlorite-quartz, quartz-amphibol, mica-quartz schists with layers of quartzites and siliceous-graphite schists. In stroeniye area of interest participate serpentinite, pyroxenite, hebbroville, amphibolites and dykes of gabbro-diabase, the rocks of the weathering crust on all these breeds.

The morphology of the ore bodies. the shape, size of ore bodies and their internal structure is entirely dependent on the morphology of the weathering crust and its nicolenicole. The North-Rozhdestvenskoe field is represented by the two deposits in the form of a monolithic block No.1 of the near-meridional direction. Its length is 460m, and the width varies from 120 to 380m. The southern deposit is in 300-350m to the south from the first. The deposit is represented by four small ore bodies (bl. 2-4-C1 and 6-C2). The power of ore bodies in some areas is characterized by high variability in the range from 1 to 21.2 m. the average power of ore bodies in blocks 1-4-C1 ranges from 3.6 to 6.0 m. The average nickel content at individual intersections varies from onboard 0.80% to 2.80%, the average for blocks from 1.13 to 1.42%.

In the field contoured to 4 ore body carrying ores of C1 and 2 C2. The contours of the ore bodies are taken as a single counting blocks.

North-Rozhdestvenskoe deposit in Aktobe region



Reserves of nickel, calculated by **category C1** at an onboard content of 0.80%, ore - 890.7 thousand tons (dry), nickel - 10.4 thousand tons, cobalt - 300 tons, with an average content of nickel - 1.17%, cobalt - 0.034%.

Reserves of nickel, calculated by **category C2** at the onboard content of 0.80%, ore - 38.0 thousand tons (dry), nickel - 426 thousand tons, cobalt - 16 tons, with an average nickel content - 1.12%, cobalt - 0.042%.

TOTAL reserves of nickel, calculated by **category C1+C2**, ore - 928,7 thousand tons (dry), Nickel - 10,9 thousand tons, cobalt - 316 tons, with an average content of Nickel -1,17%, cobalt - 0,034%.

The reserve category C1, the cutoff grade of 0.80%, balance ores

Ore	Nickel reserves, average content	Cobalt reserves, average content	Average thickness, meters	Thickness of overburden, meters
890,7 thousand tons	10 400 tons 1,17%	300 tons 0,034%	3,6-6,0	0,5-10,0

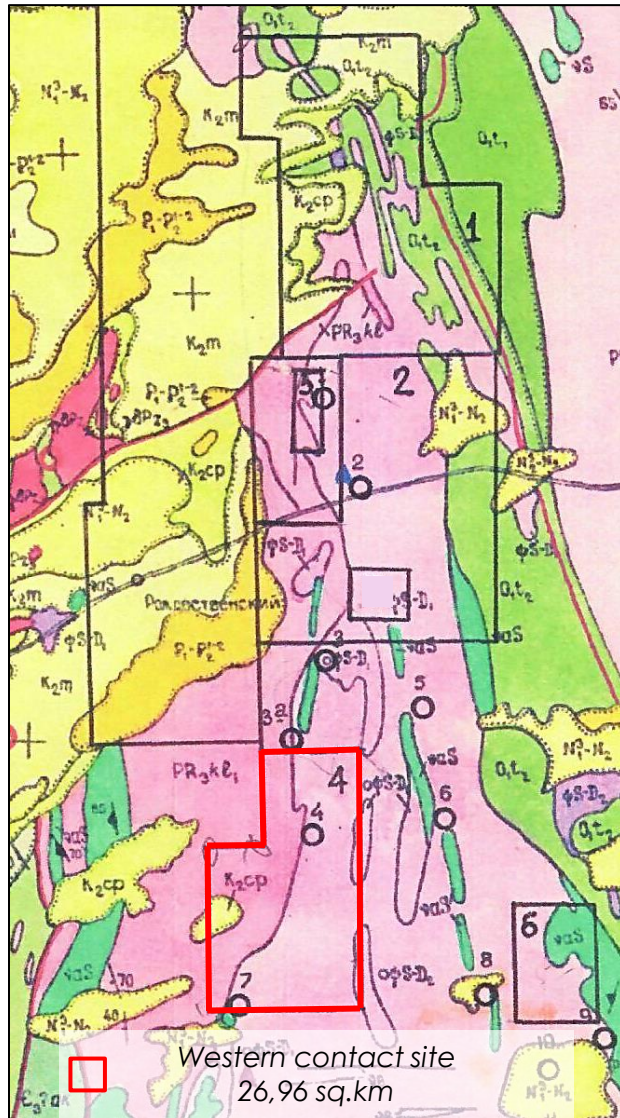
The reserve category C2, the cutoff grade of 0.80%, balance ores

Ore	Nickel reserves, average content	Cobalt reserves, average content	Average thickness, meters	Thickness of overburden, meters
38,01 thousand tons	426 tons 1,12%	16 tons 0,042%	3,6-6,0	0,5-10,0

TOTAL reserves C1+C2

928,71 thousand tons	10 826 tons 1,17%	316 tons 0,034%	3,6-6,0	0,5-10,0
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Western contact site in Aktobe region



General information: Western contact site is located on the western contact of the Kempirsay massif, from the latitude of the West-Rozhdestvensky deposit in the north to the Kamenny Kobchik deposit in the south. On the site in 1955 was held exploratory drilling on the network 400x100m with concentration in some areas. Identified area of development of the weathering crust in 1978 was aftersearched by thickening the density of the network of wells to 200x100m.

Carried out search works found that the most powerful weathering crust nontronite profile is developed directly at the contact with enclosing the array of rocks. Mineralization is confined to nontronite, nontronited serpentinites and slightly nontronited serpentinites.

4 deposits of silicate nickel-cobalt ores were found on the site. The power of ore bodies in wells ranges from 1.0 m to 15.2 m (well 3388), and on deposits from 2,2 to 3,9 m. The average content of nickel in dry ore from 0,70 to 1,31% (well 573). Thickness of overburden - from 0.5 to 14.5 m.

The reserve category C2, the cutoff grade of 0.70%, off-balance ores

Ore	Nickel, reserves, average content	Cobalt, reserves, average content	Average thickness, m	Thickness of overburden, m
2 378,2 thousand tons	21 571 tons 0,91%	1 077 tons 0,046%	2,2-3,9	0,5-14,5

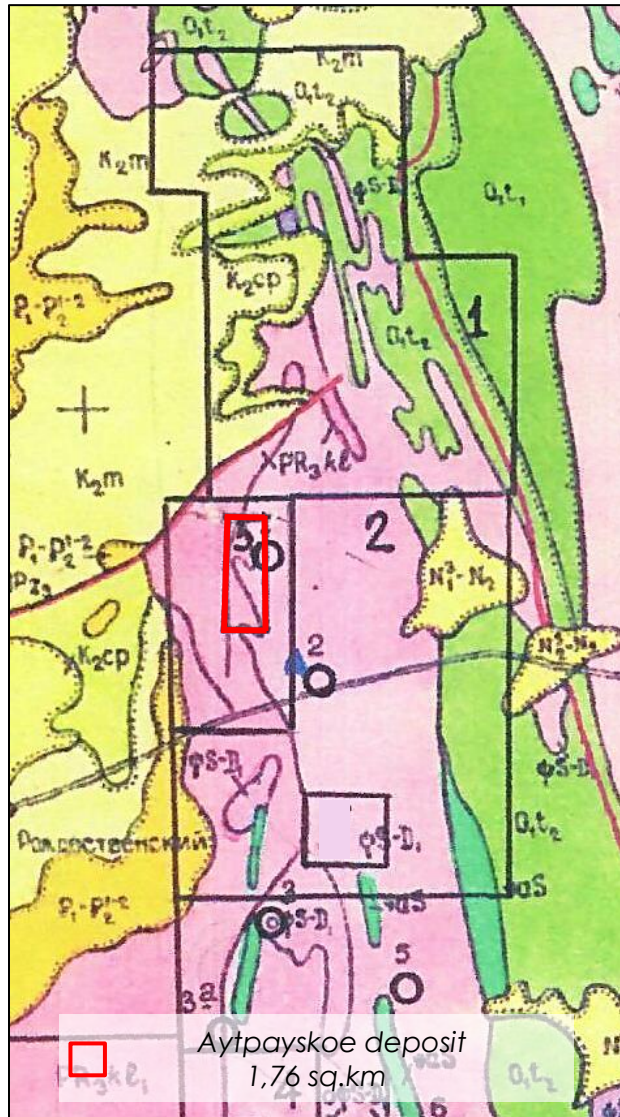
The reserve category C2, the cutoff grade of 0.80%, off-balance ores

Ore	Nickel, reserves, average content	Cobalt, reserves, average content	Average thickness, m	Thickness of overburden, m
947,6 thousand tons	9 752 tons 1,03%	494 tons 0,052%	2,2-3,9	0,5-14,5

The reserve category C2, the cutoff grade of 0.80%, balance ores

Ore	Nickel, reserves, average content	Cobalt, reserves, average content	Average thickness, m	Thickness of overburden, m
385 thousand tons	4 351 tons 1,13%	162 tons 0,042%	2,2-3,9	0,5-14,5

Aytpayskoe deposit in Aktobe region



General information: located in 7 km south-east from Aitpaka village. Exploration on the deposit was carried out in 1952-56 years network 400x100m and 200x100m. In 1959 it was explored on network 100x100m. The estimated reserves in the amount of 26.2 thousand tons with an onboard content of 0.5% were assigned to the off-balance. In 1978, the field carried out in small amounts of search-audit work on the network 200x100m. New wells were passed in profiles between old wells. All have completed 41 wells in total volume 595,5 r.m.

Aytpayskoe deposit is located on the western contact of Kempirsay massif of ultrabasites with enclosing schists of lowkayaldy suite.

The deposit is elongated in the meridional direction for 2.2 km with a width of 200-250m, forming a narrow zone of development of loose formations of the weathering crust along the contact have an elongated shape, changeable, with a relatively gentle immersion of ultrabasites to the west. Mineralization is confined to the weathering crusts on serpentinites and rocks of the banded complex dunite-percentage composition. The explored ore bodies have an elongated form of variable thickness and nickel content. The area of the largest deposits is 30 430 sq.km, the smallest – 7 400 sq.m. Depth of occurrence of ore bodies in average deposits is in the range of 2.2-10,0 m. The thickness of ore intersections from a minimum of 1.0 to 16.4 m (well 450), the average thickness on deposits from 2.15 m to 5.51 m. Nickel content in the wells ranges from a minimum of 0.70% to 1.34% of average deposits from 0.81% to 0,99%. The cobalt content on average on deposits from 0,041% to 0,066%.

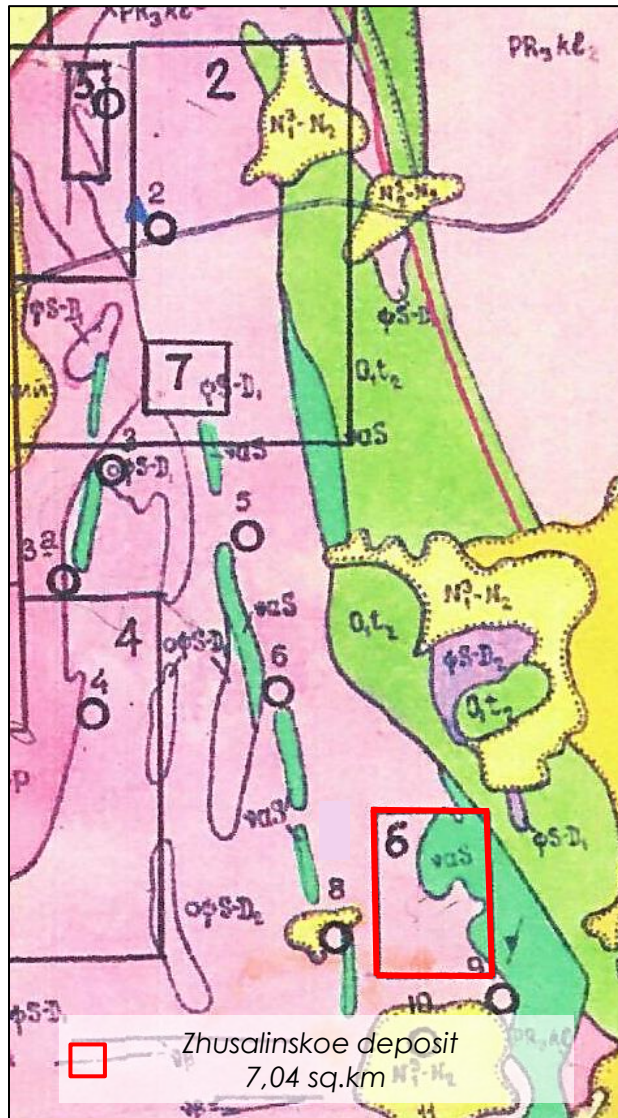
The reserve category C2, the cutoff grade of 0.70%, off-balance ores

Ore	Nickel, reserves, average content	Cobalt, reserves, average content	Average thickness, m	Thickness of overburden, m
3 402,1 thousand tons	30 329 tons 0,89%	1 564 tons 0,046%	2,15-5,51	2,0-10,0

The reserve category C2, the cutoff grade of 0.80%, off-balance ores

1 734,5 thousand tons	16 446 tons 0,94%	869 tons 0,05%	2,15-5,51	2,0-10,0
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Zhusalinskoe deposit in Aktobe region



General information: located in 7-8 km north of the village Kempirsay, on the eastern flank Baranovsko-Chugayevsky ore-bearing strip. In 1959, the field was explored on a network of 100x100m. The estimated reserves at the onboard content of 0.60%, in the amount of 62.4 thousand tons with an average nickel content of 0.75% were assigned to the off-balance.

Industrial nickel mineralization mainly tends to nontronite, nontronited serpentinites and their ocherized differences. Ore deposits in the field are characterized by small size, winding outlines, variable power and nickel content.

The area of the largest deposits 582 358 sq.m. Ores are located at depths between 1.0 and 27.5 m, average capacity of overburden 9.8 m. The capacity of the ore intersection from a minimum of 1.0 m to 11.0 m. The Nickel content in the wells ranges from 0.70% to 1.53%.

When calculating the reserves with the content of 0.80% was identified 2 blocks of industrial content ores. Industrial ore deposits are of interest, as the production facilities operating in the immediate vicinity Chugayevsky and Baranovsky mines and require the exploration.

The reserve category C2, the cutoff grade of 0.70%, off-balance ores

Ore	Nickel, reserves, average content	Cobalt, reserves, average content	Average thickness, m	Thickness of overburden, m
4 173,4 thousand tons	38 667 tons 0,93%	2 461 tons 0,059%	2,4-12,5	6,0-9,8

The reserve category C2, the cutoff grade of 0.80%, balance ores

2 629,2 thousand tons	26 239 tons 1,00%	1 640 tons 0,062%	2,4-12,5	6,0-9,8
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The reserve category C2, nickel content of 1.05% and more, balance ores

1 035,86 thousand tons	11 057 tons 1,07%	477 tons 0,046%	2,4-12,5	6,0-9,8
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