

Aynak Information Package

Part V Other copper occurrences in the Kabul block

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1 Introduction

In addition to Aynak and Darband many other copper prospects and occurrences in the Kabul block were investigated to varying degrees by the Soviet exploration programme of the 1970's. Jawkhar is the most important of these in terms of exploration undertaken, but little information on this work is preserved in the AGS archives.

The following summaries of some of the more important prospects of the Kabul block were abstracted from Kutkin and Gusev (1977).

2 Prospects

2.1 JAWKHAR (DZHAVKHAR)

Jawkhar (Dzhavkhar) is located 50 km from Kabul at latitude 34°18'57"N and longitude 69°18'10"E. Detailed exploration undertaken at this site included 1:2 000 scale geological mapping, a substantial trenching programme, and the construction of 1257 m of adits. A total of 1635 channel samples and 1191 other samples were taken for chemical analyses.

Fifteen mineralised zones were distinguished between 150–440 m long and 3–29 m thick, with an average copper contents ranging from 0.49–1.20 %, with a maximum grade of 2.43 % Cu. The copper mineralization is mainly associated with albitized zones. Primary mineralization consists of chalcopyrite and bornite, associated with magnetite, ilmenite, pyrrhotite and sphalerite. Secondary minerals are bornite, chalcocite, covellite, cuprite, native copper and malachite.

Category C₂ reserves were estimated to be 79 700 tonnes of contained copper at an average grade of 0.74 % Cu. These were classified as *non-commercial reserves*. Unfortunately, few records of Jawkhar exist as they were destroyed or lost over the last 20 years.

2.2 DASHTAK

Dashtak is located 8 km west from Jawkhar and 39 km from Kabul, at latitude 34°18'37"N and longitude 69°12'47"E. Exploration carried out at this site included 1:2 000 scale geological mapping, trenching, the drilling of two boreholes totalling 212.6 m, and channel and core sampling. The occurrence is stratiform and hosted in dolomite marble of the Loy Khwar Formation. It consists of an oval-shaped "orebody" 160 x 200 m in length and 1.2–17.3 m thick with an average grade of 1.67 % Cu. The mineralisation is somewhat oxidised. The dominant primary sulphide mineral is bornite, together with lesser chalcopyrite and pyrite. Secondary minerals include chalcocite, covellite, and cuprite. Category C₂ reserves were estimated to be 8 200 tonnes of copper at an average grade of 1.67 % Cu. Soviet geologists concluded that the occurrence has limited importance on its own but may have potential if the Aynak deposit were to be developed.

2.3 SORBOG

Sorbog occurs 8 km west-northwest from Dashtak and 41 km from Kabul, at latitude 34°19'40"N and longitude 69°12'20"E. The occurrence, situated on the steep slopes of Mount Sorbog, has only been explored to a limited extent. Work undertaken in the Soviet era included 1:2 000 scale geological mapping, trenching, and geochemical sampling. The stratiform "orebody" is reported to be 540 m long and 11.8–49 m thick (average 22.3 m) and occurs within albitized marble. Mineralisation consists of disseminated bornite, chalcopyrite, chalcocite, covellite with minor malachite. Category C₂ reserves were estimated to be 34 800 t of copper at an average grade of 0.91 % Cu and a cut-off grade of 0.4 % Cu. The Soviet survey concluded that the occurrence was "non-commercial".

2.4 KATASANG

Katasang is situated 10 km northwest of Jawkhar and 37 km from Kabul, at latitude 34°19'55"N and longitude 69°12'30"E. Limited exploration carried out at this site included geological mapping at a scale of 1:2 000, trenching and geochemical sampling. A stratiform "orebody" within steeply dipping albitized marble was delimited. This is reported to be 800 m long and 3.6–13.8 m thick (average 8.2 m) with disseminated bornite, chalcopyrite, chalcocite and minor malachite. Category C₂ reserves were estimated to be 42 100 tonnes of copper at an average grade of 1.04 % Cu. The occurrence was classed as "non-commercial", although further detailed exploration was recommended at depth.

2.5 ZAKHEL

Zakhel 1 and Zakhel 2 are situated 4 to 5 km northwest and north-northwest of Jawkhar, and about 46 km from Kabul. The coordinates of the prospects are: latitude 34°20'05"N and longitude 69°16'00"E for Zakhel 1; and latitude 34°21'20"N and longitude 69°17'20"E for Zakhel 2. Limited exploration carried out at the occurrences includes geological mapping at a scale of 1:2 000 scale, trenching and geochemical sampling. Mineralisation consists dominantly of malachite with bornite, chalcopyrite, and rare chalcocite and covellite. The mineralisation generally is hosted in marble and is irregular. Only a few samples reported copper values above 1.3% and the occurrence was considered to have no economic importance.

2.6 PALANGAR

Palangar occurs 2.2 km north from Jawkhar and 45 km from Kabul located at latitude 34°20'00"N and longitude 69°17'55"E. Limited exploration carried out here included 1:2 000 scale geological mapping, trenching and geochemical sampling. The stratiform "orebody" is 750 m long and 6.1–16.1 m thick (average 11.4 m) with disseminated chalcopyrite, chalcocite and rare malachite within dolomite marble and carbonaceous-mica-quartz schist. Copper "reserves" in the central zone (up to 1 m depth) represent 187 t and the occurrence was considered to have no economic importance.

2.7 KAKHAY

Kakhay is situated 7 km northwest from Jawkhar and 43 km from Kabul, at latitude 34°20'05"N and longitude 69°13'45"E. Limited exploration included geological mapping at 1:2 000 scale, trenching and geochemical sampling. Mineralisation is represented by disseminated bornite,

chalcopyrite and minor malachite. Kakhay consists of two “orebodies” 200 and 250 m long and 2.0 and 2.3 m thick, with average copper contents of 0.58 and 1.05 % respectively. They are considered to have no economic importance.

2.8 KALAGAY

Kalagay is situated 10 km west of Jawkhar and 39 km from Kabul, at latitude 34°18'35”N and longitude 69°11'40"E. Limited exploration carried out included geological mapping at 1:2 000 scale, trenching and geochemical sampling. Mineralisation consists of disseminated bornite, chalcopyrite and minor malachite within dolomite marble. In one trench an average grade of 0.79 % Cu was recorded over 8.1 m. It was concluded that the prospect has no economic importance.

3 References

Kutkin, I.S. and Gusev, I.A. 1977: Geological setting of the Dzhavkhar group occurrences and their evaluation, Kabul copper-ore region. AGS Archive, Kabul, Afghanistan (in Russian).

Appendix 1: Summary of prospects

Occurrence name	Latitude	Longitude	Area of geological mapping	Volume of trenced material	Adits / boreholes	Geochemical sampling details	Primary minerals	Mineralisation details	Category C2 reserves
Jawkhar (Dzhavkhar)	34°18'57"N	69°18'10"E	0.9 km ²	29 trenches, 1790 m ³	1257 m adits	1635 channel samples and 1191 chemical analyses	Chalcopyrite and bornite	15 mineralized zones with "orebodies" 150-440 m long and 3-29 m thick with average grade 0.49-1.20 % Cu	79,700 t of copper at average 0.74 % Cu
Dashtak	34°18'37"N	69°12'47"E	0.3 km ²	549 m ³	2 boreholes with total length 212.6 m	188 channel and core samples and 155 chemical analyses	Bornite, chalcopyrite and pyrite	Stratiform mineralisation hosted in dolomite marble of Loy-Khwar Formation. Oval "orebody" 160x200 m in size, 1.2-17.3 m thick at average 1.67 % Cu	8,200 t of copper at average 1.67 % Cu
Sorbog	34°19'40"N	69°12'20"E	0.1 km ²	488.7 m ³		119 channel samples and 115 chemical analyses.	Disseminated bornite, chalcopyrite, chalcocite, covellite and minor malachite	Stratiform mineralisation 540 m long and 11.8-40.9 m thick (average 22.3 m) hosted in albitized marble. Average grade 0.91 % Cu.	34,800 t of copper at cut-off of 0.4 % Cu
Katasang	34°19'55"N	69°12'30"E	0.2 km ²	357 m ³		46 channel samples and 46 chemical analyses	Disseminated bornite, chalcopyrite, chalcocite and minor malachite	Stratiform ore body 800 m long and 3.6-13.8 m thick (average 8.2 m) hosted in steeply dipping albitized marble.	42,100 t of copper. The occurrence needs more detailed exploration at depth
Zakhel 1	34°20'05"N	69°16'00"E	0.8 km ²	1913 m ³		873 channel samples and 407 chemical analyses	Malachite, bornite, chalcopyrite, and rare chalcocite and covellite.	Irregularly distributed mineralization hosted in marble. Only a few samples recorded above 1.3 % Cu.	
Zakhel 2	34°21'20"N	69°17'20"E							
Palangar	34°20'00"N	69°17'55"E	0.06 km ²	151.5 m ³		44 channel samples and 44 chemical analyses	Disseminated chalcopyrite, chalcocite and rare malachite	Stratiform "orebody" 750 m long and 6.1-16.1 m thick (average 11.4 m) within dolomite marble and carbonaceous-mica-quartz schist	187 t Cu up to 1m depth.
Kakhay	34°20'05"N	69°13'45"E	0.15 km ²	372 m ³		137 channel samples and 134 chemical analyses	Disseminated bornite, chalcopyrite and minor malachite	Two "orebodies" 200 and 250 m long and 2.0 and 2.3 m thick with grade of 0.58 and 1.05 % Cu.	
Kalagay	34°18'35"N	69°11'40"E	0.06 km ²	210 m ³		31 channel samples and 9 chemical analyses.	Disseminated bornite, chalcopyrite and minor malachite.	Average 0.79 % Cu observed over 8.1 m in one trench in layered dolomite marble.	

