Esil-Mining

Aksoran tungsten-molibden deposit

Republic of Kazakhstan

“Esil-Mining” LLP

2016

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Geography

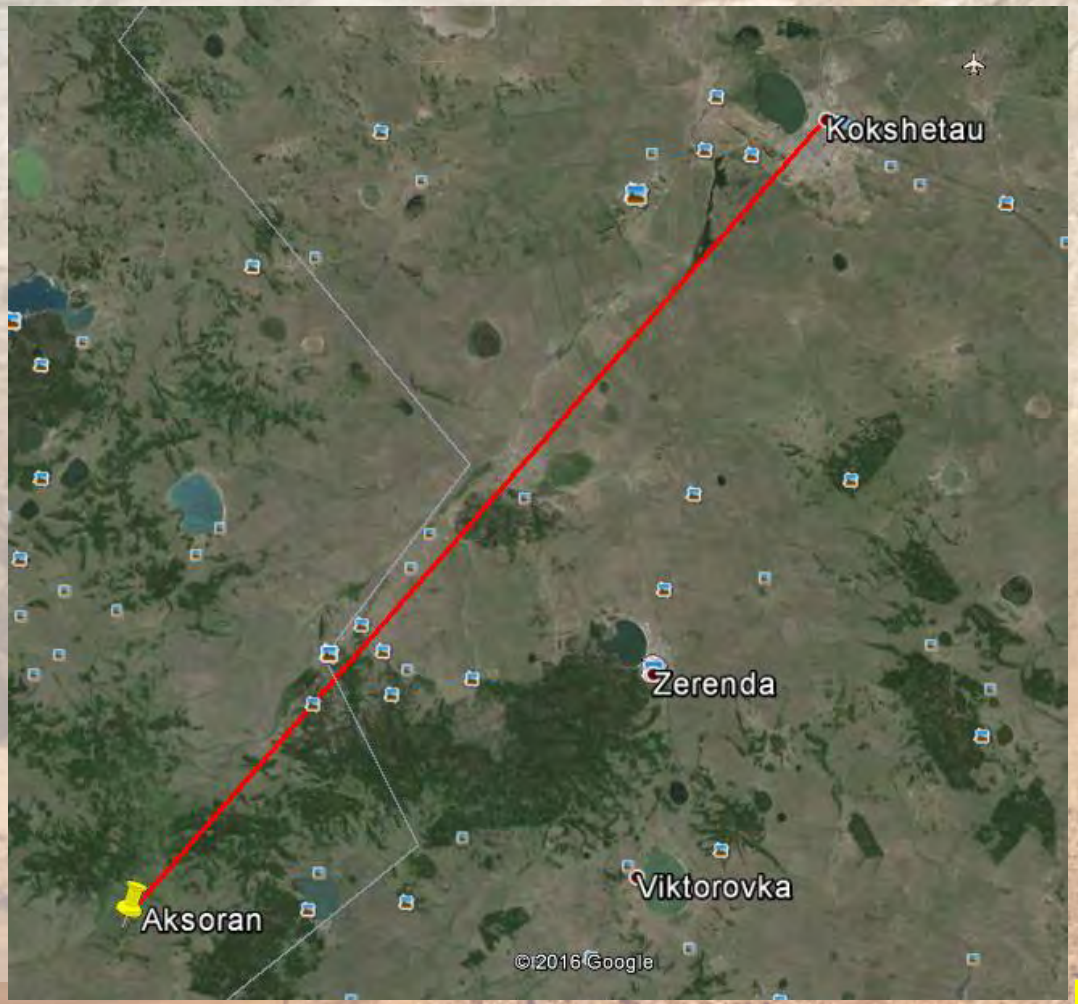
- Region – Northern Kazakhstan
- Area - Akmolinskaya
- District - Sandyktauskiy
- Location – 85 km to the southwest from the city of Kokshetau

- Coordinates

Degree of latitude - 52 °44 northern latitude

Longitude degree - 68 °30 eastern longitude

Height above the sea level-500m.



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Site area location

The borders of a geological allotment

No. of points	Northern latitude	Eastern longitude
1.	52˚44'02"	68˚27'13"
2.	52˚44'53"	68˚28'53"
3.	52˚45'55"	68˚32'10"
4.	52˚44'50"	68˚33'58"
5.	52˚43'10"	68˚28'42"
S= 17,5 км²		

Coordinates of the corner points

Contours of the geological allotment

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Brief description of geology

- The site's Ore zone is traceable for more than two kilometer lengthwise and is 250-350m wide. Traceable depth of the minefield is 450-500m. Average thickness of the ore zone is 280m. The Ore zone includes 11 distinguished ore beds that are steeply deepening with the thickness in the range of 0,5 to 26,3m (average thickness is 10,9m).

- The ore bearing ratio depends on the solid ore dimensional disposition and is varied within the range 0,1 to 1,0.

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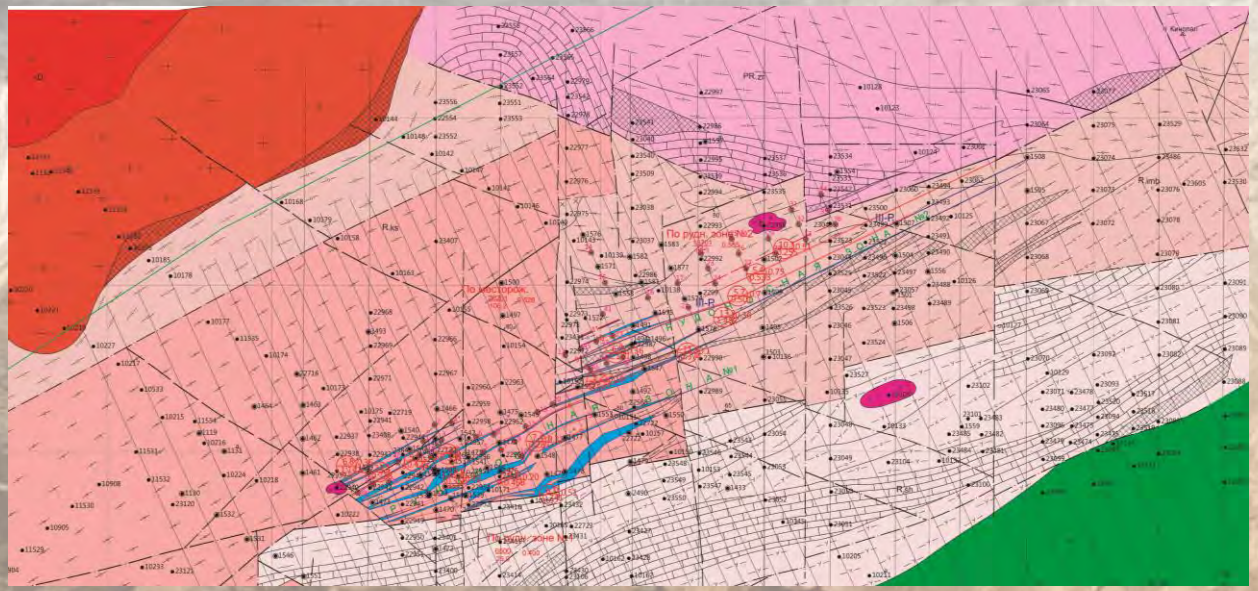
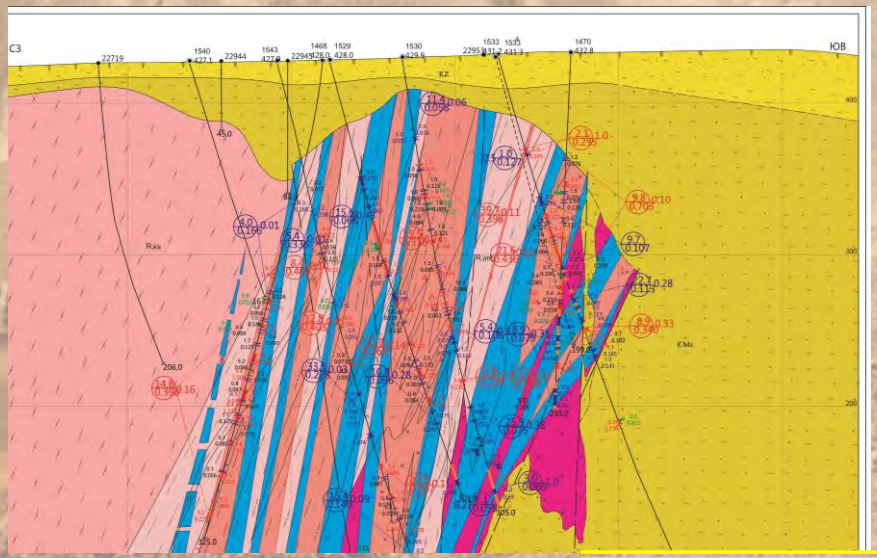
Graphic annex



Geological map of basement



Geological section

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Infrastructure development within the site area

- The nearest paved highway is 20 km away, in the west of the deposit towards Priozernoye-Nizhny Burluk direction.
- There is a 110 KW electric power transmission line and 110/35/10 KW substation in Arykbalyk settlement, which is located 30 km from the deposit to the north-east.
- The nearest operating railway station Saumalkol is located in 67km to the north-west of the deposit.
- In 35 km to the south-west there is a suspended Shantobe uranium processing plant.

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History

- In the year 1989 due to conversion of the mineral industry, all tungsten containing samples that suited industrial standards were exposed to mineralogical studies. In two samples out of 37 tungsten minerals were found.
- In the beginning of the year 1990, the checkup works were performed on site. Six vertical boreholes were driven deep down to 200m. The Hole No. 22720 was driven near the hole No.10172, and there were discovered molybdenum-and-tungsten ore that met industrial parameters.
- In 1990-1994 the prospecting and assessment works were carried out at the deposit. Test drilling with grid 100x50m has delineated tungsten and satellite elements (geochemical halo). Halos were uncovered by sections of angle holes directed to meridian direction via 200-400m, with 100m distance between the section holes.
- In 1995 current category C2 reserves estimation was made.

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Prospected resources

- The Deposit that physically is not exposed to the surface was determined by means of boreholes. 117 prospecting holes (28 395 m) were drilled in the area of 45 square kilometers along with 718 core drill wells (40 500 m). At the same time geophysical prospecting was also made using geomagnetic and electrical methods.

- The reserves were estimated based on sections along the line of survey traverse.

Type of ore, content of major and minor components

- As for its origin the deposit refers to skarnfield greisen. There are two kinds of ore that can be distinguished as porphyritic-amphibolite in the western part and skarn in the eastern part.
- The content of WO_3 varies from 0,2 to 1,4 % with an average around 0,5%.
- Beside the tungsten there are industrially significant elements - molybdenum (average value - 0,088%) and bismuth (up to 0,4%).
- Tungsten is mainly contained in scheelite and molybdenum scheelite ores (jointly 91,3%) while minor content may be found in tungstite ore (5,8%) and wolframite ore (2,9%). Molybdenum mainly is contained in molybdenite ore (88,7%), molybdite ore (7.7%) and powellite ore(5,7%).
- Along with the rare metals contained in the ore filed, there are quartz course with gold ore mineralization with gold and silver ore pockets that include lead, silver, zinc, bismuth, molybdenum. The concentration of gold is in the range of 0,2-1,0 g/t (in particular samples much higher - up to 10 g/t) and silver content up to 20-80 g/t.

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Deposit reserves

Reserves			Content	Ore tonnage, tons	Note	Associated components
Metal	**Category**	**Quantity, tons**				
Wolfram / Tungsten	C2	105 420	0,502 %	21 000 000	Underexplored	Bi (до 0,4%), Au, Ag
Molybdenum	C2	18 480	0,088%			

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Mining method

- In comparison with other deposits Aksoran field can experimentally be estimated as a large deposit. Average equivalent content of tungsten in the ore is 0,5 % which is significantly higher than the test limit value required for open cast mining and, apparently, will allow underground mining. Geological data compared with other mineral deposits and projects worldwide clearly shows that the concentration and the tonnage of the Aksoran deposit is suitable for commercial production.
- The particular mining equipment and methods will be developed in the course of feasibility study based on detailed appraisal with confirmation of mineral reserves.

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Ore enrichment

- The Ore can be enriched by traditional enrichment technologies.
- Following stages of enrichment technologies can be applied: Sorting by density for the primary enrichment purposes; crushing and two-stage grinding - up to 85% of the particles smaller than 0.074 mm – followed by three-stage flotation in order to enrich: 1st sulphide, 2nd molybdenum and 3rd scheelite.

	Output, %	Content of WO_3, %	Content of Mo, %
Scheelite concentrate from ore	60,5-82	56 - 62	0,3
Molybdenum concentrate from ore	77	0,004	45 -52
Mo from molybdenum concentrate	90,15		
Mo from collective concentrate	92,6		

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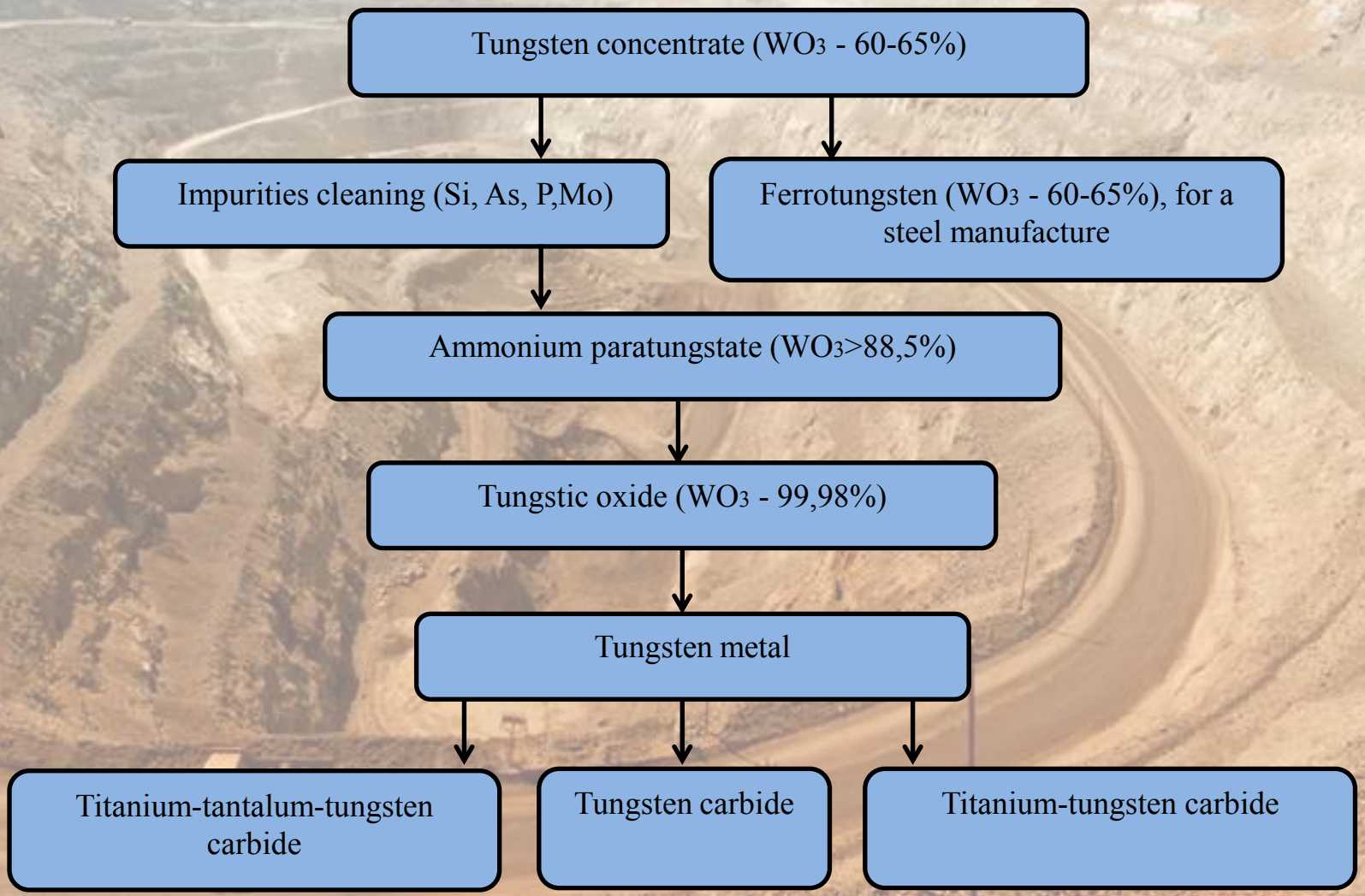
Type of final product



Subsoil use right

- The subsoil use right under the Contract (exploration) belongs to a company-resident of Kazakhstan – «Esil-Mining» Limited Liability Partnership.
- The Contract for subsoil use operations No. 4245 – TPI is registered on the 16th of July, 2013.

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ИНДУСТРИЯ ЖӘНЕ ЖАҢА ТЕХНОЛОГИЯЛАР МИНИСТРЛІГІ

Жер қойнауын пайдалану операциясын жүргізуге арналған келісім-шартты мемлекеттік тіркеу

АҚТІСІ

Астана қаласы 2013 жылғы «16» шілде

Осымен 2012 жылғы 18 қаңтардағы тікелей келіссөздер хаттамасы негізінде

Қазақстан Республикасының
Индустрия және жаңа технологиялар министрлігі
(Құзыретті орган)
мен
«Есіл» Әлеуметтік-кәсіпкерлік корпорациясы»
Ұлттық компаниясы» акционерлік қоғамы
(Жер қойнауын пайдаланушы)

арасында жасалған Қазақстан Республикасы Ақмола облысының Ақсоран кен орнында молибден және вольфрамды барлауға арналған келісімшарт тіркеледі.

пайдалы қазба: молибден және вольфрам

Тіркеу № 4245-ТПИ

Қазақстан Республикасының
Индустрия және жаңа технологиялар
Вице-министрі Н. Сауранбаев

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Documents supporting the entitlement

- The Resolution of the Board of Directors of "Esil" SBC dated October 18, 2011 on formation of the joint venture with "Esil" SBC – "Esil-Mining" LLP.
- State registration of «Esil-Mining» LLP – November 25, 2011. Share of "Esil" SBC – 20%, share of the Partner – 80%.
- The Protocol of direct negotiations between the competent authority in the area of subsoil use and "Esil" SBC dated January 18, 2012.
- The geological allotment for the area of 17.5 sq.km. received on July 23, 2012.
- The non-disclosure agreement No. 2166 for geological information dated October 15, 2012.
- Approval of the Contract for Subsoil Use No. 4245 – TPI dated July 16, 2013.
- The Resolution of the Board of Directors of "Esil" SBC dated November 18, 2013 – approval of a transfer of the subsoil use right under the Contract No. 4245 – TPI dated July 16, 2013 for exploration of molybdenum and tungsten on the Aksoran field from "Esil" SBC to "Esil-Mining" LLP.
- Signing of the Amendment No. 1 dated April 20, 2015 to the Contract No. 4245-TPI dated July 16, 2013, on transferring of the subsoil use right to the name of «Esil-Mining» LLP.
- The minutes of the Working Group of the Ministry of Investments and Development of the Republic of Kazakhstan dated October 8, 2015 has been signed – permission for amendments to the working program under the Contract, approval of the exploration period – 2016-2019.
- Obtaining an approval of the competent state authority for a sale-purchase of 20% of shares in «Esil-Mining» LLP between the Partner and «Esil» SBC – February 1, 2016.
- Shares sale-purchase agreement between the Partner and «Esil» SBC – February 9, 2016.
- State re-registration of «Esil-Mining» LLP – February 12, 2016. The sole shareholder of «Esil-Mining» LLP is «Mineral assets 2012» LLP (100% of shares).

Current project activities of the company

- Presently preparation works for the Technical project plan for exploration are under way.
- At the moment the following works for the Technical project plan are completed:
  - text and graphic parts of the document package;
  - financial estimates;
  - environmental impact evaluation part.
- Under this Technical project plan the following permits and approvals were achieved:
  - the approval of Esil Water Basin Resource Management and Conservation of the Kazakhstan Ministry of Agriculture has been obtained on 01.02.2016;
  - the approval of Territorial forestry and fauna management of the Kazakhstan Ministry of Agriculture has been obtained on 2.02.2016;
  - Safety and health certificate of Akmola district Department of protection of consumers has been obtained on 25.01.2016;
  - an independent appraisal of the Technical project plan for exploration works has been carried out (as required by competent subsoil resource management authority);
- Technical project plan has been submitted for environmental impact assessment.
- In March 2016 it is planned to submit the Technical project plan for exploration works for approval of the competent authority upon which execution of geological survey work program will start.