4．外国投資法（英訳文、ドラフト）

LAW OF THE KYRGYZ REPUBLIC

"On Foreign Investments in the Kyrgyz Republic"

This Law is aimed at the creation of legal, economic and organizational preconditions for attraction of foreign investments, development of bases of a favorable investment climate in the Kyrgyz Republic for foreign investments, it establishes their legal regime, the procedure for settlement of investment disputes, and also regulates the protection and provision of foreign investors with guarantees.

CHAPTER I. GENERAL PROVISIONS

Article 1. Basic concepts and terms used in this Law

1. Investments mean tangible and non-tangible assets, in particular:

- money;
- movable and immovable property;
- property rights such as (mortgages, liens and pledges and others);
- stock and other forms of participation in a legal entity;
- bonds and other debenture liabilities;
- rights (claims) to money, goods, services and any other performance under a contract;
- right to intellectual property including goodwill, copyright, patents, trade marks, industrial designs, technological processes, trade names, know-how;
- any right to activity based on a license or in other form given by State agencies;
- concessions based on Law including concessions for search, development, mining or exploitation of natural resources;
- profit from investment and re-invested on the territory of the Kyrgyz Republic.

A form in which a property is invested, or change of this form does not influence its nature as investments.

2. "Foreign investments" are investments appearing as contributions of foreign investors into objects of economic activity in the territory of the Kyrgyz Republic to derive profit.

3. "Foreign investor" means:

a) any natural person who is:

- a foreign citizen;
- citizen of the Kyrgyz Republic who has permanent residency status abroad
- provided that he is registered in the country of his permanent residency to conduct economic activity;
- a person without a citizenship, permanently living abroad;

b) any legal entity which is either:

- founded and registered in accordance with the legislation of a foreign State;
- founded in accordance with the legislation of the Kyrgyz Republic, and:

  - has its legal address or principal place of business on the territory of a foreign State, or
  - wholly owned by one or more foreign natural persons, legal entities, or
  - controlled and managed by one or more foreign natural persons, legal entities on the basis of: a written contract, the right to exercise the majority of the voting shares, right to appoint the majority of the members in its executive or supervisory bodies, or
  - not less than twenty percent (20%) of the Charter capital which is in ownership of foreign citizens, persons without a citizenship permanently living abroad or legal entities specified by this Article.

c) a foreign State or its administrative-territorial unit conducting economic activity;

d) a legal entity created by inter-governmental treaty or agreement, or any subject of international law.

Article 2. Other Definitions

1. "Profit" means any amounts yielded by an Investment and determined as a difference between total annual returns and deductions as it is defined by the Tax Code of the Kyrgyz Republic.

2. "Investment Dispute means any dispute between a foreign investor and the Kyrgyz Republic in respect of a foreign investment.

3. "Freely Useable Currency" means any currency determined as such by the International Monetary Fund.

4. For the purposes of this Law the concept "Kyrgyz Republic" includes State authorities and other agencies having commanding powers within their competence.

Article 3. Priority of Interstate Agreements

Provisions of interstate agreements and other acts ratified by Jogorku Kenesh of the Kyrgyz Republic of which the Kyrgyz Republic is a signatory, shall have the priority to the provisions of this Law.

CHAPTER II. GUARANTEES FOR FOREIGN INVESTORS

Article 4. Guarantees of National Treatment, Equitable and Fair Treatment, Full and Constant Protection for Foreign Investors

1. The Kyrgyz Republic shall accord to foreign investors carrying out investments in the territory of the Kyrgyz Republic fair, equitable legal treatment, full and constant protection, and guarantees.

The Kyrgyz Republic shall abstain from any interference with economic activity, rights and legally recognized interests of foreign investors.

Officials of the Kyrgyz Republic who fail to comply with the provisions of this Article shall be held liable in accordance with the Laws of the Kyrgyz Republic.

2. Foreign investors shall have the right to carry out investments and be engaged in economic activity in the territory of the Kyrgyz Republic on terms and conditions no less beneficial than those accorded to natural persons and legal entities of the Kyrgyz Republic, except restrictions which can be introduced for protection of national security, health of the population, public moral and defense in accordance with a Schedule to Annex 1 of this Law which is being adopted by the Cabinet of Ministers of the Kyrgyz Republic and approved by Jogorku Kenesh of the Kyrgyz Republic.

3. Any investments or activity included into Annex 1 of this Law must be in compliance with international obligations undertaken by the Kyrgyz Republic.

4. The Kyrgyz Republic shall accord to foreign investors carrying out investments national treatment that is applied to legal entities and natural persons of the Kyrgyz Republic in compliance with paragraph 2 of this Article.

Article 5. Guarantees of Non-Discrimination of Foreign Investors

1. The Kyrgyz Republic shall permit no discrimination in respect of foreign investors on the basis of their citizenship, residency, religion, place of economic activity, and State of origin of investors or investments taking into account international agreements of the Kyrgyz Republic.

Article 6. Guarantees of Protection from Expropriation of Foreign Investments

1. Foreign investments shall not be subject to expropriation (nationalization, requisition or any other equivalent measure including inactivity of the Kyrgyz Republic which has had the effect of forced alienating of assets of a foreign investor or depriving of an opportunity to use investment results), except cases when such expropriation is carried out for an overriding public purpose, on a non-discriminatory basis, in accordance with due process of law, and accompanied by prompt, adequate and effective compensation.

2. Compensation shall be equivalent to the fair market value of the expropriated investment or its part immediately before making a decision concerning the expropriation, nevertheless if information concerning the expropriation had become publicly known earlier the value of investments shall be estimated before the moment preceded to this event.

3. Compensation shall be freely transferable and payable in a freely useable currency. Compensation shall include interests corresponding to the interest rate of a long-term crediting used by the National Bank, established for the period between the date of expropriation and the date of compensation payment.

4. Due process of law shall provide for the right of the foreign investor which claims to be effected by expropriation to prompt review, including the valuation of his investment and payment of compensation in accordance with the provisions of this Article by a judicial authority or any other competent authority of the Kyrgyz Republic without prejudice to the compensation procedure in respect of foreign investors under Article 24 hereof.

Article 7. Reimbursement of Losses to Foreign Investors

1. Foreign investors who incurred losses related to their foreign investments within the territory of the Kyrgyz Republic as a result of a war or other military conflict, revolution, emergency situation, civil conflicts (unrest) or other similar circumstances shall be granted the legal status and conditions not less favorable than the status and conditions given to legal entities and natural persons of the Kyrgyz Republic.

2. The Kyrgyz Republic shall without delay and honestly fulfill all the obligations undertaken by virtue of the effect of the Law or any agreement with a foreign investor. In the event that a foreign investor has incurred losses as a result of activity or inactivity of the Kyrgyz Republic's officials and such activities contradict the legislation of the Kyrgyz Republic or norms of international law, the foreign investor shall have the right to reimbursement in compliance with the provisions of Article 6 hereof.

Article 8. Guarantee for the Use of Income

1. Foreign investors shall have the right to use freely and at their discretion their investments and income received from investment activities for any purposes which are not prohibited by the legislation of the Kyrgyz Republic.

2. In order to secure and utilize income and any other resources, foreign investors shall have the right to open in the territory of the Kyrgyz Republic accounts in the national and foreign currency in accordance with the legislation of the Kyrgyz Republic.

Article 9. Freedom of Currency Transactions

1. Currency transactions shall be carried out by foreign investors in accordance with the law of the Kyrgyz Republic "On Foreign Currency Transactions" and other legislation of the Kyrgyz Republic on Currency Controls.

2. Foreign investors shall with respect to all payments relating to a foreign investment in the Kyrgyz Republic have the right to freely convert the national currency of the Kyrgyz Republic into any other currency.

3. All foreign investment-related foreign currency transfers into and out of the Kyrgyz Republic shall be carried out freely and without delay under the condition of payment of taxes and other mandatory payments in accordance with the procedure established by the legislation of the Kyrgyz Republic.

Such transfers shall include:

- profits, returns, payments for services and commissions;
- reimbursements received for the losses incurred;
- dividends, interest rates payments;
- proceeds from the sale of property;
- proceeds from the sale or liquidation of a part of or all investments;
- admission fees, royalties, payments on management contracts, and expenses related to debt honoring;
- the Charter capital and additional amounts to maintain or increase a foreign investment,
- payments made under contracts including local agreements;
- payments arising out of the settlement of a dispute;
- earnings and other remuneration of foreign employees;
- proceeds legally received from other sources.

4. In the territory of the Kyrgyz Republic a foreign investor shall have the right to freely dispose of the National currency which belongs to the investor.

Article 10. Free Access to the Open Information

1. All normative acts, and also court injunctions (decisions) which somehow affect interests of foreign investors must be accessible to them, and in cases directly provided for by the legislation of the Kyrgyz Republic they must be published.

2. State bodies shall, at foreign investors' requests, provide them with accessible information they are interested in according to the procedure provided for by the legislation of the Kyrgyz Republic.

Article 11. Agency on Foreign Investments

1. An Agency on Foreign Investments shall be created in order to further the attraction, realization, development and protection of foreign investments in the

Kyrgyz Republic. The Agency shall be directly under the command of the State Commission on Foreign Investments and coordinate the activity of other bodies of State administration in the area of investment activity within the authorities given to it.

2. For the purposes of attraction of foreign investments the Agency shall be a linking institute between foreign investors and the Kyrgyz Republic and carry out the following functions:

- preparing and distributing information on investment possibilities and conditions in the Kyrgyz Republic;
- advising potential foreign investors on legal, economic and other issues regarding a specific activity;
- in compliance with the legislation of the Kyrgyz Republic granting or making by will of foreign investors inquiries, on behalf of them, concerning issue of licenses, approvals, permits and registrations which, according to legislative acts, are necessary for any aspect of investment activity;
- getting agreement of foreign investors for arbitration on behalf of the Kyrgyz Republic in compliance with Article 24 hereof;
- developing proposals for all agencies of the Kyrgyz Republic concerning improvement of the investment climate in the Kyrgyz Republic;
- within its competence, representing the Kyrgyz Republic or participating on behalf of the Kyrgyz Republic in international negotiations or consultations on foreign investments;
- advising any agencies and officials on the existing policy or a policy being planned in the area of foreign investments;
- performing other functions directed to the attraction, maintenance and protection of foreign investments in the Kyrgyz Republic.

3. Foreign investors shall, on equal basis, have the right but not be obliged to use services of the Agency on development and protection of their interests.

CHAPTER III. RIGHTS AND OBLIGATIONS OF FOREIGN INVESTORS

Article 12. Economic Autonomy of Foreign Investors

1. Foreign investors shall have the right to employ on their own legal entities and natural persons, including foreign, on a contractual basis required in order to carry out their investments.

2. Foreign investors may establish subsidiary enterprises, as well as branches and representative offices in and outside of the territory of the Kyrgyz Republic in compliance with the legislation of the Kyrgyz Republic. Branches and representative offices shall act based on the regulations about them approved by their father foreign investor.

3. A foreign investor may transfer his property rights and competence on investments to other legal entities and natural persons in accordance with the procedure established by laws of the Kyrgyz Republic. Relations between the parties to such transference shall be regulated by law or an agreement.

4. Foreign investors shall have the right to attract funds in the Kyrgyz Republic in the form of credits, emission of securities and loans. Assets and different property rights of an investor may be used to secure (honor) obligations of the foreign investor.

Article 13. Formation of Charter Capital

Foreign investors shall be free to determine the amount (size), composition and structure of the charter capital, a legal entity under creation in accordance with requirements of the Civil Code of the Kyrgyz Republic and the law of the Kyrgyz Republic "On Economic Partnerships and Companies."

Article 14. Observance of the Kyrgyz Republic Laws by Foreign Investors

Foreign investors in their economic activity shall be obliged to observe laws of the Kyrgyz Republic, in particular: ecological and nature-protective norms, labor, health and town-building protection requirements of the Kyrgyz Republic.

Article 15. Insurance of Foreign Investments

Legal entities with foreign participation may and, in case provided by the legislation, must be sufficiently insured. Foreign investments may be insured both in the Kyrgyz Republic and outside the Republic.

CHAPTER IV. FOUNDATION AND REGISTRATION OF LEGAL ENTITIES WITH FOREIGN PARTICIPATION

Article 16. Founding Procedure and Registration of Legal Entities with Foreign Participation

1. A legal entity with foreign participation shall be founded pursuant to the Civil Code of the Kyrgyz Republic and the Law of the Kyrgyz Republic "On Economic Partnerships and Companies".

2. The state registration of legal entities with foreign participation shall be carried out at the Ministry of Justice of the Kyrgyz Republic in accordance with the Civil Code of the Kyrgyz Republic and the law of the Kyrgyz Republic "On the State Registration of Legal Entities" with consideration of specifics set forth in this law.

Article 17. State Registration Specifics of Legal Entities with Foreign Participation

In addition to the documents provided in the law of the Kyrgyz Republic "On the State Registration of Legal Entities," a foreign investor must provide the Ministry of

Justice of the Kyrgyz Republic with the following documents or their notarized copies with a notarized translation in the National or Russian languages:

- for foreign natural person:
  - a bank statement to verify the solvency and credit worthiness of a natural person according to the place of his nationality or permanent residency;
  - a passport, and any other ID for stateless persons;

- for foreign legal entity:
  - a bank statement from a foreign bank to verify the solvency and credit worthiness of a legal entity according to the place of its registration or its major operations;
  - an extract from the trade register, certificate or any other document to verify that the foreign investor is a legal entity in accordance with the legislation of the country where this legal entity has been registered.

2. In order to carry out certain kinds of investment activity, foreign investors shall obtain licenses in accordance with the law of the Kyrgyz Republic "On Licensing".

CHAPTER V. TAXATION OF FOREIGN INVESTORS AND ACCOUNTING

Article 18. Taxation of Foreign Investors

If this law does not state otherwise, the taxation of foreign investors and foreign investments shall be carried out in accordance with the tax legislation of the Kyrgyz Republic.

Article 19. Accounting and Reporting

1. Foreign investors must keep book-keeping accounts and reporting according to the rules in force in the Kyrgyz Republic.

2. Foreign investors shall be obliged to present report documents and information to tax, statistics and other agencies according to the procedure established by the legislation of the Kyrgyz Republic.

CHAPTER VI. INSTRUCTIONS OF THE LABOR LEGISLATION FOR FOREIGN INVESTORS

Article 20. Labor Relations with Citizens of the Kyrgyz Republic

Citizens of the Kyrgyz Republic who work in enterprises which are fully or partially owned by a foreign legal entity or natural person and which are located on the territory of the Kyrgyz Republic shall be subject to laws and other legal acts which are in effect in the territory of the Kyrgyz Republic.

Article 21. Attraction of Foreign Workers.

1. Foreign citizens may be hired as workers by foreign investors and may enter the administration of a legal entity with foreign participation.

2. The Kyrgyz Republic shall assist the entry and sojourn of foreign citizens related to the activity on implementation of foreign investments for the period of the labor in the Kyrgyz Republic in compliance with the legislation of the Kyrgyz Republic.

3. Labor relations between foreign employers and their foreign employees shall be regulated by laws chosen in their labor agreements. These labor agreements may not establish standards lower than the mandatory requirements established by the Labor Code of the Kyrgyz Republic. In the event that there is no such labor agreement Laws and other legal acts of the Kyrgyz Republic on labor shall apply to foreign citizens who work at enterprises located on the territory of the Kyrgyz Republic.

Article 22. Social Insurance and Security

1. Legal entities with foreign participation shall be obliged to pay for its employees compulsory deductions to the Social Fund and other out-of-budget targeted financial funds established by Law.

2. Foreign investors and employees shall be exempt from mandatory payments to the Social and other funds of the Kyrgyz Republic by quantity that corresponds to the amount of transferred payments to the corresponding funds of a foreign State.

CHAPTER VII. FINAL PROVISIONS

Article 23. Foreign Investments in Free Economic Zones

Peculiarities of foreign investments in free economic zones shall be regulated in accordance with the legislation of the Kyrgyz Republic on free economic zones.

Article 24. Settlement of Investment Disputes

1. Not excluding other means of legal protection which could be used by a foreign investor in accordance with the legislation of the Kyrgyz Republic an investment dispute shall be settled in accordance with any applicable procedure prior agreed upon between the foreign investor and the Kyrgyz Republic.

2. When such agreement is absent an investment dispute between the Kyrgyz Republic and a foreign investor shall be settled, if possible, through consultations between the parties thereto. If the parties thereto cannot come to a peaceful settlement of the dispute during three months from the first written application for such consultations, the dispute shall be settled through arbitration in accordance with one of the following procedures:

Regulations of Arbitration Court under the Chamber of Industry and Commerce of the Kyrgyz Republic;

Convention for the settlement of investment disputes between the states and citizens of any other states, (Convention ICSID), signed in Washington DC on March 19, 1965, if applicable;

Arbitration (Auxiliary) regulations of the International Center for the settlement of the investment disputes (ICSID), if applicable;

Arbitration regulations of the Commission of the United Nations Organizations on International Trade Law (UNCITRAL); in this case the appointing body shall be General Secretary of ICSID.

3. The Kyrgyz Republic shall consent to the transfer of the investment dispute for the arbitration settlement by virtue of this law. A foreign investor's agreement may be given at any time through a written application to the Kyrgyz Republic or at the moment of application to the arbitration.

4. Disputes between foreign investors and natural persons and legal entities of the Kyrgyz Republic shall be resolved upon the agreement of the parties through an Arbitration Court located in or outside the Kyrgyz Republic. In the event that there is no such agreement the disputes shall be settled according to the procedure established by the legislation of the Kyrgyz Republic. A decision of the Court shall be binding and final.

Article 25. Application and Protection from Denouncement

1. Except as otherwise set forth in this Law, as this Law comes into force, the law on Foreign Investments in the Kyrgyz Republic dated 28.06.91 and as amended on 26.09.95 shall cease to have effect.

2. Only foreign investors who have been registered before this law becomes effective, shall be recognized as exceptions. If within one year from the moment this law becomes effective, they fail to exercise their right to choice whether to continue using the former law or this law by submitting a written application to the Ministry of Justice of the Kyrgyz Republic, then this law after the expiration of this term shall become applicable to them.

3. No legislative act of the Kyrgyz Republic worsening the legal regime of foreign investors established by this Law shall not be retroactive.

4. If a provision of this law changes or is abolished, and such change or abolishment causes worsening of a foreign investor's condition, then the foreign investor shall have the right to compensation for any losses incurred because of that in compliance with Article 6 hereof.

5. Benefits provided in Part I of Article 20 and Article 23 of the Law of the Kyrgyz Republic "On Foreign Investments in the Kyrgyz Republic" as of June 28 1991 and amended on September 26, 1995 before the expiration of their validity term, but no longer than five years from the moment of adoption of this Law, may be applied to foreign investors registered in the Kyrgyz Republic before this Law becomes effective.

Article 26. Enactment Procedure for this Law

1. This law becomes effective as of the publication date.

2. The Cabinet of Ministers of the Kyrgyz Republic within a three month period shall:

- prepare and submit to Jogorku Kenesh of the Kyrgyz Republic proposals on bringing legislative acts in compliance with this law;

- bring its own decisions in compliance with this law.

President of the Kyrgyz Republic

5．地下資源法（英訳文）

(DRAFT)

KYRGHYZ REPUBLIC LAW

ON ENTRAILS OF THE EARTH

SECTION 1. GENERAL PROVISIONS

Article 1. Application sphere of the Law

The Law of the Kyrghyz Republic «On Mineral Resources» (hereinafter «the Law») shall be effective on the whole of the territory of the Kyrghyz Republic and shall regulate the relations between the State and physical and juridical persons, as well as other States, appearing while the use of entrails of the earth.

The Kyrghyz Republic legislation on the use of entrails of the earth is based on the general provisions of the Constitution of the Kyrghyz Republic and is composed of the Law and other correspondingly adopted normative acts of the Kyrghyz Republic.

Article 2. Application of other laws and normative acts while the use of entrails of the earth

Land, water, forestry relations, as well as relations on the use of flora and fauna, atmospheric air and others appearing while the use of entrails of the earth are regulated by the relevant legislation of the Kyrghyz Republic.

Article 3. Definitions used in the Law

«Entrails of the earth» is the part of the earth's crust, including mineral resources, extending from the surface or from the lower boundary of the soil layer, bottoms of water reservoirs and flows, down to the depth accessible for geological study and industrial development.

«Mineral resources» are the natural mineral formations of the earth's crust used in the sphere of sales production.

«Generally spread mineral resources» are the widely spread minerals and rocks in destroyed or natural conditions used for construction and production of construction materials.

«Mineral resources deposits» are the natural accumulations of mineral formations, located inside the entrails of the earth having the economic significance at the dated price level and industrial technologies.

«Technogenious formations of mineral resources» are the formations of mineral substances, on the surface or inside the entrails of the earth, being wastes of extraction or processing of the natural mineral resources suitable for industrial development.

«Use of entrails of the earth» is the activity connected with study of the entrails of the earth, extraction of mineral resources, as well as the use of entrails of the earth for establishment and exploitation of constructions non-connected with extraction of mineral resources.

«Geology allot» is a parcel of entrails of the earth rented for geological study defined in the graphic documentation in the geographic or rectangular coordinates of its angular points.

«Land allot» is a parcel of the earth crust rented for the user of the earth entrails rented for geological study and industrial development of the entrails of the earth defined in the graphic documentation in rectangular coordinates of its angular points.

«Mining allot» is a parcel of entrails of the earth rented for industrial development of mineral resources and defined in the graphic documentation in rectangular three-dimensional coordinates of its angular points.

«Geological study of entrails of the earth» is a complex of special investigation works for prospecting and exploration of deposits, for definition of quality and quantity of the existing reserves of the mineral raw materials, as well as for estimation of the economic value, as well as for geological study of objects non-connected with extraction of mineral resources.

«Feasibility study» is the technical and economic estimation on the feasibility of exploitation of a mineral resources deposit.

«Balance reserves» are the reserves of mineral raw materials the use of which could be feasible at the dated level of technology.

«Beyond-balance reserves» are the reserves the use of which is unfeasible at the dated level of technology.

«Extraction of mineral resources» is the complex of processes for recovery of mineral resources from the entrails of the earth.

«Dilution» is the quality decreasing of a mineral resource while extraction.

«Losses» (not described properly yet)

«Payment for the right to use entrails of the earth» is a singular payment to provided to the owner of the entrails of the earth (the State) for the paid-off mineral resources reserves.

«Payments for the use of the entrails of the earth» are the current payments provided to the owner of the entrails of the earth (the State) for the paid-off mineral resources reserves..

«Irrational selective extraction» is the outstripped or selective extraction of the most rich or favorable parts of mineral reserves leading to the loss or devaluation of a part of balance reserves.

«Over-standard losses» are the additional losses of mineral resources while their extraction or processing caused by breaking of regulations and (or) technologies provided either by a feasibility study or a project scheme.

«Protection of entrails of the earth» is the activity to provide the rational use of entrails of the earth and, inter alia, mineral resources, the maximum possible total recovery of the last from the former, the complex utilization of deposits and extracted mineral raw material on all the stages of its processing.

«License» is the document aimed to reflect the right to use entrails of the earth issued by the State body responsible for the use of entrails of the earth.

«License agreement» is an agreement between the owner of the entrails of the earth license holder on conditions of the use of entrails of the earth, including the matters on share of production, payments, as well as measures for safety and environment protection, etc. A License Agreement is to be an integral part of a License.

«Licensed area» is a territory defined either in rectangular or geographic coordinates affected by the right of a license holder to use the entrails of the earth.

«License holder» is the owner of a license for geological study, exploitation of mineral resources deposits, as well as other types of the use of entrails of the earth.

«License issuer» («License body») is the State body responsible for the use of entrails of the earth to whom the authority to issue licenses is delegated by the Government of the Kyrghyz Republic.

«Land right owners» are the bodies of the local executive power which are delegated by the right to provide land allots.

«The third parties» are any persons, as business subjects, different both from the user of entrails of the earth and the License body.

«Servitude» is the right to have an access to the close-by and distant land, mining and (or) geology allots, as well as limitations on the use, provided for the user of the entrails of the earth under the order established by Articles 23, 24, 25, 26 of the Law. The Servitude may be either of a «conciliatory» character (free), solved by the bargain of the parties, or of a «compulsory» character (administrative), solved by the State body responsible for the use of entrails of the earth or by the court.

«Force-Majeure» are the conditions of insuperable force which complicate the performance of a License Agreement. They include: war conflicts, natural disasters and calamities, etc.

SECTION II. PROPERTY AND AUTHORITIES WHILE THE USE OF ENTRAILS OF THE EARTH

Article 4. Property right on entrails of the earth

Entrails of the earth of the Kyrghyz Republic is the exclusive property of the State and composes the State Fund.

The State Fund includes parcels of the entrails of the earth of the Kyrghyz Republic either being in use or out of use.

Jogorku Kenesh (the Parliament) of the Kyrghyz Republic annually holds hearings of information of the Government of the Kyrghyz Republic on the use and protection of entrails of the earth of the republic.

Article 5. Authorities of the Government of the Kyrghyz Republic

The Government of the Kyrghyz Republic commands the State Fund of entrails of the earth directly through the State bodies, responsible for the use of entrails of the earth, by the following means:

1) creation and realization of the State policy in the study and the use of entrails of the earth;
2) development of mining industry and enforcement of the anti-monopoly policy;
3) functional provision of the State system of license issuing , as well as supervision on the proper keeping of conditions and requirements of the Law;

4) creation and improvement of the State system of the payable use of entrails of the earth, investigation on the marketing of the mineral raw materials and sales production;
5) creation and realization of the investment policy in the use of entrails of the earth, as well as attraction of investments to the geological study of entrails of the earth and extraction of mineral resources;
6) registration of the stage of exploration of the entrails of the earth, expert estimation, disposal and pay-off of reserves of mineral resources;
7) formation, development and management of the Sate Fund of entrails of the earth;
8) grounding of the State order for geological study financed by the State budget;
9) creation of the normative and methodology provisions, rules, regulations and technological standards;
10) environment expert estimation of the projects on geological study, industrial exploitation and other types of the use of entrails of the earth;
11) supervision on environment protection while geological study, industrial exploitation and other types of the use of entrails of the earth;
12) expert estimation of the geological and mining projects, including technical safety measures;
13) supervision on the technical safety while geological study and mining works connected with the use of entrails of the earth;
14) attestation of the users of entrails of the earth on the right for geological and mining works, including technical safety measures.

Article 6. Authorities of the Local State Administrative Bodies while the use of entrails of the earth

The following are the subjects of regulation by the Local State Administrative Bodies while the use of entrails of the earth:
1) participation in creation and realization of the regional and the State programs on the development and the use of the mineral raw materials basis;
2) protection of interest of regions and citizens while the use of entrails of the earth;
3) matters of the land use, as well as the other matters within the limits of their competence in accordance with the Kyrghyz Republic legislation.

SECTION III. BASEMENT AND THE ORDER OF THE USE OF ENTRAILS OF THE EARTH

Article 7. Types of the use of entrails of the earth

The following are the types of the use of entrails of the earth:
1) geological study;
2) exploitation of deposits of mineral resources, including those of technogenious character;
3) establishment and exploitation of underground construction non-connected with extraction of mineral resources (storage places for crude oil, gas, as

well as other materials and substances, bury places of harmful substances, the use of the earth's warm and other purposes objects);

4) establishment of the specially protected objects being of the scientific, cultural, esthetic, sanitary-health and other significance (scientific and training polygons, geological reservations, caverns and other underground cavities).

Article 8. Users of entrails of the earth

Physical and juridical persons of the Kyrghyz Republic, as well as of foreign States, can become the users of entrails of the earth.

Article 9. Duration periods for the use of entrails of the earth

Duration periods for the use of entrails of the earth shall be defined by Feasibility Studies or by Technical Project Schemes fixed while the procedure of license issuing for the use of entrails of the earth.

Article 10. License for geological study of entrails of the earth

License for geological study of entrails of the earth shall be issued in accordance with provisions of Articles 9, 15 and 16 of the Law.

The maximum dimensions of the licensed area, as well as the minimum annual amount of investments for geological study of a unit of a licensed area shall be established by the Government of the Kyrghyz Republic.

License for geological study of entrails of the earth provides its holder with the exclusive right during 2 years to carry out any investigation within the limits of the licensed area with possible following license prolongation up to 10 years in case of proper keeping of the license agreement conditions. The license holder shall return the investigated part of the licensed area within the time limits fixed by the license agreement.

Additional licenses can be issued to other holders if they investigate mineral resources different from those on which the license has been prior issued for the licensed area.

License holder has the right to carry out on the licensed area any works connected with preparation for geological study, including replacement of water flows, establishment of buildings and constructions, extraction of generally spread mineral resources, as well as the use of surface and underground waters for his own demands and for provision of geological exploration works, in accordance with the license agreement.

In case of the discovery of a deposit the license holder shall have the exclusive right to get the license for its exploitation if all the conditions of the license agreement for geological study have been kept and completed properly and the new license agreement for exploitation of a deposit and processing of mineral raw materials have been concluded.

Article 11. License for exploitation of deposits of mineral resources

License for exploitation of deposits of mineral resources shall be issued in accordance with provisions of Articles 9, 15 and 16 of the Law.

License for exploitation of deposits of mineral resources provides its holder with the exclusive right, within the limits of mining allot, to carry out geological study, stripping and preparation of a deposit, extraction and processing of the mineral raw materials, refinery, sales and export of all the extracted mineral resources and processing products for the period fixed by the Technical Project Scheme, but not exceeding 20 years, with its possible following prolongation until the date of exhausting of mineral resources.

Article 12. License for establishment and exploitation of underground constructions non-connected with extraction of mineral resources

License for establishment and exploitation of underground constructions non-connected with extraction of mineral resources shall be issued in accordance with requirements of Articles 9, 15 and 16 of the Law and will provide its holder, within the limits of mining allot, the right to establish and exploit underground constructions, in accordance with the established regulations and norms, for the period fixed by the Project Scheme, but not exceeding 20 years, with the possible following 10-years periods of prolongation.

Article 13. Transfer of the license rights to the third parties in the form of a pledge

License holder has the right, under approval of the State body responsible for the use of entrails of the earth, to pledge the license rights to the third parties, the last being physical or juridical persons, to banks or other financial structures, to provide additional supplement or financial support of the Project on the licensed territory.

If the license holder fails to keep his obligations before banks or other financial structures, the last ones could deprive the license holder his right to pay-back the pledge and within 60 days could employ the technical staff to complete the license conditions of the license holder sending the relevant information to the State body responsible for the use of entrails of the earth.

Under approval of the State body responsible for the use of entrails of the earth banks and (or) other financial structures have the right to pass the license, obtained after deprivation of the pay-back right of the prior license holder, to the property of a third party having the necessary technical and financial abilities.

The third party, as the posterior license holder, shall be obliged within 30 days to submit to the State body responsible for the use of entrails of the earth the information sufficient for re-registration of the license under his name.

The third party, to whom the license was re-issued, shall be imposed by all the obligations of the prior license holder fixed by the license agreement.

Article 14. Contents of License and License agreement

License shall contain the following information:

- the type of the use of entrails of the earth
- the license holder name and requisites
- the name of the licensed object
- the date of the license issuing and the period of its validity

License Agreement shall contain the following information:

- concrete program of works coordinated with the license holder with description of «Force Majeure» conditions, lying beyond the control
- the sufficient information on the license holder
- the targets and objectives of the works connected with the use of entrails of the earth
- all kinds of payments and license fees for the use of entrails of the earth
- space coordinates of angular points of land, geology and (or) mining allots for the use of entrails of the earth
- conditions of application of mining methods and technologies of processing of mineral raw resources, as well as measures for rehabilitation of environment disturbed by the use of entrails of the earth.

Conditions of the License Agreement can be confidential.

Article 15. The order for provision of the entrails of the earth under use

The right to use entrails of the earth shall be provided on the basis of tenders, auctions and direct negotiations.

In order to get the right to use entrails of the earth an application shall be sent to the State body responsible for the use of entrails of the earth attached by the true information on financial, material and technical abilities, as well as professional qualifications of an applicant and brief program of projected works.

Participants shall reimburse the State body responsible for the use of entrails of the earth expenditures for holding a tender, an auction or direct negotiations.

After definition of a winner the relevant License Agreement shall be concluded and the License shall be issued within 60 days.

Denial of a tender participation and a license issuing may ensue in the following cases:

1) the applicant has submitted incorrect information about himself
2) the applicant has not submitted and cannot submit proof of the fact that he possesses or will possess the required financial and technical means for efficient and safe prosecution of work.

Article 16. Organizational support of the Government Licensing System

The State body responsible for the use of entrails of the earth defined by the Government of the Kyrghyz Republic shall provide preparation work for licensing and issue licenses.

Provisions on the order of license issuing for the use of entrails of the earth shall be notified by the Government of the Kyrghyz Republic.

Article 17. Grounds for termination the rights to use entrails of the earth

The right to use entrails of the earth can be terminated in the following cases:
1) the target of the use of entrails of the earth is different from that of their prior provision
2) the terms and conditions of the License Agreement have been broken
3) appearance of the «Force Majeure» conditions

The right to use the entrails of the earth can be terminated by confiscation (nullifying) of the License in the following cases:
1) depletion of mineral reserves and liquidation on the enterprise
2) application of technologies while the use of entrails of the earth which create a threat to the health or safety of workers and the public, as well as irreparable damage to the natural environment and losses of mineral reserves
3) if within more than one year after getting the license the holder has not begun the use of entrails of the earth in the volumes stipulated by the licensing terms
4) in case of voluntary refuse to use entrails of the earth

Article 18. Rights and obligations of the users of entrails of the earth

The users of entrails of the earth shall be entitled:
1) to use the provided parcels of entrails of the earth for carrying out industrial or any other activity complying with the purpose specified in the license
2) foreign investors are guaranteed to repatriate their capital, as well as to export profit or part of it in the form of foreign currency, as well as production appeared as the result of extraction and processing of the mineral raw materials, including gold
3) to extract the generally spread mineral resources for their own demands within the limits of the licensed area and with payment of the established fees
4) to pass the license rights for geological study and industrial exploitation of entrails of the earth to other users, under approval of the State body on the use of entrails of the earth, complying with all the terms and conditions of the license agreement

The users of entrails of the earth shall be required to unsure:
1) compliance with the requirements of laws and duly approved standards (regulations, norms) connected with the use of entrails of the earth
2) registration of conditions and transfer of reserves, losses and dilution, storage of temporary out-of-use extracted companion mineral resources
3) provision to the State body responsible for the use of entrails of the earth of the appropriate information on geological study, explored, extracted or remaining reserves, components thereof, as well as on the use of entrails of the earth for the purposes non-connected with extraction of mineral resources
4) safe conduct of works connected with the use of entrails of the earth
5) protection of entrails of the earth and conforming with the adaptable norms of influence on physical and biological condition of environment while conduct of works connected with the use of entrails of the earth

6) the return of land parcels and other natural objects disturbed while the use of entrails of the earth to a state suitable for their further use in conformity with regulatory requirements
7) preservation of exploratory mine workings and drill holes which could be used for exploitation of a deposit or for other commercial purposes, and the due elimination of unusable mine workings and drill holes
8) preservation of geological or other documentation obtained during geological study and industrial exploitation of entrails of the earth
9) timely and prompt payment of fees for the use of entrails of the earth

Article 19. Protection of the rights of the users of entrails of the earth

Buildings and constructions newly erected by the users of entrails of the earth on land parcels leased for the development of entrails of the earth, along with all acquired equipment thereto, shall constitute the inalienable property of the user of entrails of the earth and may pass to the disposition of the State or other users only as provided by the license agreement or under a court decision.

In the event of termination of the use of entrails of the earth without the prompt cause, economic damage caused by the cessation of work shall be fully reimbursed to the user of entrails of the earth by the State or Regional Governing bodies that suspended the production operations.

Article 20. Priority right of the Kyrghyz Republic for purchase of gold and other kinds of mineral raw materials

In the event of sales of gold or other kinds of mineral raw materials the license holder shall inform National Bank of the Kyrghyz Republic or any other body authorized by the Government of the Kyrghyz Republic on such an operation in advance and provide them with priority right to purchase the whole or a part of produced gold or other kinds of mineral raw materials not depending of their clearing either on the territory of the Kyrghyz Republic or beyond its boundaries.

The priority right can be temporary ceased by the mutual agreement between the National Bank of the Kyrghyz Republic or other body authorized by the Government of the Kyrghyz Republic and the license holder.

SECTION IV. STATE REGULATION OF THE USE OF ENTRAILS OF THE EARTH

Article 21. Servitude appearance in the close-by mining allots

The right of free or compulsory access to the close-by mining allot shall appear in the following cases:

1) if there is a proof that the works within the limits of the given mining allot may cause any damage for the close-by mining allot
2) if the works on elimination of mishaps of mining workings appears to be done faster from the area of the close-by mining allot

In any event the expenditures caused by conduct of works described in Items 1 and 2 shall be paid by the party which obtains the profit.

Article 22. Servitude appearance within the land allots while the use of entrails of the earth

The right, either of compulsory or free character, to access the close-by or distant land allot shall appear in the following cases:

1) maintenance and repair of automobile and railway roads, water and energy supply systems, oil-&-gas pipelines and other constructions of the regional or the State significance going along the land allot area
2) if the works on elimination of mishaps on mining allot appears to be made faster from the side of the close-by and (or) distant land allot
3) conducting of geophysical, topography, mine surveying, archeological and other surveys of the State significance

Article 23. Relations between the users of entrails of the earth and the land owners

The users of entrails of the earth shall be obliged to conclude agreements with the land owners on the use of land parcels. Additional agreements may be concluded on the use of the generally spread mineral resources, surface waters, forestry and other economic resources necessary for the use of entrails of the earth.

In the event if the land owner has an intention to change its irrigation or other systems for agricultural or other purposes and such changes could influence preservation of a deposit, or exploration and mining works, the land owner shall be relevantly obliged to get an expert estimation and an approval of the State body responsible for the use of entrails of the earth.

Article 24. Manner of resolution of disputes between the users of entrails of the earth and the land owners

In the event if the users of entrails of the earth and the land owners failed to come to an agreement on the land use conditions, as well as (or) access to mining and (or) land allots, the final decision shall be adopted by the court rule.

SECTION V. THE STATE REGULATION OF THE USE OF ENTRAILS OF THE EARTH

Article 25. Requirements for the use of entrails of the earth

The principal requirements for the use of entrails of the earth shall be as follows:

1) compliance with the established procedure for mineral resources concession and prevention of unauthorized use of entrails of the earth
2) compliance with the requirements of laws, duly approved standards, regulations and norms for the study, use and conservation of mineral resources
3) conduct of expedited geological study of entrails of the earth and assurance of reliable estimation of mineral reserves, as well as conditions of the use of entrails of the earth for the purposes non-connected with extraction of mineral resources

4) the State examination and the State registration of mineral resources reserves, as well as parcels of entrails of the earth used for the purposes non-connected with extraction of mineral resources
5) in accordance with regulations established by a Feasibility Study of a Project Scheme, provision of extraction from entrails of the earth of reserves of the main and companion mineral resources, as well as other components thereto
6) registration while exploitation of a deposit of extracted, processed and remaining in entrails of the earth reserves of the main and companion mineral resources, as well as other components
7) protection of mineral deposits from floods, inundation, fires and other factors which may cause the decrease of the mineral resources quality and industrial value of mineral deposits, as well as complication of exploitation of mineral deposits
8) pollution protection of entrails of the earth while conducting of works connected with their use, as well as while underground storage of oil, gas or other substances and materials, or bury of harmful substances and industrial wastes, or technical waters sewerage
9) compliance with the established procedure for the shutdown and abandonment of mining enterprises, as well as underground constructions non-connected with extraction of mineral resources
10) prevention of unauthorized construction on land parcels containing mineral resources and compliance with the established procedure for the use of the said land parcels for other purposes
11) prevention of the accumulation of industrial and sanitary wastes at watershed areas and at locations of ground waters which are used for drinking or industrial water supply.

Article 26. Safe conduct of works while the use of entrails of the earth

Construction and operation of mineral mining enterprises, as well as underground constructions of various purposes, and the performance of geological studies of entrails of the earth shall be permitted only if providing of the safety of the life and health of the workers of the said enterprises, as well as the public in the area affected by works connected with the use of entrails of the earth is assured.

The responsible State bodies, as well as the users of entrails of the earth, shall be obliged, within the scope of their jurisdictions, to assure compliance with the requirements of laws and duly approved standards (norms, regulations) for safe conduct of works associated with the use of entrails of the earth.

Article 27. Conditions of construction on lands containing mineral resources

It shall be prohibited to design and to construct inhabited objects, industrial enterprises and other objects of business activities before obtaining the data on absence or existence of mineral resources in entrails of the earth below the land parcels of the projected construction. The State body responsible for the use of entrails of the earth shall provide such data.

Constructions on the land parcels containing mineral resources, as well as emplacement in such areas of underground constructions non-connected with

extraction of mineral resources, shall be permitted after coordination with the State body responsible for the use of entrails of the earth.

Article 28. Abandonment and shutdown of mineral mining enterprises and other objects non-connected with extraction of mineral resources

After complete extraction of reserves of mineral resources or after expiration of the needs of objects and constructions associated with the use of entrails of the earth, as well as in the events if, by any reason, further development of a deposit or exploitation of an object is impossible, mineral mining enterprises or objects and constructions non-connected with extraction of mineral resources shall be the subjects for shutdown or abandonment, by means of the user of entrails of the earth, under relevant coordination with the State body responsible for the use of entrails of the earth.

In the event of complete or partial shutdown or abandonment of mineral mining enterprises or objects non-connected with extraction of mineral resources, as well as mining workings and objects of the use of entrails of the earth shall be brought, by means of the user of entrails of the earth, to the state providing safety for the public, environment protection, conservation of buildings and constructions, and, while abandonment, preservation of a mineral deposit and mining workings for the whole period of abandonment. In the event of a shutdown of a mineral mining enterprise it shall be decided how to use the existing mining workings for other purposes if possible.

After shutdown or abandonment of mineral mining enterprises, or objects and constructions connected with the use of entrails of the earth, all the mine surveying, geological and technical documentation shall be submitted for storage and keeping to the State body responsible for the use of entrails of the earth.

Article 29. Disposal of information on entrails of the earth

Information on entrails of the earth obtained under financial provision from the State budget shall be the property of the Kyrghyz Republic.

Information on entrails of the earth obtained under financial provision from business investors, enterprises and organizations, including both joint ventures and foreign, shall be the property of the named for the period established by the license agreement and after expiration of this established period shall be granted to the State free of charge.

Information on entrails of the earth obtained independently from the sources of financial provision shall be submitted to the State body responsible for the use of entrails of the earth for the following registration in the State Fund of Information on entrails of the earth. The responsible officials shall provide confidential character of information on entrails of the earth while its collection and storage.

Manner and terms of disposal of the State information on entrails of the earth shall be established by the Government of the Kyrghyz Republic, and disposal of information of the non-State property shall be coordinated with the owner of such information while issuing him the license for the use of entrails of the earth and established in the relevant license agreement.

Article 30. The State registration while the use of entrails of the earth

The State registration while the use of entrails of the earth shall be made under the untied Kyrghyz Republic system in the manner established by the State body responsible for the use of entrails of the earth.

Article 31. The State expert examination of reserves of mineral resources and information on parcels of entrails of the earth non-connected with extraction

Reserves of mineral resources of explored deposits and information on parcels of entrails of the earth projected for construction and exploitation of underground objects non-connected with exploitation of deposits of mineral resources shall be the subjects for the State expert examination.

The State expert examination can be made on any stage of study of deposits. In order to make the State expert examination the State body responsible for the use of entrails of the earth shall employ independent experts.

Decision of the State expert examination shall be the basis for registration of explored reserves of mineral resources in the State balance.

Concession of entrails of the earth for extraction of mineral resources shall be prohibited before the State expert examination of reserves of mineral resources.

The State expert examination shall be paid by the client.

Article 32. The State cadastres for the use of entrails of the earth

The State cadastres shall be compiled for deposits, outcrops and technogenious formations of mineral resources, as well as for the objects in entrails of the earth used for the purposes non-connected with extraction of mineral resources.

The State cadastres of deposits, outcrops and technogenious formations of mineral deposits shall contain data characterizing their location, quality and quantity of the main and companion mineral resources, as well as other components thereto, and mining-technical, hydro-geological and other conditions of exploitation of deposits, as well as their economic evaluation.

The State cadastres of the objects in entrails of the earth non-connected with extraction of mineral resources shall contain data on location, dimensions, purposes of use, operation period, mining-geological and other natural characteristics of an object.

The State cadastres shall be filed by the State body responsible for the use of entrails of the earth.

Article 33. The State balance of reserves of mineral resources

The State balance of reserves of mineral resources shall contain data on quantity, quality and exploration category of mineral resources for deposits having industrial value, as well as on their economic evaluation, location and stage of industrial exploitation, extraction, losses and provision by explored reserves of mineral resources of the operating enterprises.

The State balance of reserves of mineral resources shall be compiled on the basis of decisions of the State expert examination and reports of the users of entrails

of the earth conducting exploration and exploitation of mineral deposits, as well as processing of mineral raw materials.

The State balance of reserves of mineral resources shall be filed by the State body responsible for the use of entrails of the earth.

Article 34. Writing-off of reserves of mineral resources

Writing-off of reserves of mineral resources either liquidated while extraction or non-proved while their further geological study or exploitation of mineral deposits shall be made by the State body responsible for the use of entrails of the earth by the relevant changes reflecting in the State balance of reserves of mineral resources.

Article 35. Protection of parcels of entrails of the earth having a specific scientific or cultural value

Geological out-crops, mineralogy formations, paleontology objects and other parcels of entrails of the earth having a specific scientific and cultural value, under a decision of the State body responsible for the use of entrails of the earth, may be duly announced as geological reservations, as well as monuments of nature or culture. Any activity disturbing the preservation of the named reservations or monuments shall be prohibited.

In the event if while the use of entrails of the earth some unique geological or mineralogy formations, meteorites, paleontology or archeology objects showing a specific scientific or cultural value are discovered, the users of entrails of the earth shall be obliged to cease any activity on the parcel and inform this fact to the State body responsible for the use of entrails of the earth.

Article 36. The State supervision on the use and protection of entrails of the earth, environment protection and safe conduct of works while the use of entrails of the earth

The target of the State supervision on the use and protection of entrails of the earth, environment protection and safe conduct of works while the use of entrails of the earth shall be provision of compliance by all the users with laws, standards (norms and regulations) while study and exploitation of entrails of the earth, as well as with the rules for the State registration of reserves of mineral resources, environment protection, safe conduct of mining works, prevention and elimination of their harmful influence on the public, environment, buildings and constructions.

Authority of the State bodies responsible for supervision on the use and protection of entrails of the earth, environment protection and safe conduct of the works while the use of entrails of the earth, as well as the manner and the order of their activity shall be established by a special statement notified by the Government of the Kyrghyz Republic.

SECTION VI. TAXES AND PAYMENTS FOR THE USE OF ENTRAILS OF THE EARTH

Article 37. Tax system while the use of entrails of the earth

Enterprises on exploration and exploitation of mineral deposits shall be the subjects for the existing tax norms and regulations duly approved by the Kyrghyz Republic laws.

Article 38. System of payments for the use of entrails of the earth

The use of entrails of the earth shall be payment required excluding the cases provided by the Article 39 of the Law.

System of payments for the use of entrails of the earth includes the following:

- payment for the right to use entrails of the earth
- payment for the use of entrails of the earth while exploitation of mineral deposits
- payments for rehabilitation of mineral resources raw basis

Besides the mentioned above the users of entrails of the earth shall make other payments established by the Kyrghyz Republic laws.

Payment rates, as well as the manner and conditions of payment shall be established by the Government of the Kyrghyz Republic.

Article 39. Exemption from payments for the use of entrails of the earth

The users of entrails of the earth shall be exempted from payments if the target of their activity is different from obtaining the profit or business revenue overtly or covertly, or they promote the satisfaction of social, cultural and environment protection demands and interests of the public living on the given territory:

1) agricultural producers conducting, under the established order, extraction of generally spread mineral resources on the owned or leased land parcel directly to the demands of their business
2) the users of entrails of the earth conducting regional geological, geophysical and other works on the study of the territory of the Kyrghyz Republic, as well as the works on prediction of earthquakes, geological engineering surveys, environment surveys, underground water control and surveys and other works non-disturbing the integrity of entrails of the earth
3) the users of entrails of the earth obtaining parcels of entrails of the earth in order to establish specially protected objects, or objects of scientific, cultural, esthetic and other value (geological reservations, monuments of nature, etc.)

SECTION VII. SOLUTION OF DISPUTES OVER THE USE OF ENTRAILS OF THE EARTH AND LIABILITY FOR VIOLATION OF THE KYRGHYZ REPUBLIC LAW «ON ENTRAILS OF THE EARTH»

Article 40. The manner of solution of disputes over the use of entrails of the earth

Disputes over the use of entrails of the earth shall be solved in the manner established by the Kyrghyz Republic laws.

Article 41. Liability for violation of the Law «On entrails of the earth»

Deals which overtly or covertly violate the rights on ownership, use or disposition of entrails of the earth established by the Law shall be invalid.

Persons guilty of the commission of the said deals, or of:

- conduct of works associated with the use of entrails of the earth by methods and means that threaten safety of workers and public or pollution of entrails of the earth
- unauthorized construction on the land parcels containing mineral resources
- unauthorized use of entrails of the earth
- insufficient selective exploitation of mineral deposits, or formation of over-standard losses of mineral resources while their extraction and processing
- violation of the right on ownership of information on entrails of the earth
- destruction or damage of control drill-holes for underground waters, as well as mine-survey and geodesy marks
-
- failure to comply with requirements to bring abandoned or shutdown mine workings and drill-holes into a state that affords public safety, as well as requirements for preservation of deposits, mine workings and drill-holes for the shutdown period

shall be liable in accordance with the Kyrghyz Republic laws.

Unauthorized use of entrails of the earth and unauthorized construction on the land parcels containing mineral resources shall be terminated without reimbursement by the State body responsible for the use of entrails of the earth.

Article 42. Reimbursement of economic damage to the user of entrails of the earth

Reimbursement of economic damage to the user of entrails of the earth shall be paid by juridical and physical persons whose activity caused degradation of natural properties of entrails of the earth or created conditions which partly or wholly prevent the use of entrails of the earth. In the event that the said parcel of mineral resources has not been assigned to the use then reimbursement of losses shall be paid to the budget of the Kyrghyz Republic.

Article 43. Reimbursement of economic damage to the State by the user of entrails of the earth

Reimbursement of economic damage effected to the State shall be estimated in accordance with the volume and quality of reserves which have lost their economic value under the guilt of the user of entrails of the earth. Dispute cases shall be solved in accordance with the Kyrghyz Republic laws.

SECTION VIII. INTERNATIONAL TERATIES

Article 44. International treaties

If and international treaty has prior established the rules different from the established by the Law herein, then the rules of the international treaty shall be applied.

Article 45. Manner on implementation of the Law

The law shall be effective since the moment of its publication.

PRESIDENT OF THE
KYRGHYZ REPUBLIC ASKAR A. AKAEV

NOTE: The Law, which contains the most vital and important definitions associated with geological and mining activity in the Kyrghyz Republic, has been approved and adopted by the Parliament of the Kyrghyz Republic and at the present moment is under examination by the President for its further notification. Changes and amendments can be done later being generally of insignificant character.

6．収集資料リスト

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鉱量カテゴリー（銀,ロシア語）

鉱量カテゴリー（モリブデン,ロシア語）

List of Concession Areas of the Kyrgyhyz Republic

Table of Perspective Metal Deposits of the Kyrgyhyz Republic

List and Map of Tungsten Deposits and Manifestations with Legend

Deposits: Trudovoye, Kensuu, Terekty, Meliksuu

Manifestations: Keptash, Kumysh, Bessh-Archa, Kaltabaz

List and Map of Tin Deposits and Manifestations with Legend

Deposits: Trudovoye, Uchkoshkon, Sarybulak, Terekty, Atjailyau, Chon-Kyzylsuu

List and Map of Silver Deposits and Manifestations with Legend

Deposits: Kumyshtag

Manifestations: Jilisuu, Khodzha-Keldy, Betirtash, Kon-i-Gut, Tuyuk-Alaarcha, Tura-Bulak, Nichkesuu, Chonkimisdykty-Kugandy

List and Map of Polymetal Deposits and Manifestations with Legend

Deposits: Kurgan, Kutessai II

Manifestations: Chaar-Kudak, Bardambot, Temitor-Bulak, Tura-Bulak, Chechegly, Kon-i-Gut, Keregetash, Dzhilisuu

List and Map of Antimony Deposits and Manifestations with Legend

Deposits: Kadamjai, Terek, Northern Aktash, Kassan, Abshir, Savoyardy, Chaart, Khaidarkan

Manifestations: Sharkratma, Nurlau, Chonkimisdykty-Kudandy

List and Map of Mercury Deposits and Manifestations with Legend

Deposits: Symap, Birksuu, Zardobuka, Alysh, Chonkoi, Chauvay, Khaidarkan

Manifestations: Kuldama, Adyrkou, Kopurbashi

List and Map of Gold Deposits and Manifestations with Legend

Deposits: Kumtor, Makmal, Jeruy, Taldy-Bulak(Leftbank), Kuranjailyau, Terekkan, Terek, Solton-Sary, Ishtanberdy, Togolok, Kuru-Tegerek, Bozymchak, Karakazyk, Savoyardy, Kichisandyk, Chonkimisdykty-Kugandy, Jamyr, Chalkuiryuk-Akjilga, Andagul, Nichkesuu

Manifestations: Shiraldzhin, Dolpran, Komator, Karakiche, Aaaprelskoye, Altyn-Jilga, Sukhoye Ozero

Economic Indices of the Enterprise Operation, January-October 1995

Ministry of Industry and Enterprise

Machine-building Complex

Electrochemical Complex

Radioelectronic Complex

Fuel Complex

Clothes Industry Complex

Textile-Knitted Complex

Leather-shoe industry and further Complex

Wood-working and Chemical Complex

Enterprises of the trade and material resources

Other organizations

Consumer goods

Production of the general types of the industrial goods in natural expression

State Joint Stock Production-Trade Holding Company

State Concern "Kyrgyzaltyn"

Kyrgyzenergoholding

Industrial production general types output by the enterprises Kyrgyzenergoholding

Company Information

State Joint Stock Company: Bishkek Tannery Plant

State Joint Stock Company: Kyrgyz Too-Tash(formally Tokmok Stone Processing Plant)

Investor Information, the Kyrgyz Republic, Bishkek, July 1995

The Labor Market of the Kyrgyz Republic in the first 9 months of 1995, by Ministry of Labor and Social Protection, 3rd quarterly, Oct 1995

Geological survey level, stage of preparation for exploitation of mineral resources' deposits in the Kyrgyz Republic

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Industry based on Mineral Resources of Kyrgystan

Kyrgyz Republic: Mining Sector Review, February 1994

Public investment Programme 1996-1998 (English), May 1995
Attached data: Profiles - Human Resources
Profiles - Enterprise Sectors
Profiles - Infrastructure Development and Services
Profiles - Human Resources
Profiles - Public Administration
Annex 1: Projected Expenditure on PIP Projects
Annex 2: Map of the Kyrgyz Republic
Ministry and State Committees of the Kyrgyz Republic
Additional Information on the State Institution and Agencies
Public investment Programme 1997-1999, in Russian
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Annex 4: taxes
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7. クムトール鉱山資料（鉱山諸元）

1. Ore reserves	
1.1. Exploitation ore reserves (million tons)	80.5
1.2. Category of reserves	B+C1
1.3. Type of ore	sulphide
1.4. Average grade (g/t)	*3.58
1.5. Metal (kg)	288,200
2. Mining	
2.1. Mining method	Open pit
2.2. Operation life	19 years
2.3. Crude ore annual productive capacity (thousand tons)	4.82
2.4. Stripping ratio (m3/m3)	7.9
2.5. Extraction costs of 1 ton of crude ore (US$)	4.7
3. Transportation distance	
3.1. ore to Mill Site (km)	2
3.2. stripping to dumps (km)	2
3.3. concentrate for refinery (km)	500
4. Mill Site	
4.1. Annual amount of processed ore (mln tons)	4.82
4.2. Processing technology - Flotation with additional grinding and cianidation of flotation concentrate and direct cianidation of flotation tails by the "carbon-in-pulp" scheme	
4.3. Processing recovery ratio (%)	80.1
4.4. Initial processing costs of 1 ton of ore (US$)	7
5. Sales product	
5.1. Annual amount of concentrate (mln tons)	4.8
5.2. Total recovery ratio (%)	80. 1
5.3. Annual sales product amount (t)	160
6. Economic parameters	
6.1. Capital investments (US$ mln)	452
6.2. Construction period (months)	30
6.3. Annual costs of sales product (US$ mln)	190
6.4. Production costs (US$/oz)	186
6.5. Adopted price (US$/oz)	375
6.6. Annual costs total (US$ mln)	160
6.7. Annual taxable profit (US$ mln)	90
6.8. RR afier tax (%)	20.5
7. Employment	
7.1. Number ofpersonnel while construction	2,300

foreign	20 %
local	80 %
7.2. Current personnel number	1,000
foreign	15 %
local	85 %
7.3. Average salary	
foreign (US$/month)	6,000
local (US$/month)	700
8. Shares	
Canada (CAMECO)	1/3
State Concern <<Kyrghyzaltyn>>	2/3

8．クムトール鉱山資料（地質・鉱物・埋蔵鉱量）

2.0.地質状況と鉱化帯

2.1.序論

クムトル金鉱床は、中国との国境から北東に 60 km 離れた，キルギスタン共和国イッスィ・クリ州ドジェトィ・オグス地区に所在する。同鉱床は，中央天山のアタシイラク山脈南西支脈に形成されている。鉱床エリアの標高は、南西部で 3,900 m，また北東部では 4,150 m である。

本鉱床は、地質学的にみると、ニコラエフラインの名称で知られている、カレドニアン褶曲構造（北部）とヘルシニアン褶曲構造（南部）との構造学的境界線に一致する最重要構造の天山広域構造の東側周辺部と結び付いている。

クムトル地域の地質調査の歴史は、若干の中断期間があるものの 1920 年代にまで遡るが、鉱床の発見は 1979 年の夏が初めてであった。この発見により本地域への興味が起こされ、1979 年から 1989 年にかけて物理探鉱、トレンチによる地上調査、地上及び地下でのダイアモンドドリリング、坑道の掘削をも含めた精査が実施された。

精査の結果、鉱床の存在が裏付けられ、「キルギス地質」の評価では、金の平均品位を 4.2 g/t とすると鉱石の原始埋蔵量が 7,470 万トンとされた、5 個所の近接した鉱化鉱石区が、傾斜及び走向に沿って確認・追跡できた。限界品位を 1 g/t とした場合、金の埋蔵量は 315.8 t となる。3,700m のホライズンに相当する深度で限られた当該埋蔵量は、ソ連邦国家鉱量委員会の承認を得た。また予想埋蔵量に付いては、より疎らな間隔の試錐孔により 3,700 m のホライズンの下部、3,200 m のホライズンに相当する深度までその賦存範囲が確認された。

クムトル Operating Company（クムトル）は、1993 年 12 月より KILBORN WESTERN（KILBORN）及びその下請け会社と共同で、既存のデータベースの調査及び評価を実施してきた。調査の必須項目となったのは、重複サンプルの再分析、原始埋蔵量の再計算、高鉱化鉱石区の一部に付いての地下地質再調査，土質再調査、サンプルの再分析である。原始埋蔵量の算定は、ゲオスタト・インターナショナル（ゲオスタト）により、立体ブロックモデルを用いて 3,668 m のホライズンに相当する深度まで Geostatic 方式で行われた。

2.2. 地域の地質状況

クムトル地域は、クィリュ層の片麻岩及び角閃石に代表される原生代前期から、第四紀及び現世の氷堆石並びに沖積層で被われたやや石化された赤色粘土及び同礫岩からなる古第三紀後期～新第三紀前期までの岩石で形成されている。さらに、金鉱石鉱化帯の母岩である支配的な広域地層群は、モラッセ層群に固有の特長を有している。本地域の地層は、構造的変形を繰り返し受けており、これは、褶曲、断裂、一般的隆起によって現れている。広域変成作用の程度は、緑色片岩相の低部から中部まで変化している。

地域の火成活動は、規則的に見られ、バイカル造山運動、ヘルシニアン造山運動、アルプス造山運動と緊密な結び付きがある。カレドニアン褶曲運動に相当する貫入岩は不明である。貫入岩の岩石構成は、アルカリ閃長岩から弱アルカリ花崗岩までである。火山岩は稀で、流紋岩及び同凝灰岩に代表され、これら火山岩は、礫岩、石灰質アルコース砂岩及び石灰岩質頁岩、石灰岩からなる原生代後期及びデボン紀の堆積層中で認められる。

ヘルシニアン造山期の貫入岩は、アルカリ閃長岩からなるチョナシュイ地層群及びムズブラク斑れい閃緑岩中に形成されている。構造地質学的に複雑化され、ひきはがされた接触面を有する。これら貫入岩群に属するブロック化した小さな岩体が、クムトル鉱床をコントロールする構造帯中で認められる。

クムトル地域は、構造面から見ると、カレドニアン造山運動期及びヘルニアン造山運動期に形成されたアタシイラク地背斜の一部である。当該地背斜は、主要なリニアメント及び断層帯によって幾つかの構造ブロック及び構造亜帯に分けられる。2 つの主要断層帯により、クムトルエリアの局地的な構造的位置の境界が確認される。すなわち、カレドニアン造山期の地層群（北部）及びヘルシニアン造山期の地層群（南部）の境界を表すニコラエフライン、並びにアシュトル断層帯とクムトル断層帯である。この断層帯は，400 m までの範囲で幅を変えながら、長さ 50 km以上にもわたってニコラエフラインと平行に走っているのが追跡される。

ボオルドウ氷河とペトロフ氷河との間を 9 km の長さにわたって伸びているクムトル鉱床生成区のエリア内では、クムトル断層帯が次の 4 個所の既知の金鉱化帯区域（サルィトル金鉱化帯、南西金鉱化帯、中央金鉱化帯、北東金鉱化帯）の母岩となっている。クムトル鉱床は、中央金鉱化帯区域に形成されている。

クムトル鉱床の主要な鉱化帯は、それ自身が原生代後期の Vend 累層群の基底部に位置しているジュトィムタウ層の地層断面中部に形成されている。クムトル断層帯に形成されたこれら地層が、後になって、特にヘルシニアン造山期の年代に、激しい造構運動や熱水作用を交互に受けて、その結果クムトル鉱床が形成された。

2.3. 鉱床の地質

角礫化し、また熱水溶液の作用を受けて変質したカンブリア期以前の変堆積岩からなり、南方向並びにクムトル主要断層とほぼ平行に伸びる構造地質学的ゾーンにおけるクムトル鉱床の状況は、図2.2に記載の通りである。南東に傾斜している、変質岩及び鉱化作用を受けた岩石からなるゾーンは、走向に沿っての距離が1,250 m、地上部の厚さが400 mまでで、1,000 mの深さまで追跡できる。採掘が予定されているクムトル鉱床の鉱量賦存範囲には、次の 3 つの主要な鉱体（網状鉱体，南側鉱体，北側鉱体）が含まれる。本プロジェクトにおいて露天掘り方式での採掘が予定されている鉱量の賦存範囲の長さ・幅・深さは，最大で、それぞれ 300 m・1,000 m・365 mである。

2.3.1. 母岩

クムトル断層の北側に堆積している岩石は、薄い層理を有する、また稀に塊状を示す、風化面では赤茶色化した、カンブリア紀～オルドビシア紀前期の珪質石灰岩（礫岩からなる従属的地層を伴う）と、炭酸塩岩の薄層を伴った、薄い層理を有する、主として灰色の原生代の千枚岩と砂岩である。

図2.2に記載したように、クムトル鉱床周辺の非変質岩石は、主としてジェティムタウ層の原生代後期の地層断面中部を形成する千枚岩で、またバイコヌル層の苦灰岩質シルト岩と同質泥岩も若干認められる。これら岩石について、粒子が非常に細かいこと、構造的変形を受けた区域を除いて明瞭な片理が存在しないこと、絹雲母・緑泥石の鉱物組成を示していることから、岩石の受けた変成作用の程度が弱く、低度の緑色片岩相に属するものと判断される。

剥離度がより大きくて転位状をなしている文象千枚岩と互層を成すバイコヌル層の苦灰岩質岩石は、鉱床の下盤においては、炭酸塩岩の細長いレンズを伴った薄い層理を有する砂質シルト岩及び同泥岩である。この岩石は、変形度が弱く、緻密なコンピーテント層であり、硬い支柱としての役割を果して、下盤においてこの岩石と隣合う千枚岩の変形を助けた可能性がある（コンピーテント層に対してコンピーテンシーのより小さな千枚岩が剥離し、曲がってしまった）。

広い範囲に分布が見られるジトィムタウ層の岩石は、単一・単調な構造及び鉱物組成を示す、極めて薄

い層理を有した灰色及び灰緑色千枚岩である。年代の新しい岩石の表面が暗灰色であるにもかかわらず、炭酸塩岩は、明らかに従属的な成分にしかすぎない（<1%）。当該岩石中の所々で黄鉄鉱が存在するものの、微粒状で認められるだけであり、顕微鏡を用いないと判別できない。露頭では、黄鉄鉱の含有量が多い鉱石区部分でさえも、特長的な赤黄色の色彩を帯びた風化岩石にはめったにお目にかかれない。これは、鉱床エリアを極く最近覆った氷の層の下にあるため、酸化作用を受けなかったことに起因するものである。

千枚岩では、流動劈開もまた特長として見られ、劈開の形成は風化作用とあいまって、露頭の崩壊をもたらしている。地下坑道の坑壁では、岩石の種類が非常に多種多様である。この岩石は、場所によって、非常に層理が薄く、縞状構造をなしており、広範囲に広がりまた深部まで貫通している劈開割れ目の作用を初めて受けた後、地表に露出した類似の岩質組成を示す岩石よりも更にコンピーテンシーが大きくなっている。

2.3.2. 構造

図2.2から分かるように、当該エリアの支配的構造は、ほぼ平行に伸びる剥離・角礫化帯を伴った北東の走向を有するクムトル断層であり、この断層中にクムトル鉱床が賦存している。クムトル鉱床が賦存する、構造的変形を受けた当該剥離・角礫化帯は、クムトル鉱床の母岩であり、南東に 40～60 度の角度で傾斜をしている。剥離・角礫化帯は、ほぼ平行に走る多数の断層並びに当該断層と成因関係を有する角礫化帯、網状ゾーン、ブーディン構造、小さな局地的褶曲からなっている。各種方向に伸びる交差断層は、より不明瞭で、重要性もより小さい。

鉱石をコントロールする主要構造は、南東に傾斜し、また主要なクムトル断層とほぼ平行に走る北東走向の断層である。2.3A 及び 2.6B から分かるように、これは、鉱化帯と熱水溶液の作用による変質部が支配的であるポジションや全鉱化帯の分布に影響を与えている。キルギス地質の地質学者により分布状態調査が行われた断層の大部分がこのタイプに属する。またこれら断層は、延長が非常に長く、地下坑道で容易に確認できる構造である。同断層沿いのずれの方位並びに落差に付いては解明されていない。ひきずり褶曲、すべり面並びにそのほかの徴候に付いては、相反しており、Normal Slip、Reverse Slip、横ずれ移動のあることを示している。

1990 年にキルギス地質が作成したマップで明確に表されている北方向の多数の断層は、実際に、詳細なマップ上及び地下坑道で認められる。頻繁に見られる傾斜角度の小さな断層の大部分並びに当該断層と共役関係にある断層に付いては顕著な移動が認められない。鉱石区の輪郭及び有用成分の含有量の分布状況（図 2.3B 及び 2.4B）から、クムトル鉱床北東部においては、北方向の若干の断層が、鉱石をコントロールする上で重要な意味を有しているかもしれないと考えられる。

2.3.3. 鉱石周辺の変質部

弱い広域変成作用により生じた母岩の構造及び岩石構成の変化は、通常小さい。著しい変質は、上記の構造的変形及びその後の熱水溶液の作用による変質と鉱化作用が原因となって生じたものである。

熱水溶液の作用による変質部は、次の 3 つの鉱物グループにより代表される：

- 硫化物：主として黄鉄鉱
- 炭酸塩：主として方解石、苦灰石、鉄白雲石
- 長石：曹長石とアデュリヤリア

キルギス地質による 31 点の鉱石サンプルの鉱物組成の分析結果から、次のことが判明した：

・黄鉄鉱含有量；5%から25%まで、平均値16%

・炭酸塩含有量；10%から50%まで、平均値28%

・長石含有量；8%から30%まで、平均含有量19%。

平均的含有量及び平均値以上の含有量は、強く変質した岩石及び鉱化作用を受けた岩石で特長的に認められる。また珪化作用も同様に認められる。

鉱物組合せ及び鉱物が生じた年代から、鉱石周辺の変質部を3つのグループに分けられる：

・黄鉄鉱・曹長石・炭酸塩；鉱床北部の強く変質し明るい色合いの鉱石に特徴的

・黄鉄鉱・アデュリャリア・炭酸塩；バラ色をしており、網状鉱体及び南側鉱体全般に特徴的。

・石英・炭酸塩・（緑泥石）；鉱化作用後に生じた非鉱産タイプの変質部。各種鉱化区域で局地的に分布している。

未変質の岩石中に微量（通常、1%未満）散在し、岩石に暗灰色の色彩を帯びさせる炭素鉱物は、軟化作用を受け、強く変質した鉱石から頻繁に溶脱し、微粒石墨の形態で、断層面に被われて、当該断層と共役関係にある構造角礫岩（造構運動で生じた角礫岩）中で再堆積した。構造角礫岩中では、所々に数パーセント石墨が含まれる。しかしながら、炭素の平均含有量は0.35%で、これは冶金テストの結果と一致する。全般的に、鉱石周辺の変質の程度が激しくなるに伴い、構造、物質組成、色彩、コンピーテンシーの大きい岩石の変化が著しくなり、また熱水溶液の作用で生じた鉱物の粒子が多彩になって、2.1表でも分かるように金の含有量が増す。

2.3.4. 鉱物特性

鉱床の鉱物特性は単純である。とはいっても、学術調査により100種類以上の鉱物が確認されたが、その大多数が従属鉱物や微量鉱物で、稼行対象としての重要性は認められない。

主要な硫化鉱物は、黄鉄鉱であり、続成作用及び熱水溶液の作用を受けた各種岩石中に存在する。続成作用で生じた黄鉄鉱は、鉱化作用を受けていない母岩中に広く分布しており、当該母岩中では、黄鉄鉱は、結晶化の程度の悪いミクロンの大きさの分散した粒子として、炭素物質と共生している。この黄鉄鉱中の金の含有量は微量か、あるいは全く認められない。熱水溶液の作用を受けて生じた黄鉄鉱は、結晶化の程度がよく、はっきりとした粗粒の黄鉄鉱で、金全体の約90%が含まれている。当該黄鉄鉱はしばしば鉱染状をなし、稀に薄い微脈状に存在する。黄鉄鉱の含有量は5%から25%までである。約4g/tの金を含有する粗鉱中に、8%から1 0%までの黄鉄鉱が含まれる。

黄鉄鉱中では、金は通常0.01mm以下の細かい不規則な状在物として含まれる。金の大部分は自然金の形態で認められ、若干がテルル化物、主としてカラベライトの形態をとる。金の純度は92%から99%までである。全般的に金の含有量は、黄鉄鉱の量と緊密に相関すると共に、粒子の大きさや結晶度によっても若干左右される。金含有量が5g/tと最も金含有量の高い鉱化帯は、最も粗粒の黄鉄鉱が賦存する網状ゾーンに形成されている。

主に金・銀化合物及び自然銀の形態で見られる銀は、主として、微量鉱物である。方鉛鉱、閃亜鉛鉱、黄銅鉱と共生している。金対銀の比率は、2.5：1である。銀の比率が高くなっている（約1：1の比率）のは北側ゾーンの鉱石中で、主要金属の含有率が高いことに起因しているかもしれない。

タングステンは、炭酸塩と緊密な共生関係を有する極めて微粒の灰重石の形態で認められる。タングステンの含有量は0.01%WO_3（三酸化タングステン）から0.03%WO_3までである。網状ゾーン中央部及び北側ゾーンでは、タングステンの含有量が若干高く、0.05%WO_3である。テルルは、平均含有量が10 g/t

で、主としてテルル化金及びテルル化銀と共生している。

若干の分析結果に基づきキルギス地質報告書で伝えられた極く微量（痕跡）のプラチナ及びパラジウムの起原については不明である。

1993年、Kilborn社は、地下坑道の調査を行い46点のサンプルを採取したが、当該サンプルの大部分は、クムトル鉱床の内、最も鉱化作用の程度の大きい区域から採取されたものである。当該サンプルを分析した結果、痕跡程度以上のプラチナ及びパラジウムの存在は認められなかった。20回のプラチナ基諸元素分析作業でも同様の結果が得られた。分析作業は、次の3種類の別個の方式を用いて実施し裏付けを行った：

1）プラズマ誘導法（PI）

2）中性子活性化機器分析法(NAA)

3）プラズマ誘導（PI）・質量分析法（MC）

PI-MC法は、非晶質物質中のプラチナとパラジウムを測定する際に用いられた。

末変質千枚岩質岩石中の主要鉱物は、極めて微粒の絹雲母、緑泥石、石英、並びに少量の炭素質鉱物である。これら鉱物は、変質及び鉱化作用の程度が増すに連れて溶解及び再濃集し、その結果、熱水鉱物である粗粒の黄鉄鉱、長石及び大量の炭酸塩が生成される。このことは、2.3.3章でも述べられ、また2.1表からも明らかである。熱水鉱物は、主として、網状鉱脈及び同微脈に形成され、角礫岩を膠結すると共に、初生鉱物を若干程度置換している。

2.3.5. 鉱石鉱物鉱化帯の特性

クムトル鉱床の鉱化帯は、次の三つの主要ゾーン（網状ゾーン、南側ゾーン、北側ゾーン）に集中している。これらゾーンは、既に述べたように、鉱石をコントロールする主要断層とほぼ平行に、北東から南西に向かって伸びている（図2.3B、2.4B）。

網状ゾーンは、規模及び鉱物含有量が最大のゾーンである。このゾーンは、大ざっぱな楕円状、管状の形態を成し、水平方向での大きさは最大で350 x 180 mであり、標高4、000 mの地点に位置する。南側ゾーンは、レンズ状の形態で、網状ゾーンの南側延長部に当たる。長さが500 m以上、幅は数十mである。北側ゾーンは規模が小さく、鉱化作用の程度も低く、クムトル鉱床のベースに沿って伸びる不連続なヒラマメ状の形態を成す。

鉱化帯の分布状況の主な特長（図2.3A、2.6A）として、（断層の）上盤、即ちクムトル鉱床の上部地層で金の濃集度がより高くなっている。クムトル鉱床全体での最も一般的な傾向として、網状鉱石区の上盤から南西及び北方向に地層のベース（下盤）及び深部に向かって鉱体の大きさとその連続性並びに金の品位が小さくなっている。

鉱床の各種ゾーンの鉱化帯は、金を含有する黄鉄鉱が散在した網状ゾーンの特長を有している。それらの間の相違点は、構造的変形や鉱化作用のタイプというよりは、むしろ鉱化作用の激しさに起因するものである。鉱石の構造としては、次の4種類の主要構造（網状構造、角礫構造、置換構造、縞状構造）が認められる。またこれらの構造タイプが組合わさったケースもよく見られる。

網状鉱化帯は、鉱床自体と共に、鉱化作用の程度が低い幾つかの母岩区域においても、最も頻繁に認められ、広い範囲に分布しているタイプの鉱化帯である。この鉱化帯は、熱水作用で生じた炭酸塩、長石及び石英で充填され、また通常鉱染状の黄鉄鉱を伴った、白色及び明灰色の鉱脈及びレンズが不均等に斜交している。鉱脈の幅は1 mm以下から1 m以上までで、その大部分が1 mmから10 mmまでの範囲内であ

る。最も大きな鉱脈が見られる網状化作用の激しさが最大となる場所（巨大網状鉱床）は、網状ゾーンであり、この場所では、角礫岩への移行が認められると共に、炭酸塩、長石、石英で充填された不規則な巣状挟み及びレンズを伴った、鉱物の置換区域、角礫化区域、網状化区域が混じりあった区域も見られる。角礫構造の鉱石は、岩石片の置換程度が小さな網状鉱床から、岩石片と脈状鉱物が無秩序に混ざりあった鉱石までが認められる。このような鉱石は、網状ゾーンに最も特長的なものであるが、クムトル鉱床の他の箇所においても所々で見られる。鉱化プロセス以前に形成された角礫岩と同プロセスと同時期に形成された角礫岩は膠結度が高く、結合してコンピーテンシーが大きい。例外的なケースが、数cmから数mまでの薄い、鉱化作用後に形成されたゾーン、並びに北東方向のいくつかの断層に沿って見られる、石墨により膠結された構造角礫岩（造構運動により生じた角礫岩）である。

置換構造タイプの鉱化帯は不規則に見られる。石英、炭酸塩及び（あるいは）長石、黄鉄鉱が認められることから、初生岩石が熱水溶液の作用で変質しているのが遠くからでも識別できる。これら初生岩石は、変質程度に応じて、これといった特長を持たない細粒及び中粒の各種岩石から、不完全に置換した初生岩石のレリックあるいは不均等に分布する熱水鉱物を含有する不均等な斑状岩石までである。金の品位が 1～3 g/tの低品位の鉱石に相当する各種微粒岩石は、多くの場合、緻密で重く、その独白の特性からコンピーテンシーが大きい。色は通常、明灰色までの明るい黄褐色である。

縞状構造の鉱石は、従属的鉱石であるが、キルギス地質の報告書の中で「ゼブラタイプ鉱石」と称されるように非常にはっきりとしたタイプの鉱石である。この鉱石は、灰色及び暗灰色の千枚岩の薄層と、母岩である千枚岩の層理に沿って含浸した白色の明るい熱水鉱物の薄層とが互層を成しているのが特長として見られる。

2.4. 鉱量及び品位のコントロール

クムトル鉱床は、鉱量の Geostatic 評価を行う上で非常に都合のよい鉱床である。「クムトル鉱床の鉱量評価」報告書の中でGeostat 社の実施した詳細な評価作業は、クムトル鉱床の埋蔵量を全体的にきちんと評価するために、広範囲のトレンチサンプル分析データをベースとして実施した。

2.5. 追加精査

鉱化帯の連続性が高いこと、ボーリング孔、トレンチやピット、地下坑道での調査の際に集積されたデータのベースが広範囲であること、キルギス地質により金含有量の計算が実施されたこと、またGeostat 社により当該含有量の再計算がなされたこと、これらのことから、予定の露天掘り敷地に於て、今後精査作業を行う必要は無いと考えられるだろう。

鉱床の合理的稼行を行う上で、鉱石中の金含有量を最大とし、貧化の程度を最小に抑えることを目的として、金品位のコントロール計画をきちんと立案する必要がある。鉱山の全操業期間を通して、金品位コントロール計画の一部として、ウェルシューティング用ボーリング孔及び地表地質調査用ボーリング孔での調査が行われる予定である。

2.6. 今後の鉱量の増大

確実な鉱量及び予想埋蔵量の増大を目的として、予定の露天掘り場の底部のレベルに相当する 3,796m のホライズンより下で今後精査を行うことが推奨される。広範囲に離れたボーリング孔を掘削してクムトル鉱床の下部ホライズンの中間精査を実施し、その際に算定された鉱物埋蔵量を、予想埋蔵量のカテゴリーに相

当するとした。これら埋蔵量を経済的評価に加える前に、より高いカテゴリーの鉱量にまで換算することを目的として、ボーリング孔の間隔をもっと密にする必要がある。稼行作業を行う前に 3,796m のホライズンと 3,200m のホライズンとの間で精査を開始し、鉱山の操業期間を延長するため必要な場合には当該精査を継続して行うのがよいと考えられる。

中間精査の実施範囲外に於て、更に埋蔵量が発見される潜在的な可能性がある。そのため、予定の露天掘り場の下部レベルの地層に達した場合には、3,200m のホライズンの下の鉱化帯で精査を実施するのがよいと思われる。

3.

3.0. 埋蔵量

3.1. 序　論

KILBORN 社（KILBORN WESTERN Inc.）は、GEOSTAT（GEOSTAT INTERNATIONAI Inc.）と共同で、生産地質企業合同キルギス地質が入手し、KILBORN 社により見直されたデータを用いて、Indicative Krajgin Geostatic Method で、クムトル鉱床の鉱物総資源量（埋蔵量）を算定した。当該データは、コアサンプル、地上トレンチサンプル、地下トレンチサンプルの分析結果を記したものであり、ソ連邦地質省が作成し、生産地質全業合同総裁、同副総裁と地質技師長、ウチコシコン地質調査隊長の承認を受けている。このデータは、「クムトル金鉱床の精査（詳細作業）結果」報告書に反映されている（1989 年）。当該報告書の内、サンプルの分析方法、分析方法、鉱量算定方法が記載されている個所に付いては、英訳され、クムトル鉱床フィージビリティスタディに関する本報告書の当項目に反映された。また、KILBORN 社は、上記データに変更を加えず、生産地質企業合同「キルギス地質」の報告書に添付された、サンプル及びその分析結果のみを利用した。

上記分析結果の信頼性を高め、また生産地質企業合同キルギス地質の専門家により分析作業及びサンプリングが正しく行われたことを確認するため、「クムトル・オペレーティング・カンパニー」（クムトール）と KILBORN 社は、次の課題を設定した。

・生産地質全業合同キルギス地質の提案した地質モデルの見直し。

・生産地質企業合同キルギス地質が以前に採取したやや稼行対象となるレベルのサンプルの内、残った部分の中から選鉱用サンプルを採取し、カナダにおいて選鉱のためのサンプル分析を行う。

・キルギスの地質学者が以前サンプリングを行ったボーリング孔でコアサンプルを採取し、その分析を行う。

・地下坑道でトレンチサンプルを採取し、生産地質企業合同キルギス地質の中央研究所並びにカナダの TSIJ 諸研究所においてその品位分析を行う。

・地下坑道サンプルの採取と分析を行い、選鉱のためのサンプル分析結果と以前に入手した結果とを照合する。

選鉱のためのサンプル分析結果は、本報告書第 1 巻 5.0 項で詳細に検討され、また確認のためのサンプルの採取方法と同分析結果に付いては、本項の中で検討されている。KILBORN 社は、キルギスの専門家が入手した分析用データとサンプルの審査を行った。チェック用サンプルの分析結果と以前に取得した分析結果とを比較したところ、非常に似ていることが分かった。さらに、北米の類似鉱床及び同じ精査段階にある北米の鉱床と比較すると、生産地質企業合同キルギス地質が採取したサンプル数及び分析作業量は、前記北米鉱床の場合よりはるかに多くなっている。この点から、KILBORN 社は、生産地質企業合同キルギス地質の提出した主要データは充分満足できるものであり、資源量及び稼行対象レベルの鉱量を算定する上で利用するこ

とが可能であるとの自信をえている。

クムトルプロジェクトに関してKILBORN社とGEOSTATが採用した鉱量算定方式の選択理由は、次の通りである。

・Geostatic Methodは広く知られた方法であり、クムトル鉱床タイプの鉱床の鉱量を算定する場合に採鉱分野及び地質分野で通常取り入れられている方法である。

・この方法により、鉱石中に含まれる鉱物の評価を確実に行える。

・クムトル鉱床の鉱石は塊状鉱であり、金の異常含有を示す埋蔵量が時として認められることから、インディケーション・クリギング法による算定が適している。

クムトル鉱床は、1978年に発見され、10年間かけて精査（中間精査と詳細精査）が行われたが、本報告書1巻第1章にその概略が記載されている。精査作業は1988年に完了し、それまでに25,000 mのトレンチとピット、3個所のホライズンで30,250 mの地下坑道（水平坑道と横坑）、77,000 mのボーリング孔（地表から掘削したボーリング孔と地下坑道から掘削したボーリング孔）が掘削され、その結果、鉱化帯の諸パラメータの測定並びに当該鉱化帯の鉱物資源量の算定が行えた。おおよそ70,000点のサンプルが採取され、金及びその他の諸元素含有の分析調査が実施された。

KILBORN社は、調査データ及び分析データの収集並びに完全な鉱量計算を目的としてGEOSTAT社を作業に参入させた。GEOSTAT社は、1993年4月に「クムトル鉱床の鉱量算定」と称する報告書を作成したが、この報告書は、本報告書の4巻（B章）の中に含まれている。クムトル鉱床の鉱量は、カナダの規格に従って3つのグループに分類されている：採鉱済み鉱量、予想埋蔵量、暫定埋蔵量（地質データから想定される埋蔵量）。暫定埋蔵量は、本鉱量算定書には含まれていない。

採鉱済み鉱量と予想埋蔵量は、金の最低含有量を1.0 g/tとした場合の、地表から海抜3、668mの地点の深度までの埋蔵量で、次の通りである：

鉱石	158,000,000 t
金の平均含有量	2.71 g/t
金の総埋蔵量	428.2 t

精査データ並びにキルギスの地質学者が取り入れた精査方法を審査するために、KILBORN社は、第三者の地質エキスパートであるStiv Zayats博士を招いた。博士は次の作業を行った：

・生産地質企業合同キルギス地質が行った電検、サンプリング、分析の方法の審査

・キルギスの地質学者による鉱床地質の解釈が正しいかどうかの確認

・鉱量算定モデルが地質モデルに合致しているか確認するためGEOSTAT社の実施した鉱量　の再算定方法が正しいかどうかをチェックした。

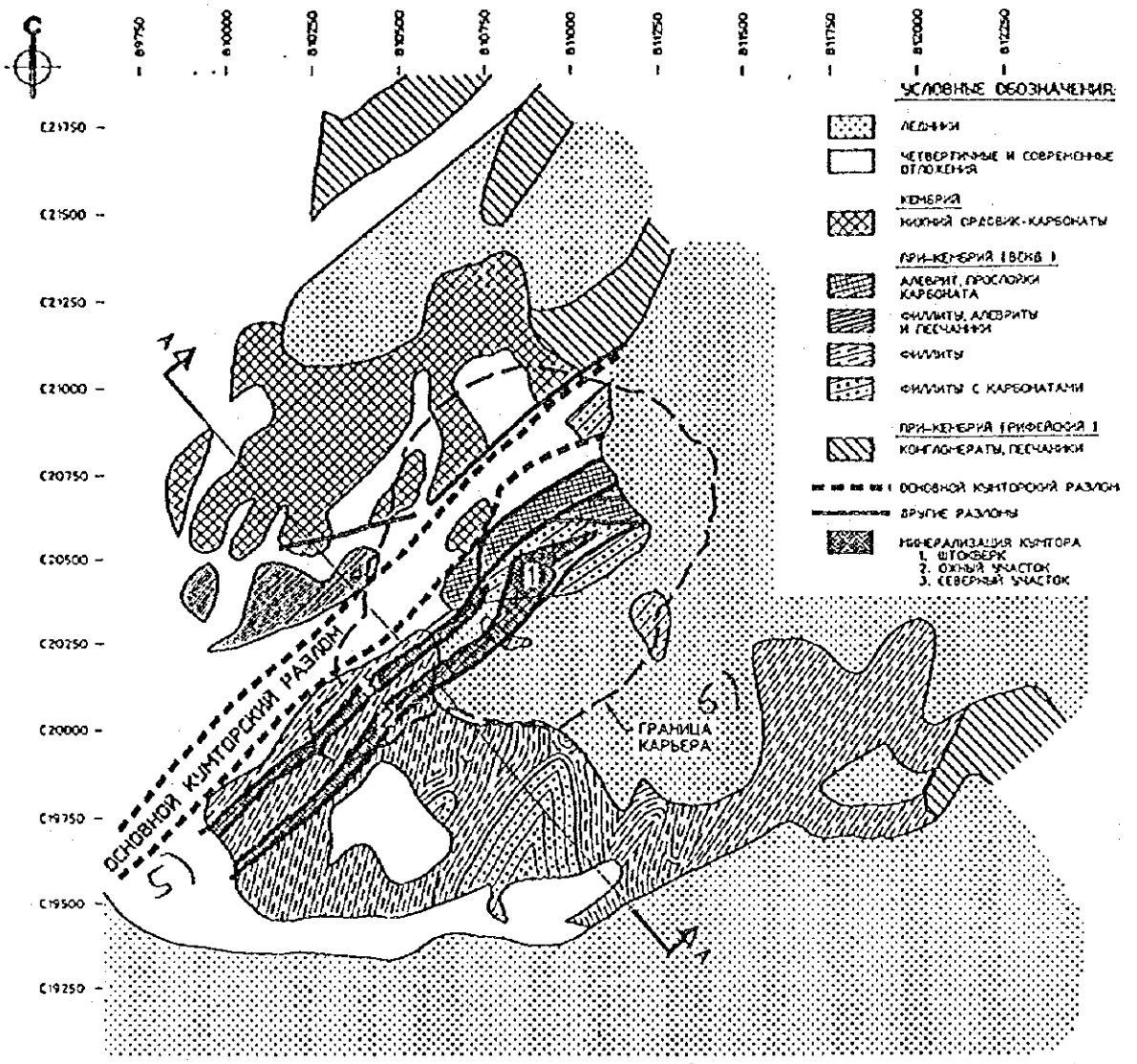
上記の諸作業を行った結果、生産地質企業合同キルギス地質の取り入れた調査方式と分析方式が、カナダの類似のケースで用いられている実際の方式と一致していることが裏付けられた。キルギスの地質学者が作成した地質モデルには、鉱化帯の発達状況並びに鉱化帯が受けている構造上のコントロールが正確に反映されている。算定済み鉱量は地質状況とも対比される。鉱床の地質状況は、第1巻2.0項で検討されている。

露天掘り方式で採収される採掘対象鉱量を算定するに際して、限界品位を2.0 g/t、鉱石の貧化によるロスを10%とした。また当該鉱量には、採鉱済み鉱量と予想埋蔵量のカテゴリーに相当する埋蔵量のみが含まれている。調査データを統計学的に分析することで、鉱床埋蔵量の一部を採鉱済み埋蔵量とすることが可能であるが、KILBORN社は、カテゴリー毎の埋蔵量の算定をあえて行わなかった。採掘対象鉱量は次の通りである：

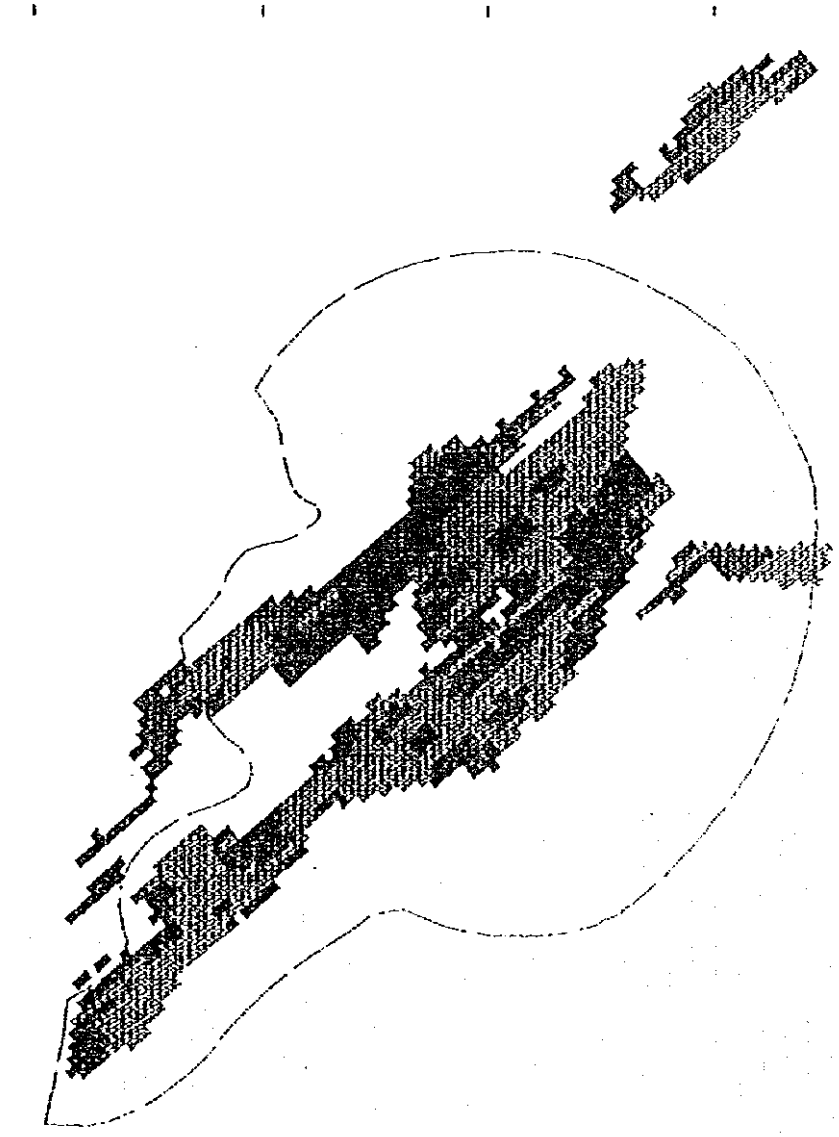
鉱石	53,481,000 t
金の平均含有量	3.94 g/t
金の埋蔵量	211.0 t

算定に際してKILBORN社は、キルギス地質が作成しZayats博士の確認を得た鉱床の地質モデルとデータをベースとした。

報告書の本章では、鉱量の算定並びにKILBORN社がクムトルで行った総埋蔵量と採掘対象鉱量の再算定方式のためのデータベースを取得するために取り入れた手法を記載してある。



ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ МЕСТОРОЖДЕНИЯ
РИС. 2.2



УСЛОВНЫЕ ОБОЗНАЧЕНИЯ

Au г/т

0.0 до 0.9

1.0 до 1.9

2.0 до 5.9

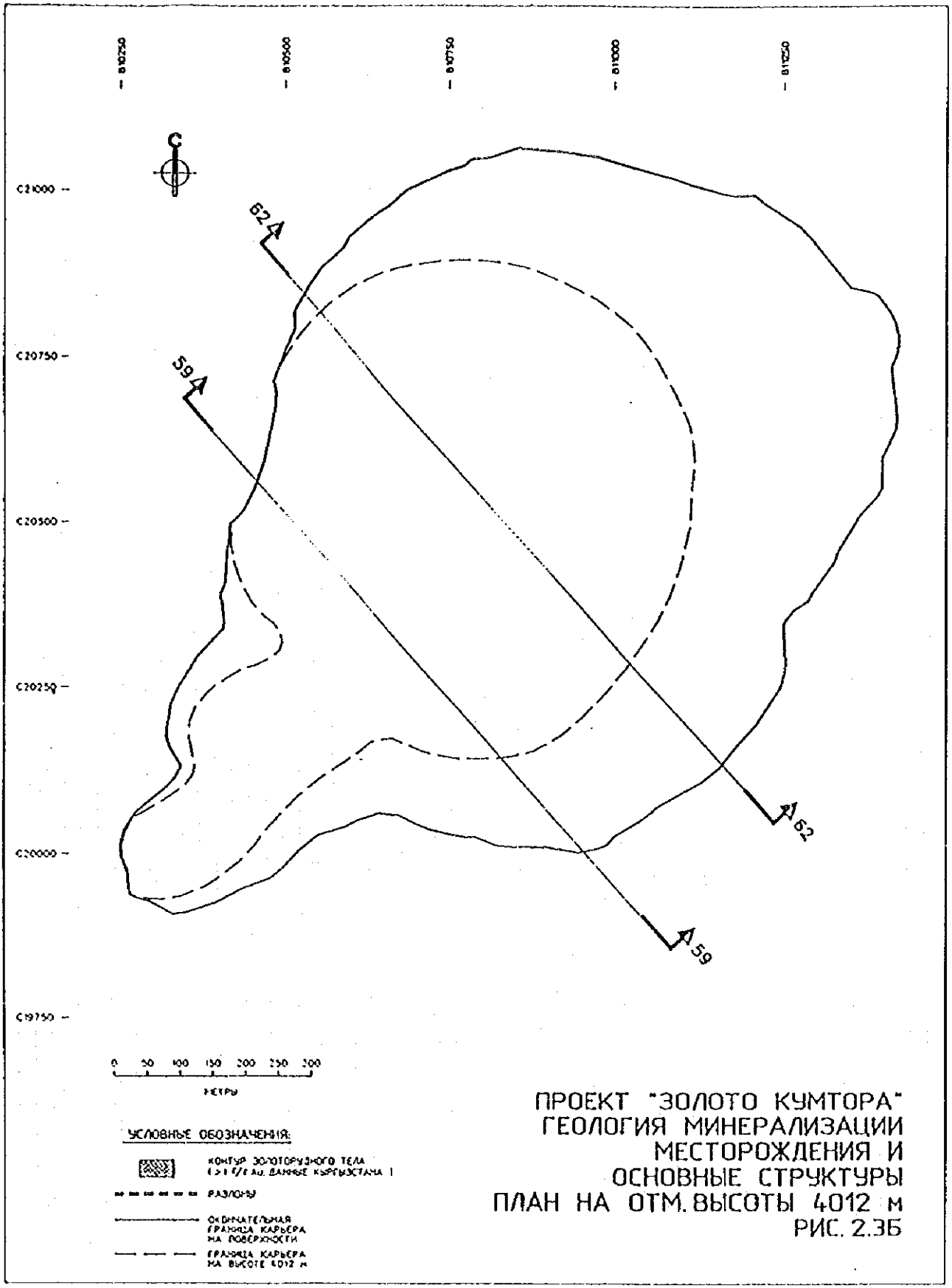
6.0 и

ГРАНИЦА КАРЬЕРА НА ВЫСОТЕ 4012 м

0 50 100 150 200 250 300

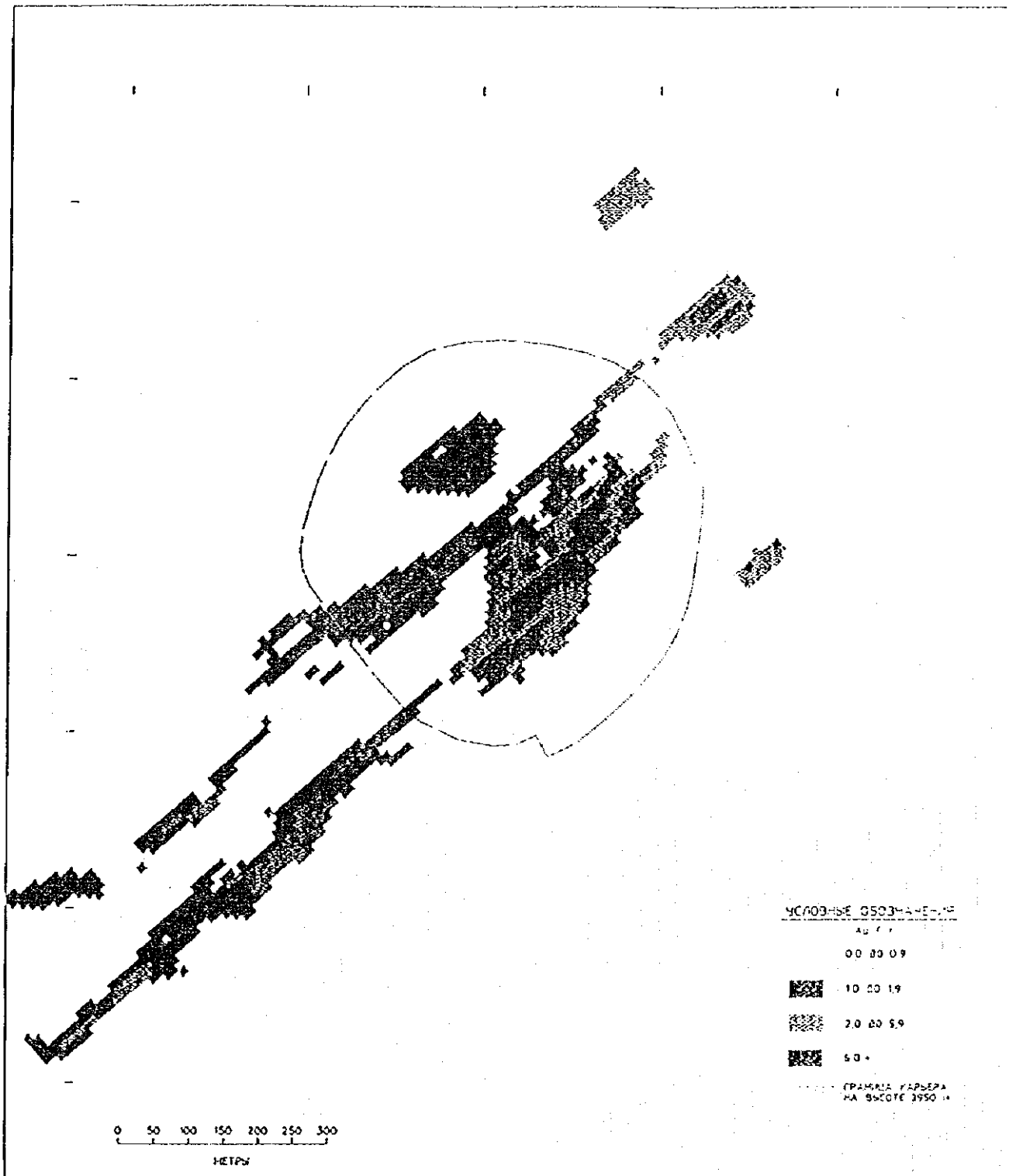
МЕТРЫ

ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ КАРЬЕРА.
РАСПРЕДЕЛЕНИЕ И СОДЕРЖАНИЕ ЗОЛОТА.
ПЛАН НА ОТМ. ВЫСОТЫ 4012 м
РИС. 2.3А

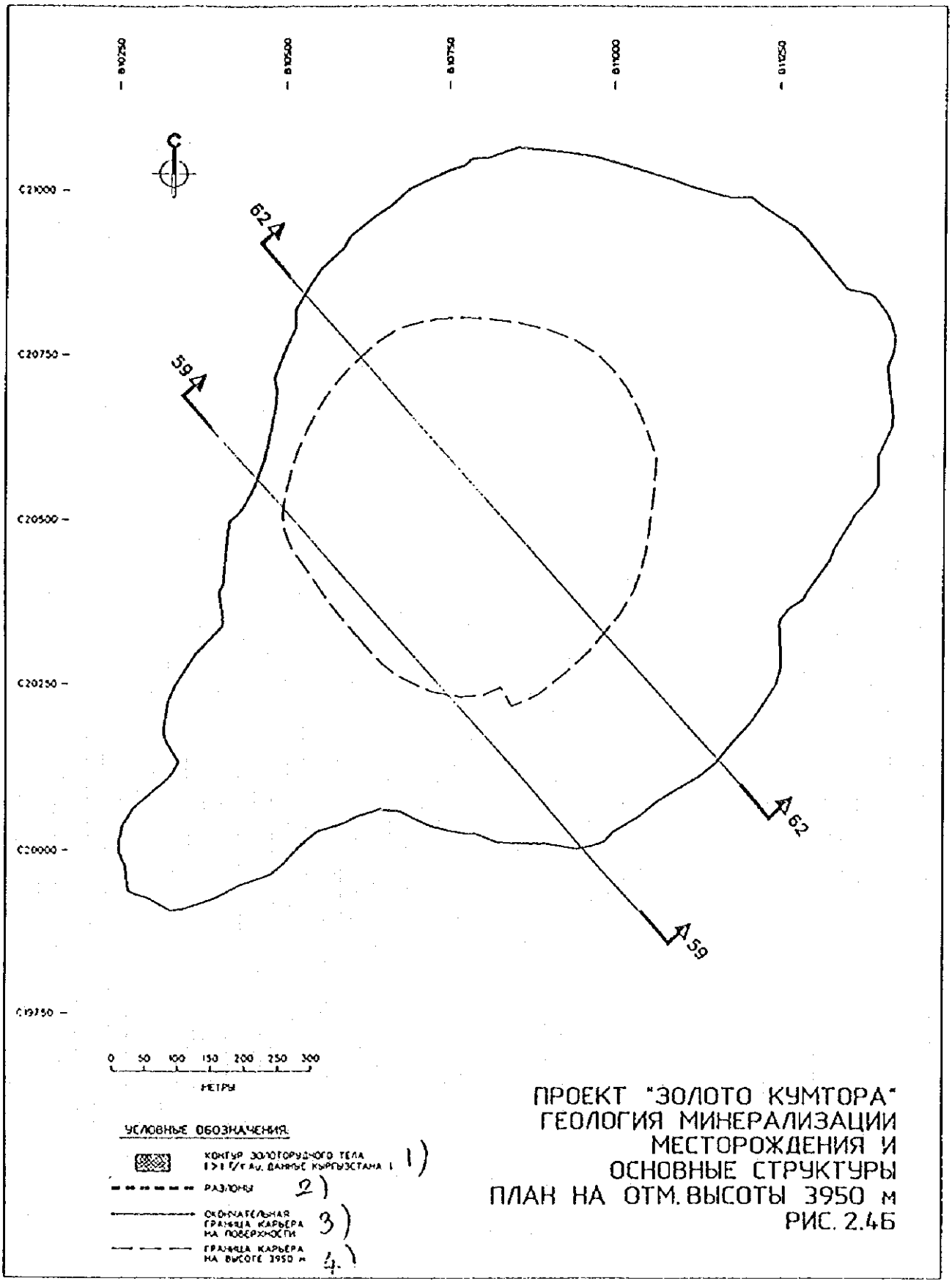


ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ МИНЕРАЛИЗАЦИИ
МЕСТОРОЖДЕНИЯ И
ОСНОВНЫЕ СТРУКТУРЫ
ПЛАН НА ОТМ. ВЫСОТЫ 4012 м
РИС. 2.3Б

KILBORN

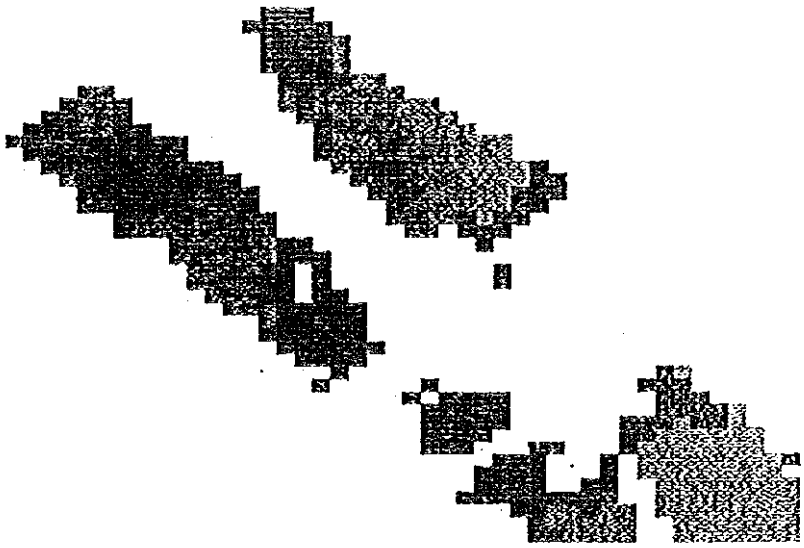


ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ КАРЬЕРА.
РАСПРЕДЕЛЕНИЕ И СОДЕРЖАНИЕ ЗОЛОТА.
ПЛАН НА ОТМ. ВЫСОТЫ 3950 м
РИС. 2.4А



ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ МИНЕРАЛИЗАЦИИ
МЕСТОРОЖДЕНИЯ И
ОСНОВНЫЕ СТРУКТУРЫ
ПЛАН НА ОТМ. ВЫСОТЫ 3950 м
РИС. 2.4Б

KILBORN



УСЛОВНЫЕ ОБОЗНАЧЕНИЯ.

Au г/т

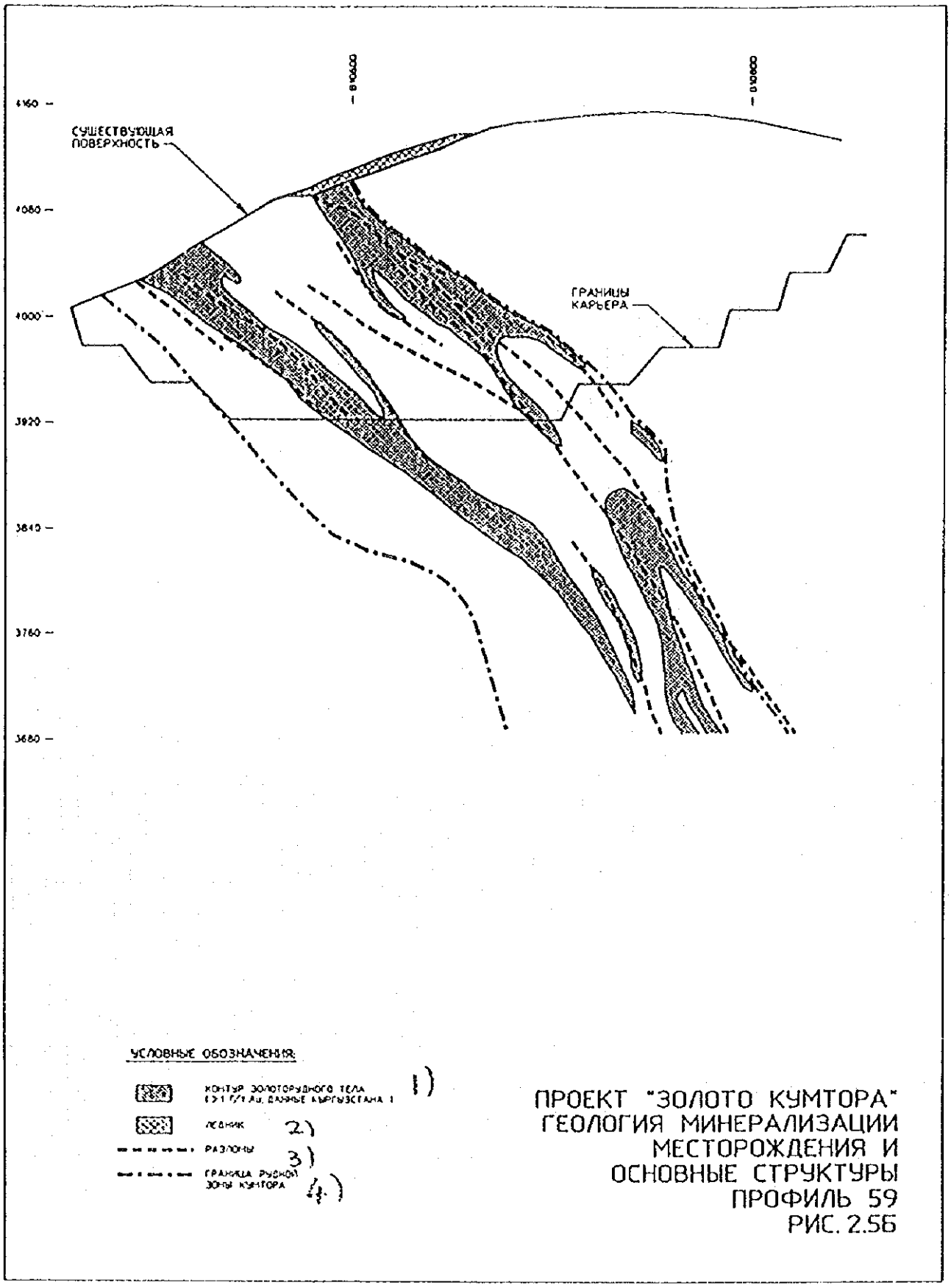
0.0 до 0.9

1.0 до 1.9

2.0 до 5.9

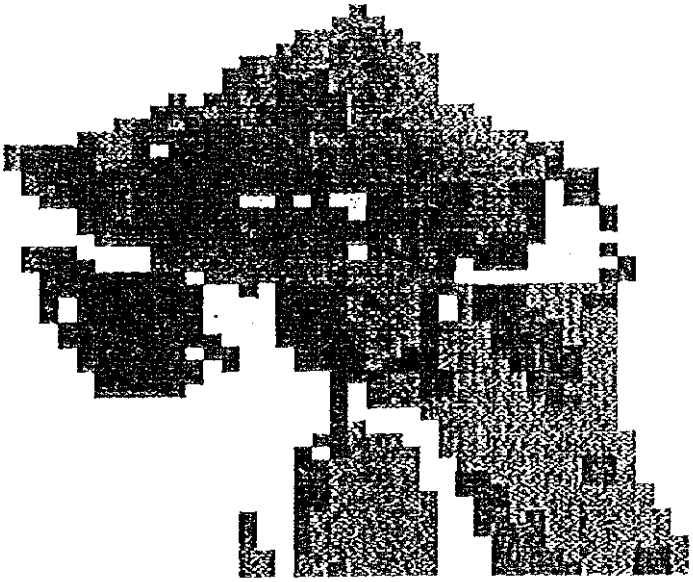
6.0 +

ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ КАРЬЕРА.
РУДНОЕ ТЕЛО
ПРОФИЛЬ 59
РИС. 2.5А



ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ МИНЕРАЛИЗАЦИИ
МЕСТОРОЖДЕНИЯ И
ОСНОВНЫЕ СТРУКТУРЫ
ПРОФИЛЬ 59
РИС. 2.5Б

KILBORN



УСЛОВНЫЕ ОБОЗНАЧЕНИЯ

Au г/т

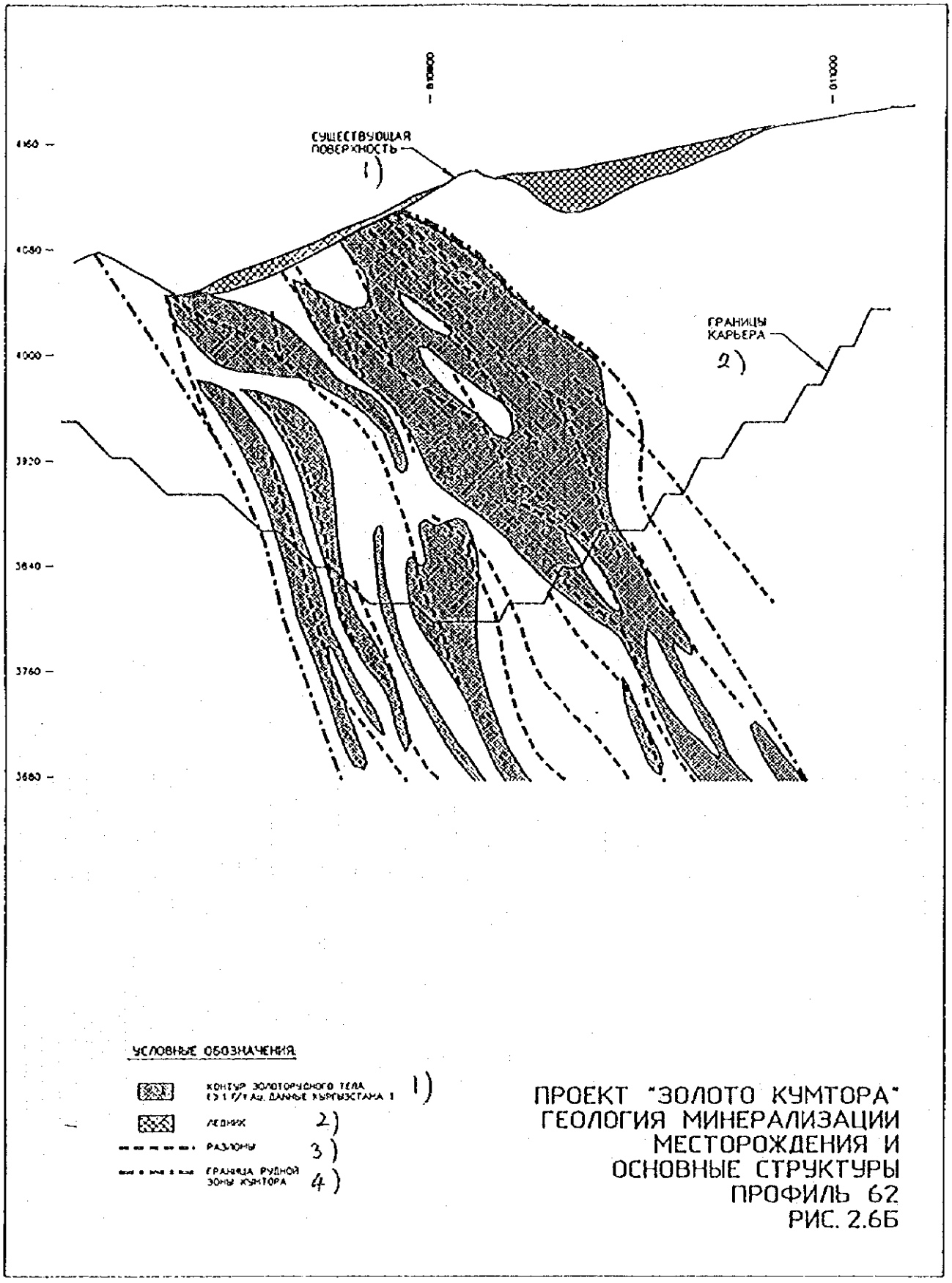
0.0 .00 0.9

1.0 .00 1.9

2.0 .00 5.9

6.0 +

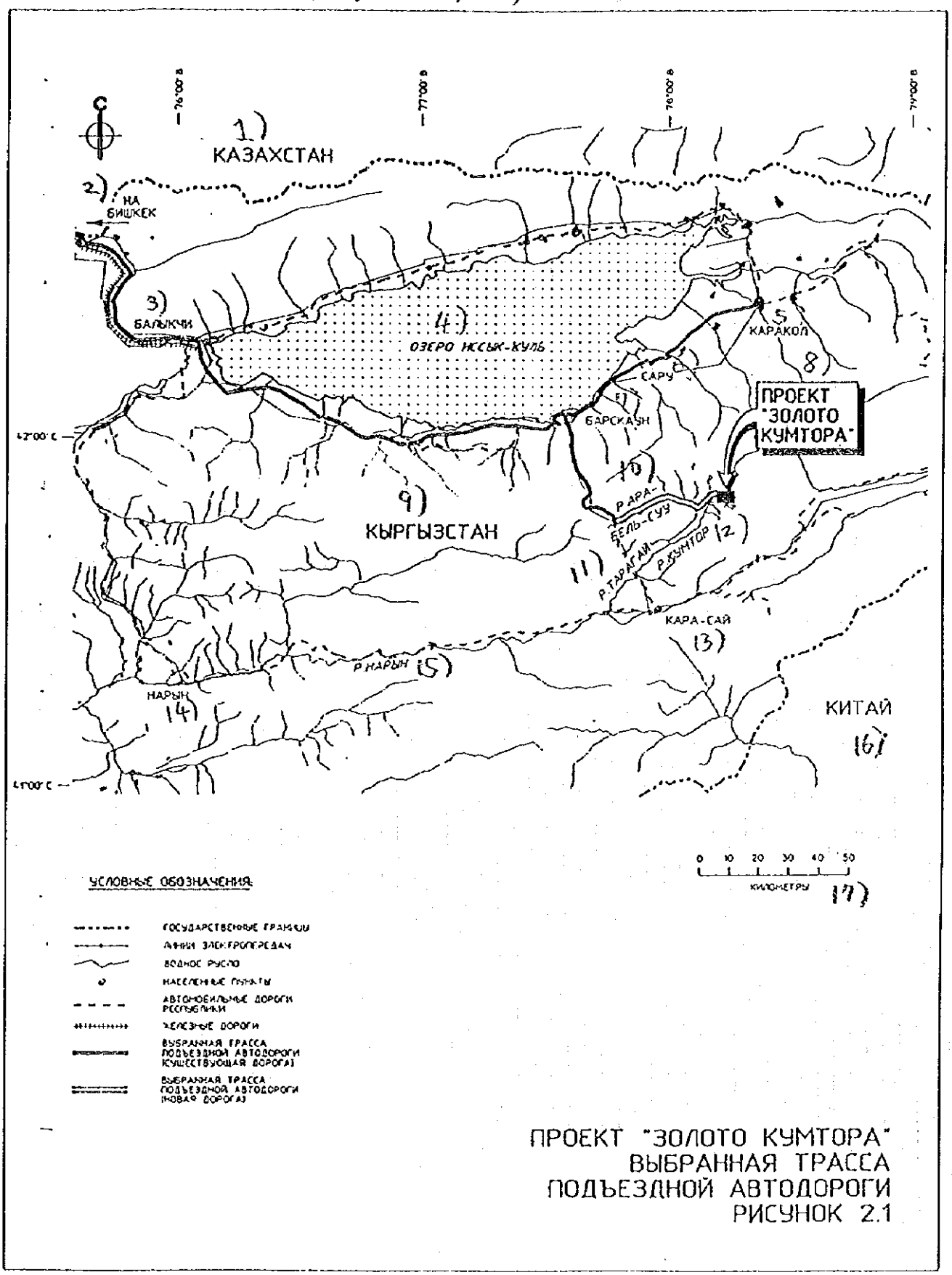
ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ КАРЬЕРА.
РУДНОЕ ТЕЛО
ПРОФИЛЬ 62
РИС. 2.6А



ПРОЕКТ "ЗОЛОТО КУМТОРА"
ГЕОЛОГИЯ МИНЕРАЛИЗАЦИИ
МЕСТОРОЖДЕНИЯ И
ОСНОВНЫЕ СТРУКТУРЫ
ПРОФИЛЬ 62
РИС. 2.6Б

KILBORN

Kumtor 報告書 F-7 '97



ПРОЕКТ "ЗОЛОТО КУМТОРА"
ВЫБРАННАЯ ТРАССА
ПОДЪЕЗДНОЙ АВТОДОРОГИ
РИСУНОК 2.1

KILBORN