PGC PUBLISHING

Kay, B.D., Oakes, B., and Arifiev, V., 1998 - The Jerroy Gold Deposit, Kyrgyz Republic; *in Porter, T.M. (Ed.), Porphyry and Hydrothermal Copper and Gold Deposits: A Global Perspective*; PGC Publishing, Adelaide, pp 207-212.

THE JEROOY GOLD DEPOSIT, KYRGYZ REPUBLIC

[1]Barrie Oakes, [2]Bruce D Kay, [1]Vladimir Arifiev

[1]*Oxus Resources Corporation,* [2]*Normandy Mining Limited*

INTRODUCTION

Normandy Mining Limited is currently undertaking an investigation in conjunction with Oxus Resources Corporation, an unlisted UK Company on the Jerooy gold deposit in the Kyrgyz Republic. If positive, the Normandy - Oxus joint venture (Norox) could earn a 66.67% interest with a State-owned gold company, Krygyzaltyn, holding the remaining equity.

This paper is of a general overview nature and contains little detailed geological information because most of the previous information is in Russian and difficult to access. The focus since Norox involvement in April 1998, has also been on economic and resource evaluation priorities rather than purely geological aspects. Most of the information herein has been obtained from the Norox preliminary feasibility study completed in March 1998 (Norox, 1998).

HISTORY OF DISCOVERY

The Jerooy gold deposit was discovered during the North Kyrgyz Geological Expedition program reported in 1968 (Cherepanov et al 1968; Satybaldiev et al 1969). Geological mapping, surface trenching, core drilling and underground development continued until 1979. Between 1977 and 1985, geotechnical surveys and metallurgical testing culminated in an ore reserve and definitive feasibility study of the deposit reported in 1986. Jerooy ore reserves of 12.523 million tonnes of ore grading 6.36 g/t Au (2.56 million ounces) were classified in the CIS categories of C1 and C2.

In 1991, the State Concern, Kyrgyzaltyn, was awarded the mining licence and given the authority to develop the deposit. Preliminary construction commenced in 1992 but was halted in 1993 due to lack of funds. Two western companies (MK Gold and Cameco Gold) have undertaken studies of the deposit since 1993, but decided not to proceed with the project.

REGIONAL GEOLOGICAL SETTING

The Jerooy deposit lies in north western Krygyzstan 160km west-southwest of the capital, Bishkek, in the Ala Tau range of the Northern Tien Shan Mountains, (Figure 1). It is situated at an elevation of 3800 metres above sea level, but accessible by road from the town of Talas, 45kms to the west. It lies on a north-western regional fault within the Tien Shan gold belt which extends for over 1,000 km, and contains large gold (Muruntau, Kumtor) and porphyry copper deposits.

The Talas – Ala Tau Ridge is predominantly underlain by Lower Proterozoic to Riphean sediments essentially represented by sandstones, shales, phyllites and limestones with hypabyssal intrusives and effusives of liparites, dacites and porphyries (Figure 2 and Figure 3). Due to strong W-NW regional faulting, these older formations are tectonically juxtaposed against Cambrian – Ordovician thinly bedded limestones and dolomite and Ordovician – Devonian volcanogenic suites (andesites, dacite flows and tuffs) grading up to terrigenous red polymict and arkosic sandstones, agglomerates and shales of Devonian – Permian age.

The regional sequence is intruded by late Riphean and Vendian granodiorites, tonalites and quartz monzonites and larger Cambrian - Ordovician "granitoid" batholiths which vary in composition from diorite and quartz diorite to granodiorite and granite. These quartz diorites form the host rock for the Jerooy auriferous veins and stock works.

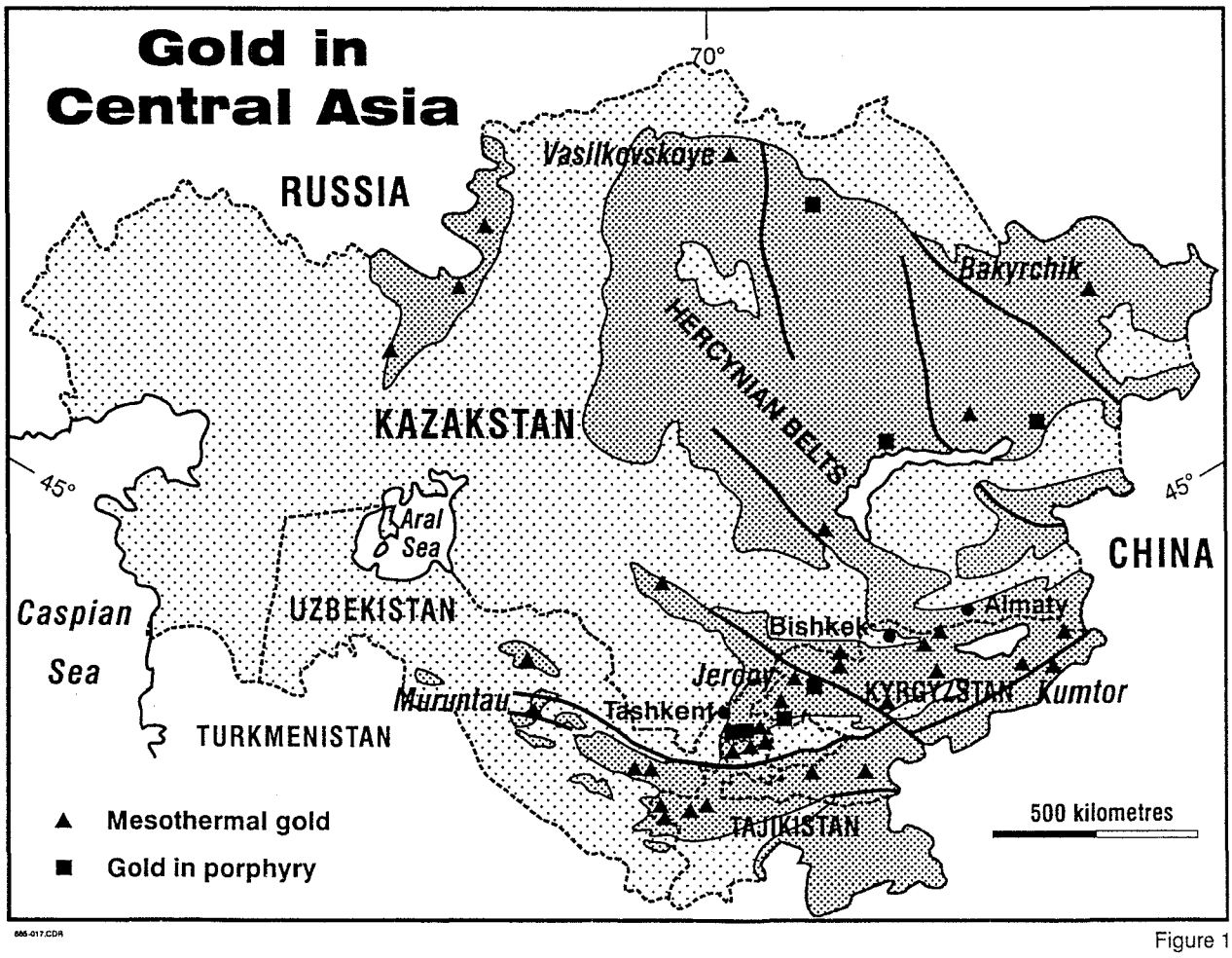

Figure 1

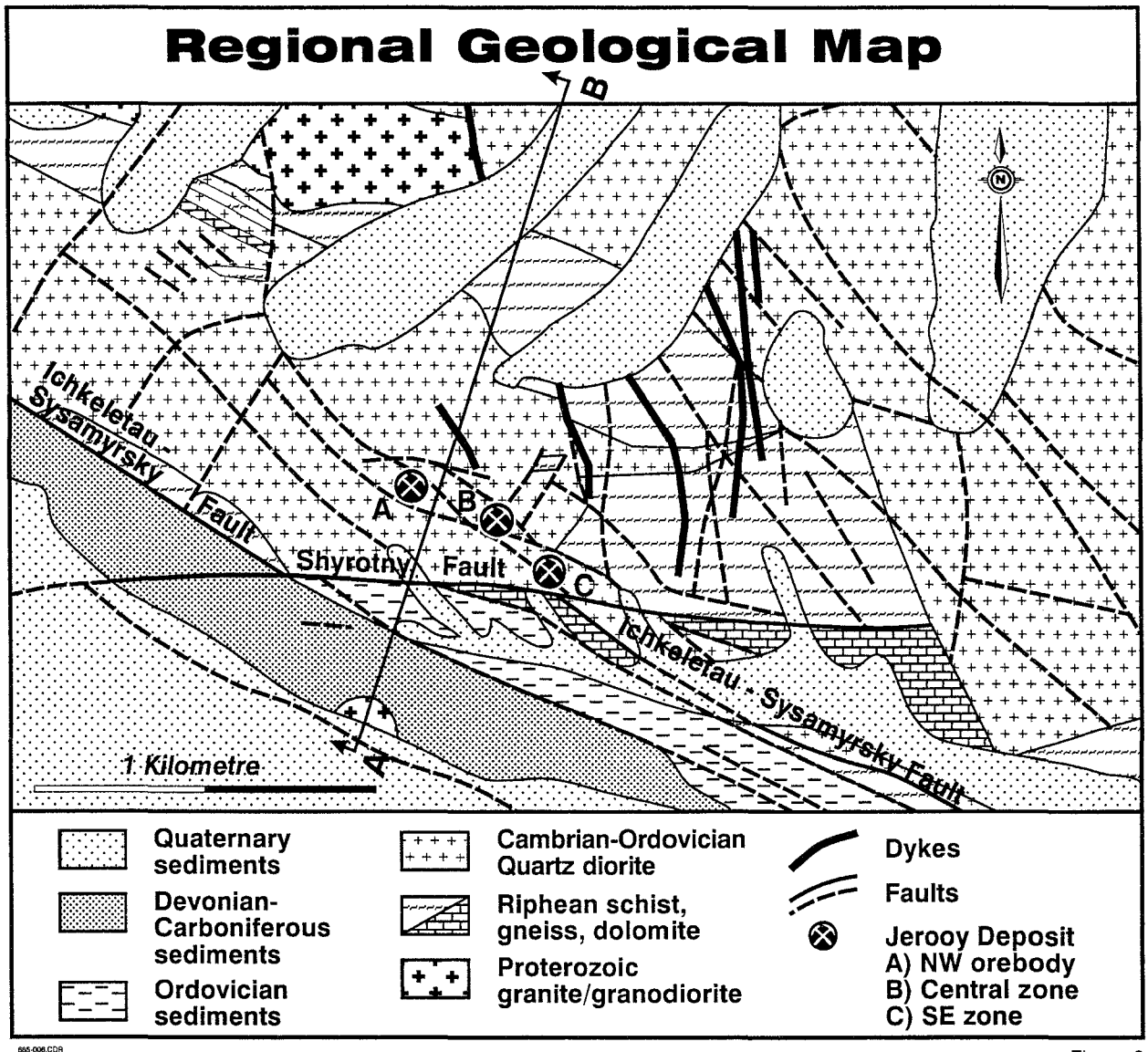

Figure 2

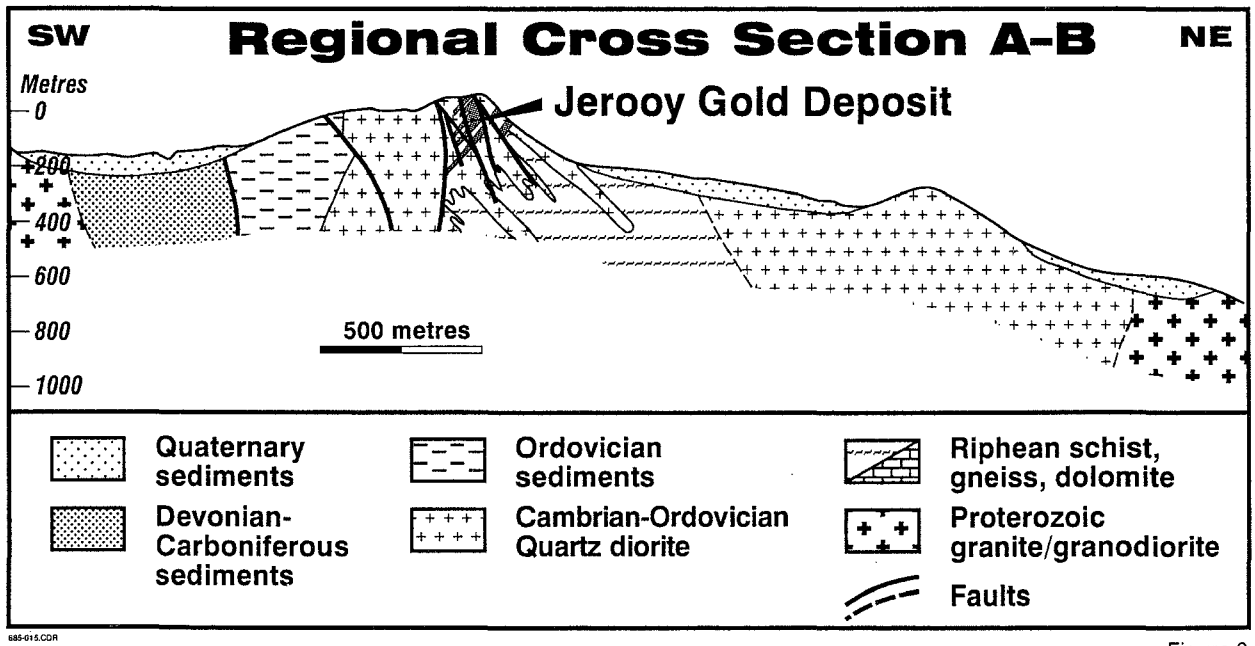

Figure 3

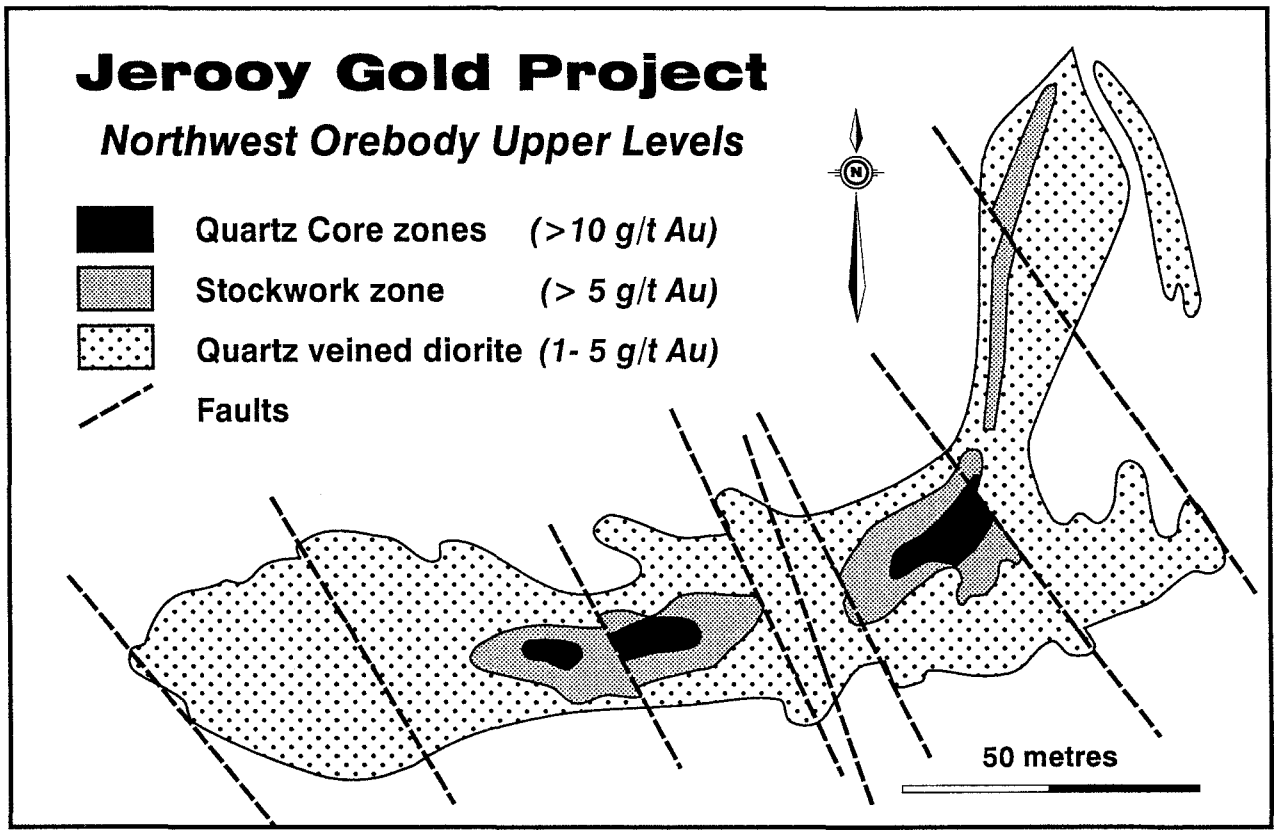

Figure 4

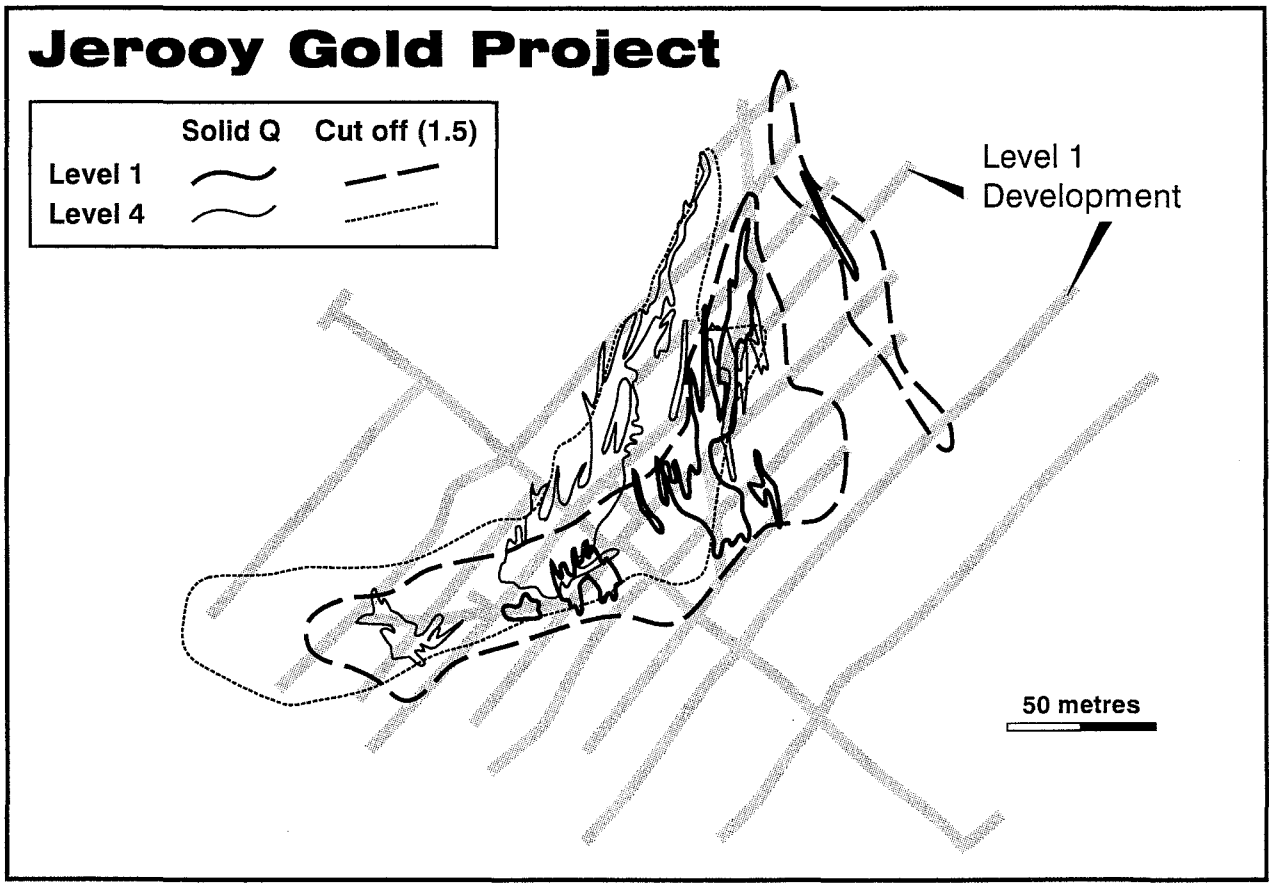

Figure 5

Major NW trending structural fault blocks control the location of the deposit, but it is uncertain if these are due to folding and faulting or major thrusting . The Jerooy deposit appears to be on a major east-west dislocation in the northwest trending Ichkeletau – Susamyrsky Fault System. (Figure 2).

MINE GEOLOGY AND ORE RESERVES

The Jerooy deposit is hosted by a large lower Palaeozoic quartz diorite and quartz syenite complex with later porphyritic and aplitic intrusives with metasediments and volcanogenic sediments occurring as inliers within the intrusive complex. In broad terms, the main North-West Ore Deposit is a banana shaped envelope trending east west to north south, about 200 metres long by 30 metres wide (Figure 4). In detail, however, there is a strong NNE control on the high grade siliceous zones and adjacent stockworks within the overall envelope (Figure 5). The deposit shows a transition from massive quartz veining (gold grades > 10 g/t Au) to quartz stockworks (> 5 g/t Au) to quartz veining and stringer zones (1 – 3 g/t Au). The deposit changes from a broad, dispersed zone of mineralisation at its outcrop at 3700 metres above sea level, to a narrower, highly silicified zone at depth (3300m ASL).

Jerooy is a low sulphide, gold-quartz mesothermal deposit generally associated with silica in which the sulphide content is less than 1%. Major sulphides are pyrite, bismuthinite and tetradymite. Most of the gold occurs as free gold less than 0.01mm in size, with minor telluride minerals (calaverite and krennerite). The age of the mineralisation is unknown and may be related to either Caledonian (Lower Paleozoic) or Hercynian (Late Paleozoic) orogenic events.

Resource estimation is currently being carried out as part of the feasibility study and will include all Soviet underground sampling and drillhole data as well as results from recent underground drilling by Norox. An estimation at the pre-feasibility stage gave a resource of 11.218 million tonnes grading 5.92 g/t Au (2.14 million ounces of gold).

OPERATIONAL ASPECTS

The current study will proceed until March 1999, and assess all geological, metallurgical, engineering, social and financial aspects of the project. It is likely that the ore deposit will be mined initially by open pit methods to produce about 1.32 million ounces of gold with the remainder being by underground methods (0.81 million ounces of gold).

Ore will be processed at a rate of 1 million tonnes per annum in a Carbon in Pulp (CIP) plant located near the mine site. The ore is quartzitic and free milling with a likely recovery of 92%. Approximately 190,000 ounces of gold will be produced each year at an estimated cash cost of less than US$150 per ounce. Major challenges are the engineering aspects of building a plant and tailings dam at an elevation of >3500 metres ASL in a seismically active zone.

REFERENCES

Cherepanov A. A. et al. 1980: Geological Structure and Mineral Occurrences of Map Sheets 6 – 69b and 6-70b. Ortotanskayi Special Mapping Party, North Kyrgyz Geological Expedition.

Norox, 1998. The Jerooy Gold Deposit: A Preliminary Feasibility Study, March 1998.

Satybaldiev L. I. et al. 1969: Results of Propsecting Works for Tin Deposits. North Kyrgyz Geological Expedition.

Satybaldiev L. I. et al. 1973: Complex Programme of Minerals Research in the Talas Ore Area. North Kyrgyz Geological Expedition.

Satybaldiev L. I. et al. 1980: Detailed Exploration of the Jerooy Gold Deposit. Summary Report. North Kyrgyz Geological Expedition.

Satybaldiev L. I. et al. 1984: Detailed Exploration (2^{nd} Stage) of Deep Horizons of the Jerooy Gold Deposit with Reserve Calculations to 1^{st} August, 1984. North Kyrgyz Geological Expedition, Stage Report.

Sorokin V. N. & Lomakina G. V. 1982: Study of the controls and distribution of gold mineralisation of the Jerooy Ore Field and the Elaboration of Prospecting Criteria. North Kyrgyz Geological Expedition.