Assessment Report

of intellectual property:
Technology of complex extraction of uranium,
nonferrous, rare and precious metals,
based on five inventions.

"Method for processing sulfide minerals and concentrates";
"Method for recovery of non-ferrous, rare and precious metals from robust minerals";
"Method of extraction of non-ferrous, rare, radioactive and precious metals from resistant mineral raw materials";
"Method of extraction of precious metals from resistant ores and concentrates";
"Method for analyzing solids using an ion source of a hollow-cathode discharge"

$ 1 977 388 462

(One Billion Nine Hundred Seventy Seven Million Three Hundred Eighty Eight Thousand Four Hundred Sixty Two US Dollars)

RESULTS OF EVALUATION ACTIVITIES of
MARKET VALUE
as of August 04, 2018

EVALUATION ITEM: intellectual property item: technology of complex extraction of uranium, nonferrous, rare and precious metals.

The evaluation was made as of August 04, 2018 in the period from February 17 to November 15, 2017.

The evaluation goal: for the purposes of the authorized capital contribution.

As a result of the analysis, we came to the conclusion that as of November15, 2017, the final value of the evaluation item equaled in round figures to the following:

The final value of the market value of the evaluation item as a whole is, subject to rounding: 102,824,200,000 rubles (One Hundred Two Billion Seven Hundred Twenty Four Million Two Hundred Thousand) rubles,

or

$ 1 977 388 462

(One Billion Nine Hundred Seventy Seven Million Three Hundred Eighty Eight Thousand Four Hundred Sixty Two US Dollars).

The cost of the evaluation item was calculated on the basis of market research, on personal experience and professional knowledge. Sources of information and calculation techniques are presented in the relevant sections of the evaluation report.

Score Plus Auditing
Dubai – United Arab Emirates
Date: August 04, 2018

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Contents

1. Basic facts and conclusions

1.1. General information identifying the evaluation item

The evaluation item is the intellectual property item (IPI): technology of complex extraction of uranium, nonferrous, rare and precious metals.

1.2. Evaluation results obtained by applying different approaches to evaluation; final cost value of the evaluation item

	Weighting factor	Value in three approaches	Market value
Cost approach	0	Not applicable	0
Comparative approach	0	Not applicable	0
Income approach	1	**102,824,200.00 rubles or $1 977 388 462**	**102,824,200.00 rubles or $1 977 388 462**
	1	**102,824,200.00 rubles or $1 977 388 462**	**102,824,200.00 rubles or $1 977 388 462**

2. Evaluation Assignment and related information

2.1. Evaluation Assignment

According to Clause 17 of the Federal Valuation Standard No. 1 "General Valuation Concepts, Evaluation Approaches and Evaluation Requirements (FVS No. 1)" approved by Order of the Ministry of Economic Development of the Russian Federation No. 256 dated 20.07.2007, the evaluation assignment should contain the following information:

a) evaluation item;
b) property rights to the evaluation item;
c) purpose of evaluation;
d) intended use of the evaluation results and related limitations;
e) type of value;
f) evaluation date;
g) evaluation period;
h) assumptions and limitations on which the evaluation should be based.

Evaluation item:	Intellectual property item (IPI): technology for complex extraction of uranium, non-ferrous, rare and precious metals, described by a competent user in general with the help of innovative ideas, concluded in the following five (5) inventions: 1. "Method for processing sulfide minerals and concentrates"; 2. "Method for recovery of nonferrous, rare and precious metals from robust minerals"; 3. Method of extraction of non-ferrous, rare, radioactive and precious metals from rebellious mineral raw materials"; 4. "Method for extracting precious metals from rebellious ores and concentrates"; 5. "Method for analyzing solids using an ion source of a hollow-cathode discharge". The authors and patentees of the following two inventions are as follows: • Konstantin Sergeevich Fokin;

	The invention "Method for processing sulfide minerals and concentrates" according to PCT RU00170 application dated 16.04.2003. is protected by the patents of the following countries: 1. Australia (Patent No. 2003275744); 2. Great Britain (patent No. GB 2415192); 3. Canada (patent No. 2,522,336); 4. Kazakhstan (patent No. 18633) 5. Russia (patent No. 2331675); 6. United States of America (Patent No. 7,682,419 B2); 7. Uzbekistan (Patent No. IAP 03612); 8. Republic of South Africa (patent No. 2005/8250). The invention "Method for recovery of non-ferrous, rare and precious metals from robust minerals» ("Method for recovery of nonferrous, rare and precious metals from robust minerals") according to PCT RU00131 application dated 02.04.2003 is protected by the patents of the following countries: 1. Australia (Patent No. 2003269743) 2. Great Britain (Patent No. GB 2414740) 3. Canada (Patent No. 2,521,110) 4. Kazakhstan (patent No. 18634) 5. Russia (patent No. 2312908) 6. Uzbekistan (Patent No. IAP 03546) 7. Republic of South Africa (patent No. 2005/7894) Regarding the invention "Method of extraction of non-ferrous, rare, radioactive and precious metals from resistant mineral raw materials" there is the RF patent PCT/RU 2007/000408. Regarding the invention "Method of extraction of precious metals from resistant ores and concentrates" there is the RF patent PCT/RU 2007/000655". Regarding the invention "Method for analyzing solids using an ion source of a hollow-cathode discharge", there is a patent of Mineral" Nano-Technology, LLC, reg. No. 2010136570.
Property rights to items:	Patent owners: Konstantin Sergeevich Fokin (RU),
Purpose of evaluation	Determination of market value
Intended use of the evaluation results and related limitations:	For the purposes of the authorized capital contribution; there are no separate restrictions
Type of value:	Market
Evaluation date	August 04, 2018
Evaluation period	February 15 - November 15, 2017.

2.2. Evaluation Date

According to clause 8 of FVS No. 1, the evaluation date (the date of performing the evaluation, the date of determining the value) is the date on which the value of the evaluation item is determined.

The evaluation date of the evaluation item is November 15, 2017.

2.3. Evaluation Goals and Objectives

The evaluation goals (goal) is to determine the market value for subsequent entering on the balance sheet by contributing to the authorized capital.

The evaluation objective is to use the cost, comparative and income approach to the evaluation, or justify the refusal to use any of them.

2.4. Type of value

In accordance with the contract for evaluation, the market value of the evaluation item is subject to determination.

Article 3 of the Federal Law No. 135-FZ dated July 29, 1998 "Concerning Valuation Activities in the Russian Federation" (as amended and supplemented) provides a definition of market value:

"For the purposes of this Federal Law, the market value of the evaluation item is understood as the most probable price at which the given evaluation item can be alienated on the open market in competitive conditions, when the transaction parties act reasonably, having all the necessary information, and extraordinary circumstances do not affect the transaction price, that is when:

one of the transaction parties is not obliged to dispose of the evaluation item, and the other party is not obliged to accept the performance;

the transaction parties are well aware of the subject matter of the transaction and act in their own interests;

the evaluation item is represented on the open market by means of a public offer, typical for similar evaluation items;

the transaction price is a reasonable remuneration for the evaluation item and there was no compulsion to complete the transaction with respect to the transaction parties on someone else's part;

the payment for the evaluation item is in cash."

The Standard (FVS No. 2) provides an interpretation: "The possibility of alienation on the open market means that the evaluation item is represented on the open market by means of a public offer typical of similar items, and the period of the item exposure in the market should be sufficient to attract the attention of a sufficient number of potential buyers .

Reasonableness of actions performed by the transaction parties means that the transaction price is the highest reasonable price for the seller and the smallest of the reasonable prices for the buyer.

The completeness of the information available means that the transaction parties are sufficiently informed about the subject matter of the transaction, acting in an effort to achieve the transaction terms that are best from the point of view of each party, in accordance with the full volume of market and valuation information available at the evaluation date.

Absence of extraordinary circumstances means that each of the transaction parties has motives for the transaction, while there is no compulsion to perform the transaction regarding the parties.

2.5. Intended use of the evaluation results and related limitations

The evaluation result is the final value of the evaluation item. The evaluation result can be used when the parties determine the price for the transaction or other actions with the evaluation item.

According to clause 26 of FVS No. 1 the total cost value of the evaluation item specified in the evaluation report, may be recognized as recommended for the purposes of the evaluation item transaction, if from the date of the evaluation report to the date of the evaluation item transaction or the date of the public offer no more than 6 months have passed.

If the evaluation is mandatory in accordance with the legislation of the Russian Federation, no more than three months should pass from the evaluation date to the date of the evaluation report preparation, except for cases when the legislation of the Russian Federation establishes otherwise (clause 8 of FVS No.1).

Assumptions and limitations are provided in Section 4 of the Report.

2.6. Contents and scope of work, used for the evaluation

In the course of the evaluation assignment performance, the work was carried out in full:

- analysis of submitted documents, materials;
- interviewing the Customer's representatives and other specialists;
- calculation of the market value of the evaluation item
- preparation of the Report.

3. Applicable standards for evaluation activities

The evaluation is completed, and the Evaluation Report is prepared in accordance with the requirements:

1. Federal Valuation Standard No. 1 "General concepts of evaluation, approaches to evaluation and requirements for the evaluation (FVS No. 1)", approved by Order of the Ministry of Economic Development of the Russian Federation No. 256 dated 20.07.2007;
2. Federal Valuation Standard No. 2 "The valuation goal and types of value (FVS No. 2)", approved by Order of the Ministry of Economic Development of the Russian Federation No. 255 dated 20.07.2007;
3. Federal Valuation Standard No. 3 "Requirements for the Evaluation Report (FVS No. 3)" approved by Order of the Ministry of Economic Development of the Russian Federation No. 254 dated 20.07.2007.
4. Standards and rules for the implementation of evaluation activities of the Russian Society of Appraisers.

4. Description of the evaluation item with reference to documents that establish quantitative and qualitative characteristics of the evaluation item (quantitative and qualitative characteristics of the evaluation item, quantitative and qualitative characteristics of the elements included in the evaluation item that have a specificity that affects the evaluation results of the evaluation item, information on the current use of the evaluation item, other factors and characteristics related to the evaluation item that significantly affect its value)

Characteristics of the evaluation item

The evaluation item is the intellectual property item (IPI): technology of complex extraction of uranium, nonferrous, rare and precious metals. Property (in this report, the full ownership of the evaluation item is estimated without regard to the establishment of the owner of the evaluation item, and it is considered that the owner of the evaluation item does not have any special privileges and is not burdened with any special obligations beyond those that are accepted in business practice at the possible location of the evaluation item at the evaluation date).

This technology provides:

1. Leaching of shales with a non-toxic solution of organic humic acids with the transfer of all valuable metals, including the precious ones, into solution.
2. Separation of the solid mineral shale from the solution of organic acids by countercurrent decantation.
3. Precipitation of organic acids in the sediment with the simultaneous deposition of all valuable metals, including precious metals, into this precipitate.
4. Centrifugation of organic precipitate and its separation from the liquid phase.
5. Drying of the organic concentrate, roasting the concentrate under special conditions, preventing the volatilization of organic compounds of platinoids.
6. Selective leaching of a cinder of an organic concentrate with allocation of nonferrous and precious metals in separate fractions.
7. Refinement of the obtained products to commercial salts and metals.

This technology as a whole can be described by a competent user with the help of innovative ideas, concluded in the following 5 (five) inventions:

1. "Method for processing sulfide minerals and concentrates";
2. "Method for recovery of non-ferrous, rare and precious metals from robust minerals";
3. "Method of extraction of non-ferrous, rare, radioactive and precious metals from resistant mineral raw materials";
4. "Method of extraction of precious metals from resistant ores and concentrates";
5. "Method for analyzing solids using an ion source of a hollow-cathode discharge"

The authors and patent holders of the following two inventions are as follows:

- Konstantin Sergeevich Fokin;
- Vyacheslav Dmitrievich Shapovalov;
- Alexander Nikolaevich Shokhin.

The invention "Method for processing sulfide minerals and concentrates" according to PCT RU00170 application dated 16.04.2003. is protected by the patents of the following countries:

1. Australia (Patent No. 2003275744);
2. Great Britain (patent No. GB 2415192);
3. Canada (patent No. 2,522,336);
4. Kazakhstan (patent No. 18633)
5. Russia (patent No. 2331675);
6. United States of America (Patent No. 7,682,419 B2);
7. Uzbekistan (Patent No. IAP 03612);
8. Republic of South Africa (patent No. 2005/8250).

The invention "Method for recovery of non-ferrous, rare and precious metals from robust minerals» ("Method for recovery of nonferrous, rare and precious metals from robust minerals") according to PCT RU00131 application dated 02.04.2003 is protected by the patents of the following countries:

1. Australia (Patent No. 2003269743)
2. Great Britain (Patent No. GB 2414740)
3. Canada (Patent No. 2,521,110)
4. Kazakhstan (patent No. 18634)
5. Russia (patent No. 2312908)
6. Uzbekistan (Patent No. IAP 03546)
7. Republic of South Africa (patent No. 2005/7894)

Regarding the invention "Method of extraction of non-ferrous, rare, radioactive and precious metals from resistant mineral raw materials" there is the RF patent PCT/RU 2007/000408.

Regarding the invention "Method of extraction of precious metals from resistant ores and concentrates" there is the RF patent PCT/RU 2007/000655".

Regarding the invention "Method for analyzing solids using an ion source of a hol-low-cathode discharge", there is a patent of Mineral" Nano-Technology, LLC, reg. No. 2010136570.

The analysis carried out by MNT Ltd. allows us to draw the following conclusions:

The transition to the technology of enrichment of complex organometallic formations allows Russia to reach the world's first precious metals extraction in the shortest possible time. This will give Russia the opportunity to strategically dominate the world market of precious metals with the opportunity to influence the processes of globalization of the economy.

Due to the fact that the carbon layers occupy a third of the entire territory of Russia, the introduction of the low-cost, environmentally friendly and efficient technology presented will finally solve the task of ensuring the raw material requirements of the nuclear industry and leading in the world production of uranium.

In addition to precious metals, these carbonaceous formations carry an increased content of metals that are extremely necessary for the industry, such as rhenium, vanadium, nickel, molybdenum, and rare earths. Allocation of them in the technological process will allow to sharply reduce Russia's dependence on imports of these metals, which is currently available.

The list of documents used in the evaluation and establishing quantitative and qualitative characteristics of the evaluation item) consists of copies of documents signed by an authorized person and certified in accordance with the established procedure:

PCT/RU 2003/000170

«METHOD FOR PROCESSING SULFIDE MINERALS AND CONCENTRATES»

1. Kazakhstan (18633)
2. Uzbekistan (IAP 03612)
3. Russia (2331675)
4. Australia (2003275744)
5. Canada (2.522.336)
6. United Kingdom (GB 2415192)
7. United States of America (7,682,419 B2)
8. Republic of South Africa (8250)

PCT/RU 2003/000131

«METHOD FOR RECOVERY OF NON-FERROUS, RARE AND PRECIOUS METALS FROM ROBUST MINERALS»

1. Kazakhstan (18634)
2. Uzbekistan (IAP 03546)
3. Russia (2312908)
4. Australia (2003269743)
5. Canada (2.521.110)
6. United Kingdom (GB 2414740)
7. South Africa (7894)

Applications:

1. PCT/RU 2007/000408

«Method of extraction of non-ferrous, rare, radioactive and precious metals from resistant mineral raw materials»

2. PCT/RU 2007/000655

«Method of extraction of precious metals from resistant ores and concentrates»

3. 2010136570

«Method for analyzing solids using an ion source of a hol-low-cathode discharge»

The list of publicly available data used in the valuation of the evaluation item:

1. Civil Code of the Russian Federation.
2. Federal Law No. 135-FZ dated July 29, 1998 "Concerning Valuation Activities in the Russian Federation".
3. Gryaznova A.G., Fedotova M.A. Business evaluation. Moscow: Finance and Statistics, 2003.
4. Internet sites: www.appraiser.ru, www.cbr.ru, www.valnet.ru and others.

It is assumed that the information provided by the customer is reliable and true. Gapss in the required data were filled with information from other sources and the appraiser's own experience. In this case, experts assume the absence of any hidden facts that affect the evaluation of the evaluation item.

There are no restrictions (encumbrances) of the right.

The modern view on the cost of technology is described by the following formula:

$$C = R * \sum_{i=1}^{N} \frac{Wi * Pi}{(1+m)^i} * Cvt * Cke * Cegc * \beta * Crisk * Kstr.b. * Cs.r.$$

- where C – market value of the technology;
- R – table value of the royalty. Figures from 5 to 8% are given as the average branch value of the royalty rate in the literature on the evaluation of intellectual property for the metallurgical industry

Table 6.1

EXTENDED LIST OF STANDARD ROYALTY RATES - IN% OF THE PRICE OF A PRODUCT UNIT OR OF THE SALES TOTAL (SALES)

No.	Items of royalty rates application	Royalty P, %
	INDUSTRIES:	
1	Aviation	6-10
2	Automobile	1-3
3	Toolmaking	3-5
4	Metallurgical	**5-8**
5	Consumer durables	5
6	Consumer goods of mass demand with a short period of use	0,2-1,5
7	Agricultural Engineering	4,5
8	Machine-tool construction	4,7-7,5
9	Construction machinery	4,5
10	Textile	3-6
11	Pharmaceutical	2-5
12	Chemical	2-4
13	Chemical Engineering	4-7
14	Electronic	4-10
15	Electrotechnical	1-5

Source http://www.valnet.ru/m7-61.phtml

In our calculations, we will be guided by the value of tabulated royalty rates of 5%.

- i – forecast year;
- N – forecast period. In the manual "Business Evaluation" edited by A.G. Gryaznova and M.A. Fedotova, M., Finance and Statistics, 2005, p.303 states that regarding patent licenses containing especially large innovations, the estimated term of the license agreement is 15 years or more. In its calculations, the calculation horizon is represented by the period from 2018 to 2035 (output of finished products from 2022).).
- Wi – volume of production in the i-th year, is determined from the business plan for the development of technology provided by the Customer
- Pi – production cost.
- m – discount factor. The discount rate is the interest rate used to recalculate future income streams into a single amount of current (present) value. The discount rate should be calculated in such a way as to take into account such factors as: the need to take into account the value of money in time and the risk factor for investors. In this context, risk is defined as the degree of probability of obtaining future revenues. In accordance with evaluation practice, the discount rate should be calculated taking into account at least three factors. The first factor is the availability of various sources of attracted capital, which require different levels of compensation. The second factor is the growth of the value of money in time. The third factor is the risk associated with investing money in a particular facility or project. All these factors act in the scientific

and technical sphere, and, therefore, must be taken into account in one form or another. In particular, for the organizations of the scientific and technical sphere, the main sources of funding to date are the federal budget and specialized extra-budgetary funds, and the receipt of money from these sources is not related to the real costs of attracting capital in a marketable way; the change in the value of money over time, taken into account in a standard way, does not play a significant role in comparison with the risk factor and such a factor as the presence or absence of budget financing (or similar to it in terms of conditions); the risk of investment in intangibles such as intellectual property rights in the scientific and technical sphere, obtained with funding from the federal budget, cannot normally be estimated using conventional tools based on the analysis of changes in the share price, but on average is considered very high. The profitability of metallurgical enterprises in the Russian Federation is 9-17%. Taking into account the venture and innovative nature of the enterprise being created, a discount rate of 30% was used.

- Ctv. – factor of the patent protection. The technology being evaluated is protected by 2 patents and 3 applications for a patent. Considering that the application provides protection of the patents for 90%, Cty. = (1+1+0,9+0,9+0,9)/5=0,94.
- Cke – element's criticality factor - shows what part of the output is produced with direct participation of intellectual property. Cke=1.
- Cegc – factor of the life cycle stage of a product. Cegc = 1.
- β – stage of product development - the probability that the licensee's enterprise will reach the specified production parameters. According to the pamphlet by I. S. Mukhamedshin "How can one protect, sell or buy scientific and technical products more effectively." M.: 1993. The probability of success for technology implemented in the experimental order at one or two enterprises is 90-100% (we accept as 0.95).
- Crisk – coefficient of risk accounting - technical and technological, socio-legal, financial, economic and other. We believe that we took into account the risks indirectly in a high discount rate.
- Kstr.b. – factor of a business strategy using an intangible asset is related to the judicial protection of a patent, in our case it is assumed to be equal to 1.
- Cs.r. – coefficient of market entities - is associated with the availability of competing technologies, unscrupulous consumers (pirates), the stimulation of demand or supply by investors. In our case, we take Cs.r. equal to 1.

The average content of the PGM (platinum-group metals) in the Tamgino-Turgenev region is 0.6-2.5 g/t, gold - 3 g/t, according to the mass searches that characterize the whole shale package. Consistence of complex mineralization in the area of distribution of shales, a small dispersion of platinum and palladium samples, the considerable and sustained thickness of the shale package allows to estimate the predicted resources of shales for complex raw materials in the category P1.

Boundary value

Table 6.2

Metals	Content, g/t	Content in ore, %	Extraction in processing, %	Percent of metal in products	Output from 1 ton of ore, kg
Gold Au	3.0	0.000300%	90,0%	99.99%	0.0027
Platinum Pt	1.2	0.000120%	90,0%	99.99%	0.0011
Palladium Pd	0.63	0.000063%	90,0%	99.99%	0.0006

Key Indicators Table6.3

Indicator	Rate
Refinancing rate of the Central Bank of the Russian Federation	**13.00%**
Discount rate	**1.00%**
Interest rate on loans	**4.00%**

Inflation indices *

Table 6.4

Indicator	Unit of measure	2018	2019	2020	...	2035
Exchange rate RUB / USD	RUR/USD	52.00	52.00	52.00	...	52.00
Inflation index for income	unit (per USD price)	1.02	1.02	1.02	...	1.02
Inflation index for capital expenditures	unit (per RUB price)	1.06	1.05	1.04	...	1.04
Inflation index for operating costs	unit (per RUB price)	1.06	1.05	1.04	...	1.04

*The indicators in the table from 2017 to 2035 are the same

Forecasts of prices for products*

Table 6.5

Products	Unit of measure	2018, $/kg	2019	2020	...	2 035
Gold Au	rub/kg	38,580.00	2,006,160.00	2,006,160.00	...	2,006,160.00
Platinum Pt	rub/kg	36,973.00	1,922,596.00	1,922,596.00	...	1,922,596.00
Palladium Pd	rub/kg	22,505.00	1,170,260.00	1,170,260.00	...	1,170,260.00

*prices for November 2017, for the purposes of calculation are accepted unchanged from 2018 to 2035

Performance indicators

Table 6.6

Indicators	Unit of measure	1st year of production	2nd year of production	subsequent years of production
Design capacity	th/tonnes	2,000	5,000	30,000
Total unit cost of 1 ton of ore (excluding depreciation and inflation, in 2012 prices)	rub./th.ore	3,120	2,340	1,560

Capital expenditures

Table 6.7

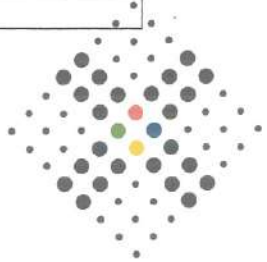
Production and stripping works thousand rubles	thousand roubles	2,900,000
Construction of a quarry	thousand roubles	3,900,000
Initial capital expenditures	thousand roubles	12,300,000
Capital expenditures (full development)	thousand roubles	**100,000,000**
Pre-investment expenditures	thousand roubles	1,000,000
Basic equipment	thousand roubles	**300,000,000**
Total	thousand roubles	420,100,000

Indicator name	Unit of measure	Value
NPV	**mln rub.**	**1,319,788**
IRR	**%**	**26,8%**
Discounted project payback period	**years**	**7**
Simple project payback period	**years**	**7**

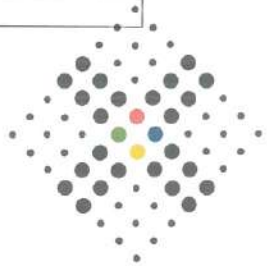
Financial and economic model of the whole project*

Table 6.8

Indicators	Unit of measure	Total for the project
Inflation indices		
Cumulative inflation index for income	unit	
Cumulative inflation index for capital expenditures	unit	
Cumulative inflation index for operating costs	unit	
Ore output	**th. tonnes**	**367,000**
Gold Au output	t	991
Platinum Pt output	t	396
Palladium Pd output	t	208
Prices for products (without VAT)		
Gold Au	rub/kg	
Platinum Pt	rub/kg	



Palladium Pd	rub/kg	
Sales of products (without VAT)	**thousand roubles**	**2,993,761,704**
Gold Au	thousand roubles	1,988,102,754
Platinum Pt	thousand roubles	762,116,362
Palladium Pd	thousand roubles	243,542,587
Expenses for production and processing (without VAT)	**thousand roubles**	**943,859,849**
Proceeds from sales of products (without VAT)	**thousand roubles**	**2,993,761,704**
Production costs	thousand roubles	943,859,849
Gross profit	**thousand roubles**	**2,049,901,855**
Tax on extraction of minerals	thousand roubles	0
Amortization of capital investments	thousand roubles	87,142,000
Interest on loans	thousand roubles	51,073,291
Operating profit	**thousand roubles**	**1,911,686,565**
Taxable profit	thousand roubles	12,846,040,086
Profit tax	thousand roubles	0
Net profit	**thousand roubles**	**12,846,040,086**
Flow from operating activities		
Revenues from sales (including VAT)	thousand roubles	**2,993,761,704**
Expenses for output of products (includingVAT)	thousand roubles	**943,859,849**
Payment of taxes on profits and on production of minerals	thousand roubles	***0***
Payment of VAT	thousand roubles	**0**
Total operating costs	thousand roubles	**943,859,849**
Cash flow from operating activities	**thousand roubles**	**2,049,901,855**
Flow from investment activities		
Pre-investment expenditures	thousand roubles	**7 800 000**
Pioneer investments for capital construction	thousand roubles	**396 100 000**
Reinvestment to replenish disposable funds	thousand roubles	**87 142 000**
Cash flow from investment activities	**thousand roubles**	**-491 042 000**
Flow from financial activities		



Own funds	thousand roubles	**7 800 000**
Borrowed funds	thousand roubles	**396 100 000**
Repayment of loan	thousand roubles	**396 100 000**
For reference - the current amount of debt (without %%)	thousand roubles	
Interest payments on borrowed funds	thousand roubles	**51 073 291**
Cash flow from financial activities	**thousand roubles**	**-43 273 291**
Cash balance at the beginning of the period	тыс.руб.	0
Cash balance at the end of the period	**thousand roubles**	**1 515 586 565**
Efficiency of the project		
Total undiscounted CF	thousand roubles	1 507 786 565
Undiscounted CF cumulative total	thousand roubles	1 207 944 304
Discounted CF	**thousand roubles**	**1 319 787 715**
Discounted CF cumulative total	**thousand roubles**	**1 207 944 304**

* The full FEM with breakdown for each year between 2018 and 2035 is presented in the Business Plan

Thus, based on the FEM calculations, the volume of sales of products for the period from 2018 to 2035 (the first year of sales - 2022) is **2 trillion 994 billion rubles**, or **57.5 billion dollars** (at a rate of 52 rub/USD).

The total cost of the estimated technology will be rounded:

0.05 * 2,993,761,704,000 ÷ 1.3 * 0.94 * 0.95 ≈ **102,824,200,00 rubles**

(one hundred two billion eight hundred twenty-four million two hundred thousand rubles)

or 1 977 388 462 US Dollars.

Australian Government
IP Australia

LETTERS PATENT

STANDARD PATENT

2003269743

I, Fatima Beattie, the Commissioner of Patents, grant a Standard Patent with the following particulars:

Name and Address of Patentee(s):

Konstantin Sergeevich Fokin
ul. povarskaya, 22-4, Moscow, 121069, Russian Federation
Aleksandr Nikolaevich Shokhin
1- Truzhennikov per., 17-29, Moscow, 103009, Russian Federation
Viatcheslav Dmitrievich Shapovalov
ul. Shibankova, Naro-Fominsk, Moskovskaya obl., 143300, Russian Federation

Name of Actual Inventor(s):

Shokhin, Aleksandr Nikolaevich; Fokin, Konstantin Sergeevich and Shapovalov, Viatcheslav Dmitrievich.

Title of Invention:

Method for recovery of nonferrous, rare and precious metals from robust minerals

Term of Letters Patent:

Twenty years from 2 April 2003

سكور بلس لتدقيق الحسابات
P.O.Box: 64021
DUBAI - U.A.E.
SCORE PLUS AUDITING

COMMONWEALTH OF AUSTRALIA
AUSTRALIA
PATENT OFFICE

Dated this 30th day of April 2009

PATENTS ACT 1990

Fatima Beattie
Commissioner of Patents

Australian Government
IP Australia

LETTERS PATENT

STANDARD PATENT

2003275744

I, Fatima Beattie, the Commissioner of Patents, grant a Standard Patent with the following particulars:

Name and Address of Patentee(s):

Viatcheslav Dmitrievich Shapovalov
ul. Shibankova, 27-37, Naro-Frominsk, Moskovskaya obl., 143300, Russian Federation
Konstantin Sergeevich Fokin
ul. povarskaya, 22-4, Moscow, 121069, Russian Federation
Aleksandr Nikolaevich Shokhin
1-i Trughennikov per., 17-29, Moscow, 103009, Russian Federation

Name of Actual Inventor(s):

Fokin, Konstantin Sergeevich; Shokhin, Aleksandr Nikolaevich and Shapovalev, Viatcheslav Dmitrievich.

Title of Invention:
Method for processing sulfide minerals and concentrates

Term of Letters Patent:
Twenty years from 16 April 2003

سكور بلس لتدقيق الحسابات
P.O.Box: 64021
DUBAI - U.A.E.
SCORE PLUS AUDITING

COMMONWEALTH OF AUSTRALIA
AUSTRALIA
PATENT OFFICE

Dated this 7th day of June 2007

PATENTS ACT 1990

Fatima Beattie
Commissioner of Patents

Certificate of Grant of Patent

Patent Number: GB2414740

Proprietor(s): Viatcheslav D Shapovalov
Konstantin S Fokin
Aleksandr N Shokhin

Inventor(s): Viatcheslav D Shapovalov
Konstantin S Fokin
Aleksandr N Shokhin

This is to Certify that, in accordance with the Patents Act 1977,

a Patent has been granted to the proprietor(s) for an invention entitled **"Method for recovery of nonferrous, rare and precious metals from robust minerals"** disclosed in an application filed **2 April 2003.**

Dated 19 July 2006

سكور بلس لتدقيق الحسابات
P.O.Box: 64021
DUBAI - U.A.E.
SCORE PLUS AUDITING

Ron Marchant
Comptroller General of Patents,
Designs and Trade Marks
UNITED KINGDOM PATENT OFFICE

The attention of the proprietor(s) is drawn to the important notes overleaf.

UK Intellectual Property Office

Certificate of Grant of Patent

Patent Number: GB2415192

Proprietor(s): Viatcheslav D Shapovalov
Konstantin S Fokin
Aleksandr N Shokhin

Inventor(s): Viatcheslav D Shapovalov
Konstantin S Fokin
Aleksandr N Shokhin

This is to Certify that, in accordance with the Patents Act 1977,

a Patent has been granted to the proprietor(s) for an invention entitled **"Method for processing sulfide minerals and concentrates"** disclosed in an application filed **16 April 2003**.

Dated 13 June 2007

P.O.Box: 64021 DUBAI - U.A.E. SCORE PLUS AUDITING

Sean Dennehey

Sean Dennehey
Director of Patents
UK INTELLECTUAL PROPERTY OFFICE

The attention of the Proprietor(s) is drawn to the important notes overleaf.

Office de la propriété intellectuelle du Canada | Canadian Intellectual Property Office

Un organisme d'Industrie Canada | An Agency of Industry Canada

Brevet canadien / Canadian Patent

Le commissaire aux brevets a reçu une demande de délivrance de brevet visant une invention. Ladite requête satisfait aux exigences de la *Loi sur les brevets*. Le titre et la description de l'invention figurent dans le mémoire descriptif, dont une copie fait partie intégrante du présent document.

Le présent brevet confère à son titulaire et à ses représentants légaux, pour une période expirant vingt ans à compter de la date du dépôt de la demande au Canada, le droit, la faculté et le privilège exclusif de fabriquer, construire, exploiter et vendre à d'autres, pour qu'ils l'exploitent, l'objet de l'invention, sauf jugement en l'espèce rendu par un tribunal compétent, et sous réserve du paiement des taxes périodiques.

The Commissioner of Patents has received a petition for the grant of a patent for an invention. The requirements of the *Patent Act* have been complied with. The title and a description of the invention are contained in the specification, a copy of which forms an integral part of this document.

The present patent grants to its owner and to the legal representatives of its owner, for a term which expires twenty years from the filing date of the application in Canada, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used, subject to adjudication before any court of competent jurisdiction, and subject to the payment of maintenance fees.

SCORE PLUS AUDITING
DUBAI - U.A.E.
P.O.Box: 64021

BREVET CANADIEN **2,521,110** CANADIAN PATENT

Date à laquelle le brevet a été accordé et délivré	2008/02/19	Date on which the patent was granted and issued
Date du dépôt de la demande	2003/04/02	Filing date of the application
Date à laquelle la demande est devenue accessible au public pour consultation	2004/10/14	Date on which the application was made available for public inspection

Commissaire aux brevets / Commissioner of Patents

Canada

3256 (CIPO 91) 06/07

OPIC CIPO

Office de la propriété intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An Agency of Industry Canada

Brevet canadien / Canadian Patent

Le commissaire aux brevets a reçu une demande de délivrance de brevet visant une invention. Ladite requête satisfait aux exigences de la *Loi sur les brevets*. Le titre et la description de l'invention figurent dans le mémoire descriptif, dont une copie fait partie intégrante du présent document.

Le présent brevet confère à son titulaire et à ses représentants légaux, pour une période expirant vingt ans à compter de la date du dépôt de la demande au Canada, le droit, la faculté et le privilège exclusif de fabriquer, construire, exploiter et vendre à d'autres, pour qu'ils l'exploitent, l'objet de l'invention, sauf jugement en l'espèce rendu par un tribunal compétent, et sous réserve du paiement des taxes périodiques.

The Commissioner of Patents has received a petition for the grant of a patent for an invention. The requirements of the *Patent Act* have been complied with. The title and a description of the invention are contained in the specification, a copy of which forms an integral part of this document.

The present patent grants to its owner and to the legal representatives of its owner, for a term which expires twenty years from the filing date of the application in Canada, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used, subject to adjudication before any competent tribunal, and subject to the payment of maintenance fees.

BREVET CANADIEN **2,522,336** CANADIAN PATENT

Date à laquelle le brevet a été accordé et délivré	**2010/04/06**	Date on which the patent was granted and issued
Date du dépôt de la demande	**2003/04/16**	Filing date of the application
Date à laquelle la demande est devenue accessible au public pour consultation	**2004/10/28**	Date on which the application was made available for public inspection

Commissaire aux brevets / Commissioner of Patents

Canada

3256 (CIPO 91) 12-07

OPIC CIPO

The United States of America

The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

REPUBLIC OF SOUTH AFRICA

REPUBLIEK VAN SUID AFRIKA

PATENTS ACT, 1978

CERTIFICATE

In accordance with section 44 (1) of the Patents Act, No. 57 of 1978, it is hereby certified that

SHAPOVALOV, Viatcheslav Dmitrievich **FOKIN, Konstantin Sergeevich**
SHOKHIN, Aleksandr Nikolaevich

has been granted a patent in respect of an invention described and claimed in complete specification deposited at the Patent Office under the number

2005/7894

A copy of the complete specification is annexed, together with the relevant Form P2.

In testimony thereof, the seal of the Patent Office has been affixed at Pretoria with effect from the **31st** day of **January 2007**

سكور بلس لتدقيق الحسابات
P.O.Box: 64021
DUBAI - U.A.E.
SCORE PLUS AUDITING

Registrar of Patents

REPUBLIC OF SOUTH AFRICA

REPUBLIEK VAN SUID AFRIKA

PATENTS ACT, 1978

CERTIFICATE

In accordance with section 44 (1) of the Patents Act, No. 57 of 1978, it is hereby certified that

SHAPOVALOV, Viatcheslav Dmitrievich **FOKIN, Konstantin Sergeevich**
SHOKHIN, Aleksandr Nikolaevich

has been granted a patent in respect of an invention described and claimed in complete specification deposited at the Patent Office under the number

2005/8250

A copy of the complete specification is annexed, together with the relevant Form P2.

In testimony thereof, the seal of the Patent Office has been affixed at Pretoria with effect from the **31st** day of **January 2007**

سكور بلس لتدقيق الحسابات
P.O.Box: 64021
DUBAI - U.A.E.
SCORE PLUS AUDITING

Registrar of Patents

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ

(19) ӘДІЛЕТ МИНИСТРЛІГІ
ЗИЯТКЕРЛІК МЕНШІК ҚҰҚЫҒЫ КОМИТЕТІ

ӨНЕРТАБЫСҚА

(11) № 18633

(12) ПАТЕНТ

(54) АТАУЫ: Сульфитті минералды шикізат пен концентраттарды қайта өңдеу тәсілі

(73) ПАТЕНТ ИЕЛЕНУШІСІ: Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(72) АВТОР (АВТОРЛАР): Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(21) № Өтінім 2005/2012.1 (22) Өтінім берілген күн 16.04.2003

Қазақстан Республикасы Өнертабыстардың мемлекеттік тізілімінде тіркелді
Патенттің күші Қазақстан Республикасының бүкіл аумағында, оны күшінде ұстау үшін ақы уақытылы төленген жағдайда сақталады.

Қазақстан Республикасы Әділет министрлігі
Зияткерлік меншік құқығы комитетінің
төрағасы Н.Е.Әбдірахым

Өзгерістер енгізу туралы мәліметтер осы патентке қосымша түрінде жеке парақта келтіріледі

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ

(19) ӘДІЛЕТ МИНИСТРЛІГІ
ЗИЯТКЕРЛІК МЕНШІК ҚҰҚЫҒЫ КОМИТЕТІ

(11) ӨНЕРТАБЫСҚА
№ 18634

(12) **ПАТЕНТ**

(54) АТАУЫ: ТІРЕКТІК МИНЕРАЛДЫ ШИКІЗАТТАН ТҮСТІ, СИРЕК КЕЗДЕСЕТІН ЖӘНЕ АСЫЛ МЕТАЛДАРДЫ АЙЫРЫП АЛУ ТӘСІЛІ

(73) ПАТЕНТ ИЕЛЕНУШІСІ: Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(72) АВТОР (АВТОРЛАР): Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(21) № Өтінім 2005/2011.1 (22) Өтінім берілген күн 02.04.2003

Патенттің күші Қазақстан Республикасының бүкіл аумағында, оны күшінде ұстау үшін ақы уақытылы төленген жағдайда сақталады.

Қазақстан Республикасы Әділет министрлігі
Зияткерлік меншік құқығы комитетінің төрағасы Н.Е.Әбдірахым

Өзгерістер енгізу туралы мәліметтер осы патентке қосымша түрінде жеке парақта келтірілді

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ

(19) ӘДІЛЕТ МИНИСТРЛІГІ
ЗИЯТКЕРЛІК МЕНШІК ҚҰҚЫҒЫ КОМИТЕТІ

ӨНЕРТАБЫСҚА

(11) № 24762

(12) **ПАТЕНТ**

(54) АТАУЫ: Қатты минералдық шикізаттан түсті, сирек кездесетін және асыл металлдарды алу тәсілі

(73) ПАТЕНТ ИЕЛЕНУШІСІ: Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU)

(72) АВТОР (АВТОРЛАР): Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU)

(21) № Өтінім 2009/2002.1 (22) Өтінім берілген күн 30.07.2007

Қазақстан Республикасы Өнертабыстардың мемлекеттік тізіліміндегі тіркелді 02.09.2011
Патенттің күші Қазақстан Республикасының заңнамасына сәйкес,
ұстау үшін ақы уақтылы төленген жағдайда сақталады.

Қазақстан Республикасы Әділет министрлігі
Зияткерлік меншік құқығы комитетінің
төрағасы Н.Е. Әбдірахым

Өзгерістер енгізу туралы мәліметтер осы патентке қосымша түрінде жеке парақта келтірілді

ЎЗБЕКИСТОН РЕСПУБЛИКАСИ

ДАВЛАТ ПАТЕНТ ИДОРАСИ

ИХТИРОГА

ПАТЕНТ

№ IAP 03546

Ушбу патент Давлат патент идораси томонидан Ўзбекистон Республикасининг 2002 йил 29 августда қабул қилинган «Ихтиролар, фойдали моделлар ва саноат намуналари тўғрисида»ги Қонунига асосан

Qattiq mineral xomashyodan rangli, qimmat baho va kam uchraydigan metallarni chigarish

номли ихтирога берилди.

02.04.2003 йилда келиб тушган № IAP 2005 0385 талабнома бўйича

Устуворлик санаси: 02.04.2003 йил.

Патентга эгалик қилувчи(лар): ***Шаповалов Вячеслав Дмитриевич, Фокин Константин Сергеевич, Шохин Александр Николаевич, RU***

Ихтиро муаллиф(лар)и: ***Шаповалов Вячеслав Дмитриевич, Фокин Константин Сергеевич, Шохин Александр Николаевич, RU***

SCORE PLUS AUDITING DUBAI - U.A.E.

Патент Ўзбекистон Республикасининг барча ҳудудида 02.04.2003 йилдан патентни кучда сақлаб туриш учун бож ўз вақтида тўланганлигига 20 йил муддатида амал қилади.

Ўзбекистон Республикаси ихтиролар давлат реестрида 01.11.2007 йилда Тошкент шаҳрида рўйхатдан ўтказилган.

Директор

А.А. Азимов

ЎЗБЕКИСТОН РЕСПУБЛИКАСИ

ДАВЛАТ ПАТЕНТ ИДОРАСИ

ИХТИРОГА

ПАТЕНТ

№ IAP 03612

Ушбу патент Давлат патент идораси томонидан Ўзбекистон Республикасининг 2002 йил 29 августда қабул қилинган «Ихтиролар, фойдали моделлар ва саноат намуналари тўғрисида»ги Қонунига асосан

Sulfit mineral xomashyoni konsentratlari va qayta ishlash usuli

номли ихтирога берилди.

16.04.2003 йилда келиб тушган **№ IAP 2005 0387** талабнома бўйича

Устуворлик санаси: **16.04.2003** йил.

Патентга эгалик қилувчи(лар): ***Шаповалов Вячеслав Дмитриевич, Фокин Константин Сергеевич, Шохин Александр Николаевич, RU***

Ихтиро муаллиф(лар)и: ***Шаповалов Вячеслав Дмитриевич, Фокин Константин Сергеевич, Шохин Александр Николаевич, RU***

Патент Ўзбекистон Республикасининг барча ҳудудида **16.04.2003** йилдан патентни қисқа муддат туриш учун бож ўз вактида тўланганлигини 20 йил мобайнида амал қилади.

Ўзбекистон Республикаси ихтиролар давлат реестрида **22.02.2008** йилда Тошкент шаҳрида рўйхатдан ўтказилган.

Директор

Б. А. Аноков

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2312908

СПОСОБ ИЗВЛЕЧЕНИЯ ЦВЕТНЫХ, РЕДКИХ И БЛАГОРОДНЫХ МЕТАЛЛОВ ИЗ УПОРНОГО МИНЕРАЛЬНОГО СЫРЬЯ

Патентообладатель(ли): ***Фокин Константин Сергеевич (RU), Шаповалов Вячеслав Дмитриевич (RU), Шохин Александр Николаевич (RU)***

Автор(ы): ***см. на обороте***

Заявка № 2005123693

Приоритет изобретения **02 апреля 2003 г.**

Зарегистрировано в Государственном реестре изобретений Российской Федерации ***20 декабря 2007 г.***

Срок действия патента истекает **02 апреля 2023 г.**

Руководитель Федеральной службы по интеллектуальной собственности, патентам и товарным знакам

Б.П. Симонов

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2331675

СПОСОБ ПЕРЕРАБОТКИ СУЛЬФИДНОГО МИНЕРАЛЬНОГО СЫРЬЯ И КОНЦЕНТРАТОВ

Патентообладатель(ли): *Фокин Константин Сергеевич (RU), Шаповалов Вячеслав Дмитриевич (RU), Шохин Александр Николаевич (RU)*

Автор(ы): *см. на обороте*

Заявка № 2005135352

Приоритет изобретения 16 апреля 2003 г.

Зарегистрировано в Государственном реестре изобретений Российской Федерации *20 августа 2008 г.*

Срок действия патента истекает 16 апреля 2023 г.

Руководитель Федеральной службы по интеллектуальной собственности, патентам и товарным знакам

Б.П. Симонов

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2415953

СПОСОБ ИЗВЛЕЧЕНИЯ ЦВЕТНЫХ, РЕДКИХ, РАДИОАКТИВНЫХ И БЛАГОРОДНЫХ МЕТАЛЛОВ ИЗ УПОРНОГО МИНЕРАЛЬНОГО СЫРЬЯ

Патентообладатель(ли): *Фокин Константин Сергеевич (RU), Шаповалов Вячеслав Дмитриевич (RU)*

Автор(ы): *Фокин Константин Сергеевич (RU), Шаповалов Вячеслав Дмитриевич (RU)*

Заявка № 2008152148

Приоритет изобретения 30 июля 2007 г.

Зарегистрировано в Государственном реестре изобретений Российской Федерации *10 апреля 2011 г.*

Срок действия патента истекает 30 июля 2027 г.

Руководитель Федеральной службы по интеллектуальной собственности, патентам и товарным знакам

Б.П. Симонов

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2415955

СПОСОБ ИЗВЛЕЧЕНИЯ БЛАГОРОДНЫХ МЕТАЛЛОВ ИЗ УПОРНЫХ РУД И КОНЦЕНТРАТОВ

Патентообладатель(ли): *Фокин Константин Сергеевич (RU), Шаповалов Вячеслав Дмитриевич (RU)*

Автор(ы): *Фокин Константин Сергеевич (RU), Шаповалов Вячеслав Дмитриевич (RU)*

Заявка № 2008152151
Приоритет изобретения **23 ноября 2007 г.**
Зарегистрировано в Государственном реестре изобретений Российской Федерации ***10 апреля 2011 г.***
Срок действия патента истекает **23 ноября 2027 г.**

Руководитель Федеральной службы по интеллектуальной собственности, патентам и товарным знакам

Б.П. Симонов

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ

(19) ӘДІЛЕТ МИНИСТРЛІГІ
ЗИЯТКЕРЛІК МЕНШІК ҚҰҚЫҒЫ КОМИТЕТІ

(11) ӨНЕРТАБЫСҚА
№ 18634

(12) ПАТЕНТ

(54) АТАУЫ: ТІРЕКТІК МИНЕРАЛДЫ ШИКІЗАТТАН ТҮСТІ, СИРЕК КЕЗДЕСЕТІН ЖӘНЕ АСЫЛ МЕТАЛДАРДЫ АЙЫРЫП АЛУ ТӘСІЛІ

(73) ПАТЕНТ ИЕЛЕНУШІСІ: Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(72) АВТОР (АВТОРЛАР): Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(21) № Өтінім 2005/2011.1 (22) Өтінім берілген күні 02.04.2003

Патенттің күші Қазақстан Республикасының бүкіл аумағында, оны күшінде ұстау үшін ақы уақытылы төленген жағдайда сақталады.

Қазақстан Республикасы Әділет министрлігі
Зияткерлік меншік құқығы комитетінің
төрағасы Н.Е.Әбдірахым

Өзгерістер енгізу туралы мәліметтер осы патентке қосымша түрінде жеке парақта келтіріледі

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ

(19) ӘДІЛЕТ МИНИСТРЛІГІ
ЗИЯТКЕРЛІК МЕНШІК ҚҰҚЫҒЫ КОМИТЕТІ

(11) ӨНЕРТАБЫСҚА
№ 18634

(12) ПАТЕНТ

(54) АТАУЫ: ТІРЕКТІК МИНЕРАЛДЫ ШИКІЗАТТАН ТҮСТІ, СИРЕК КЕЗДЕСЕТІН ЖӘНЕ АСЫЛ МЕТАЛДАРДЫ АЙЫРЫП АЛУ ТӘСІЛІ

(73) ПАТЕНТ ИЕЛЕНУШІСІ: Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(72) АВТОР (АВТОРЛАР): Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(21) № Өтінім 2005/2011.1 (22) Өтінім берілген күні 02.04.2003

Патенттің күші Қазақстан Республикасының бүкіл аумағында, оны күшінде ұстау үшін ақы уақытылы төленген жағдайда сақталады

Қазақстан Республикасы Әділет министрлігі
Зияткерлік меншік құқығы комитетінің
төрағасы Н.Е.Әбдірахым

Өзгерістер енгізу туралы мәліметтер осы патентке қосымша түрінде жеке парақта келтірілді

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ

(19) ӘДІЛЕТ МИНИСТРЛІГІ
ЗИЯТКЕРЛІК МЕНШІК ҚҰҚЫҒЫ КОМИТЕТІ

ӨНЕРТАБЫСҚА

(11) № 18633

(12) **ПАТЕНТ**

(54) АТАУЫ: Сульфитті минералды шикізат пен концентраттарды қайта өңдеу тәсілі

(73) ПАТЕНТ ИЕЛЕНУШІСІ: Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(72) АВТОР (АВТОРЛАР): Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU); Шохин Александр Николаевич (RU)

(21) № Өтінім 2005/2012.1

(22) Өтінім берілген күн 16.04.2003

Қазақстан Республикасы Өнертабыстардың мемлекеттік тізілімінде тіркелді
Патенттің күші Қазақстан Республикасының бүкіл аумағында, оны күшінде ұстау үшін ақы уақытылы төленген жағдайда сақталады.

Қазақстан Республикасы Әділет министрлігі
Зияткерлік меншік құқығы комитетінің
төрағасы Н.Е.Әбдірахым

Өзгерістер енгізу туралы мәліметтер осы патентке қосымша түрінде жеке парақта келтіріледі

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2312908

СПОСОБ ИЗВЛЕЧЕНИЯ ЦВЕТНЫХ, РЕДКИХ И БЛАГОРОДНЫХ МЕТАЛЛОВ ИЗ УПОРНОГО МИНЕРАЛЬНОГО СЫРЬЯ

Патентообладатель(ли): *Фокин Константин Сергеевич (RU), Шаповалов Вячеслав Дмитриевич (RU), Шохин Александр Николаевич (RU)*

Автор(ы): *см. на обороте*

Заявка № 2005133693

Приоритет изобретения 02 апреля 2003 г.

Зарегистрировано в Государственном реестре изобретений Российской Федерации *20 декабря 2007 г.*

Срок действия патента истекает 02 апреля 2023 г.

Руководитель Федеральной службы по интеллектуальной собственности, патентам и товарным знакам

Б.П. Симонов

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2312908

СПОСОБ ИЗВЛЕЧЕНИЯ ЦВЕТНЫХ, РЕДКИХ И БЛАГОРОДНЫХ МЕТАЛЛОВ ИЗ УПОРНОГО МИНЕРАЛЬНОГО СЫРЬЯ

Патентообладатель(ли): *Фокин Константин Сергеевич (RU), Шаповалов Вячеслав Дмитриевич (RU), Шохин Александр Николаевич (RU)*

Автор(ы): *см. на обороте*

Заявка № 2005133693

Приоритет изобретения 02 апреля 2003 г.

Зарегистрировано в Государственном реестре изобретений Российской Федерации *20 декабря 2007 г.*

Срок действия патента истекает 02 апреля 2023 г.

Руководитель Федеральной службы по интеллектуальной собственности, патентам и товарным знакам

Б.П. Симонов

O'ZBEKISTON RESPUBLIKASI INTELLEKTUAL MULK AGENTLIGI
АГЕНТСТВО ПО ИНТЕЛЛЕКТУАЛЬНОЙ СОБСТВЕННОСТИ
РЕСПУБЛИКИ УЗБЕКИСТАН

IXTIROGA PATENT
ПАТЕНТ НА ИЗОБРЕТЕНИЕ № IAP 04674

Ushbu patent O'zbekiston Respublikasining "Ixtirolar, foydali modellar va sanoat namunalari to'g'risida"gi Qonuniga asosan quyidagi ixtiroga berildi:

Настоящий патент выдан на основании Закона Республики Узбекистан «Об изобретениях, полезных моделях и промышленных образцах», на следующее изобретение:

Қаттиқ минерал хом ашёсидан рангли, кам учрайдиган, радиоактив ва қимматбаҳо металларни ажратиб олиш усули
Способ извлечения цветных, редких, радиоактивных и благородных металлов из упорного минерального сырья

Talabnoma kelib tushgan sana:
Дата поступления заявки: **30.07.2007**

Talabnoma raqami:
Номер заявки: **IAP 2008 0448**

Ustuvorlik sanasi:
Дата приоритета: **30.07.2007**

Patent egasi (egalari):
Патентообладатель(и): **Фокин Константин Сергеевич, RU**
Шаловалов Вячеслав Дмитриевич, RU

Ixtiro muallif(lar)i:
Автор(ы) изобретения: **Фокин Константин Сергеевич, Шаловалов Вячеслав Дмитриевич, RU**

SCORE RU AUDITING DUBAI - U.A.E. P.O. Box 2021

Patent O'zbekiston Respublikasining barcha hududida 30.07.2007 yildan patentni kvarda saqlab turish uchun boj o'z vaqtida to'langandagina 20 yil mobaynida amal qiladi.
O'zbekiston Respublikasi Ixtirolar davlat reestrida 07.03.2013 yilda Toshkent shahrida ro'yxatdan o'tkazilgan.

Патент действует на всей территории Республики Узбекистан в течение 20 лет с 30.07.2007 года при условии своевременной уплаты пошлины за поддержание в действии.
Зарегистрирован в государственном реестре изобретений Республики Узбекистан, в г. Ташкент 07.03.2013 г.

Bosh direktor v.b.
И.о. Генерального директора **З. Гиясов**

O'ZBEKISTON RESPUBLIKASI INTELLEKTUAL MULK AGENTLIGI
АГЕНТСТВО ПО ИНТЕЛЛЕКТУАЛЬНОЙ СОБСТВЕННОСТИ
РЕСПУБЛИКИ УЗБЕКИСТАН

IXTIROGA PATENT
ПАТЕНТ НА ИЗОБРЕТЕНИЕ

№ IAP 04675

Ushbu patent O'zbekiston Respublikasining "Ixtirolar, foydali modellar va sanoat namunalari to'g'risida"gi Qonuniga asosan quyidagi ixtiroga berildi:

Настоящий патент выдан на основании Закона Республики Узбекистан «Об изобретениях, полезных моделях и промышленных образцах», на следующее изобретение:

Қаттиқ руда ва концентратлардан қимматбаҳо металларни ажратиб олиш усули
Способ извлечения благородных металлов из упорных руд и концентратов

Talabnoma kelib tushgan sana:
Дата поступления заявки: **23.11.2007**

Talabnoma raqami:
Номер заявки: **IAP 2008 0447**

Ustuvorlik sanasi:
Дата приоритета: **23.11.2007**

Patent egasi (egalari):
Патентообладатель(и): **Фокин Константин Сергеевич, RU**
Шаповалов Вячеслав Дмитриевич, RU

Ixtiro muallif(lar):
Автор(ы) изобретения: **Фокин Константин Сергеевич, Шаповалов Вячеслав Дмитриевич, RU**

P.O.Box: 64021
SCORE AUDITING
DUBAI - U.A.E.

Patent O'zbekiston Respublikasining barcha hududida 23.11.2007 yildan patentlar kuchda saqlab turish uchun bej o'z vaqtida to'langandagina 20 yil muddatgacha amal qiladi.
O'zbekiston Respublikasi Ixtirolar davlat reestrida 07.03.2013 yilda Toshkent shahrida ro'yxatdan o'tkazilgan.

Патент действует на всей территории Республики Узбекистан в течение 20 лет с 23.11.2007 года при условии своевременной уплаты пошлины за поддержание в действии.
Зарегистрирован в государственном реестре изобретений Республики Узбекистан, в г. Ташкент 07.03.2013 г.

Bosh direktor v.b.
И.о. Генерального директора **З. Гиясов**

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ

(19) ӘДІЛЕТ МИНИСТРЛІГІ
ЗИЯТКЕРЛІК МЕНШІК ҚҰҚЫҒЫ КОМИТЕТІ

ӨНЕРТАБЫСҚА

(11) № 24762

(12) **ПАТЕНТ**

(54) АТАУЫ: Қатты минералдық шикізаттан түсті, сирек кездесетін және асыл металдарды алу тәсілі

(73) ПАТЕНТ ИЕЛЕНУШІСІ: Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU)

(72) АВТОР (АВТОРЛАР): Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU)

(21) № Өтінім 2009/2002.1 (22) Өтінім берілген күн 30.07.2007

Қазақстан Республикасы Өнертабыстардың мемлекеттік тізілімінде тіркелді 02.09.2011
Патенттің күші Қазақстан Республикасының бүкіл аумағында, оны күшінде ұстау үшін ақы уақтылы төленген жағдайда сақталады.

Қазақстан Республикасы Әділет министрлігі
Зияткерлік меншік құқығы комитетінің
төрағасы Н.Е. Әбдірахым

Өнертабыс енгізу туралы мәліметтер осы патентке қосымша түрінде жеке парақта келтіріледі

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ

(19) ӘДІЛЕТ МИНИСТРЛІГІ
ЗИЯТКЕРЛІК МЕНШІК ҚҰҚЫҒЫ КОМИТЕТІ

ӨНЕРТАБЫСҚА

(11) № 23905

(12) ПАТЕНТ

(54) АТАУЫ: Шоғырлардан және төзімді кездерден асыл металдарды алу тәсілі

(73) ПАТЕНТ ИЕЛЕНУШІСІ: Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU)

(72) АВТОР (АВТОРЛАР): Шаповалов Вячеслав Дмитриевич (RU); Фокин Константин Сергеевич (RU)

(21) Өтінім № 2009/2017.1 (22) Өтінім берілген күн 23.11.2007

Қазақстан Республикасы Өнертабыстардың мемлекеттік тізілімінде тіркелді 23.02.2011
Патенттің күші Қазақстан Республикасының бүкіл аумағында, оны күшінде ұстау үшін ақы уақытылы төленген жағдайда сақталады.

Қазақстан Республикасы Әділет министрлігі
Зияткерлік меншік құқығы комитетінің
төрайымы Л. С. Стамбекова

Өзгерістер енгізу туралы мәліметтер осы патентке қосымша түрінде және парақта келтірілсді

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2491362

СПОСОБ ИЗВЛЕЧЕНИЯ РЕДКОЗЕМЕЛЬНЫХ МЕТАЛЛОВ ИЗ ФОСФОГИПСА

Патентообладатель(ли): *Общество с ограниченной ответственностью Минерал "Нано-Технология" (RU)*

Автор(ы): *Фокин Константин Сергеевич (RU), Нестерова Елизавета Олеговна (RU)*

Заявка № 2012127470

Приоритет изобретения 03 июля 2012 г.

Зарегистрировано в Государственном реестре изобретений Российской Федерации *27 августа 2013 г.*

Срок действия патента истекает 03 июля 2032 г.

Руководитель Федеральной службы по интеллектуальной собственности

Б.П. Симонов

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2492255

СПОСОБ ИЗВЛЕЧЕНИЯ РЕДКОЗЕМЕЛЬНЫХ МЕТАЛЛОВ ИЗ ФОСФОГИПСА

Патентообладатель(ли): *Общество с ограниченной ответственностью Минерал "Нано-Технология" (RU)*

Автор(ы): *Фокин Константин Сергеевич (RU), Нестерова Елизавета Олеговна (RU)*

Заявка № 2012124525

Приоритет изобретения 14 июня 2012 г.

Зарегистрировано в Государственном реестре изобретений Российской Федерации *10 сентября 2013 г.*

Срок действия патента истекает 14 июня 2032 г.

Руководитель Федеральной службы по интеллектуальной собственности

Б.П. Симонов

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2520877

СПОСОБ ПЕРЕРАБОТКИ ФОСФОГИПСА ДЛЯ ПРОИЗВОДСТВА КОНЦЕНТРАТА РЕДКОЗЕМЕЛЬНЫХ МЕТАЛЛОВ И ГИПСА

Патентообладатель(ли): *Общество с ограниченной ответственностью Минерал "Нано-Технология" (RU)*

Автор(ы): *ФОКИН Константин Сергеевич (RU), НЕСТЕРОВА Елизавета Олеговна (RU)*

Заявка № 2013103555

Приоритет изобретения 28 января 2013 г.

Зарегистрировано в Государственном реестре изобретений Российской Федерации *28 апреля 2014 г.*

Срок действия патента истекает 28 января 2033 г.

Руководитель Федеральной службы по интеллектуальной собственности

Б.П. Симонов

We present all our patents with references to the invention:

1. METHOD OF PROCESSING SULFIDE MINRALS AND CONCENTRATES.

The invention relates to hydrometallurgical technology and used for the extraction of non-ferrous, rare and noble metals from sulfide mineral raw materials and concentrates. The technical result of the invention is the creation of conditions for the most complete extraction of metals with the exception of the formation of elemental sulfor. The method includes the oxidation of the feedstock in the form of a pulp using oxidizing agents containing nitrogen oxides, and the regeneration of lower nitrogen oxides to higher oxidation.

2. METHOD OF EXTRACTION NONFERROUS, RARE AND NOBLE METALS FROM REFRACTORY MINERAL RAW MATERIALS.

The method consists in the treatment of a resistant carbonaceous mineral raw oxygen-containing oxidizer, followed by the extraction of noble metal compounds from the liquid phase. In this case, the treatment of persistent carbonaceous mineral raw oxygen-containing oxidant is carried out in the presence of reducing agents with donor-acceptor properties. These properties are expressed in the fact that at the first stage of chemical reactions, these reducing agents give their electrons to an oxygen-containing oxidizer and form a stronger oxidizer as a result than the initial one, in the form of short-lived radicals and intermediate oxidation products of donor-acceptor reducing agents, which are also oxidizers.

3. METHOD OF EXTRACTING NON-FERROUS, RARE, RADIOACTIVE AND PRECIOUS METALS FROM REFRACTORY MINERAL RAW MATERIALS.

The method includes processing of raw materials with a solution of donor-acceptor oxidizers and reducing agents. The pulp obtained after processing the raw material is dried to complete evaporation of water and subjected to firing in the presence of air or oxygen-enriched blast. Firing is carried out at a temperature sufficient for burning out carbon, but not causing the formation of insoluble salts. After cooling, the material obtained after firing is subjected to leaching to obtain technological solutions containing extracted metals.

4. METHOD OF ANALYSIS OF SOLIDS WITH A SOURCE OF GLOW DIS- CHARGE WITH HOLLOW CATHODE.

The method of analysis of solids, using an ion source of glow discharge with a hollow cathode, includes fixing the axis of the last rod containing the analyzed solid, for example, a mineral substance containing noble metals.

5. METHOD OF EXTRACTING RARE EARTH METALS FROM PHOSPHOGYPSUM.

A method of processing phosphogypsum includes leaching of rare earth metals - (REM) and phosphorus sulfirric acid solution to obtain a leaching solution and insoluble residue. Treatment of insoluble residue is a basic calcium compound to pH>5, the selection of REM concentrate from the leaching solution by crystallization, separation of REM concentrate from the mother liquor of the crystallization, the flow of the last stage leaching of REM and phosphorus

6. METHOD OF EXTRACTING RARE EARTH METALS FROM PHOSPHOGYPSUM.

The invention is aimed at simplifying the technology of phosphogypsum processing, reducing the duration of leaching and sorption of rare earth metals of cation exchange processes (REM), improving the efficiency of sorption and desorption, and the quality of the concentrate while ensuring a rational degree of extraction of REM from phosphogypsum.

7. THE ION SOURCE OF GLOW DISCHARGE WITH INCREASED APERTURE.

The invention is aimed at increasing the aperture of the ion source of the glow discharge by reducing the diffusion losses of ions in the discharge chamber. The source of the glow discharge contains placed with a gap and coaxial cylindrical hollow anode having a shaped bottom part and a hollow cathode disposed in the cavity of the anode side of its open end, together forming a discharge chamber, the output of which is axial hole for pulling and pumping ions formed in the bottom portion of the hollow anode, a sample holder, mounted on the axis of the hollow cathode and the channel for the input of inert gas in the hollow cathode.

8. METHOD OF ANALYSIS OF SOLIDS USING ION-SOURCE GLOW DISCHARGE WITH HOLLOW CATHODE.

The invention consists in the fact that in a prototype method for the analysis of solids by means of an ion source of a glow discharge with a hollow cathode comprising placing a rod containing the analyte on its axis in the latter, the substance is subjected to preliminary homogenization using ultra-thin dispersion for 10-20 minutes in order to ensure a uniform distribution of the analyzed elements in the substance, and it is formed in a recess at the top of the rod, which is made of metal.

9. METHOD OF OXIDATION (PROCESSING) SULFIDE RAW MATERIAL.

10. Kazakhstan (186SZ)

11. Uzbekistan (IAP 03612)

12. Russia (2331675)

13. Australia (2003275744)

14. Canada (2.522.336)

15. United Kingdom (DB 2415192)

16. United States (7.682.419 B2)

17. South Africa (8250)

18. India (0065)

19. METHOD OF EXTRACTION NONFERROUS, RARE AND NOBLE METALS FROM REFRACTORY MINERAL RAW MATERIALS.

20. Kazakhstan (18634)

21. Uzbekistan (IAP03546)

22. Russia (2312908)

23. Australia (2003269743)

24. Canada (2.521.110)

25. United Kingdom (GB 2414740)

26. South Africa (7894)

27. USA (8.913.415.BI)

28. India (FG 345.2)
29. METHOD OF EXTRACTING NON-FERROUS, RARE, RADIOACTIVE AND PRECIOUS METALS FROM REFRACTORY MIEERAL MATERIALS.
30. Kazakhstan (18634)
31. Uzbekistan (IAP03546)
32. Russia (2312908)
33. Australia (2003269743)
34. Canada (2.521.110)
35. United Kingdom (GB 2414740)
36. South Africa (7894)
37. USA (8.913.415.BI)
38. India (FG 345.2)
39. METHOD OF EXTRACTING PRECIOUS ORES AND CONCENTRATES.
40. Russia(2415955)
41. Kazakhstan(009655)
42. Uzbekistan (13788)

43. METHOD OF GOLD EXTRACTION FROM GRAPHITE ORES BY APPLYING THIOUREA

For the first time, a more promising method of using thiourea for concentrating gold instead of the cyanides commonly used in gold mining is proposed. It is established that during the process of thiocarbamide leaching of graphite rocks there is no loss of gold and thiocarbamide as a result of adsorption from graphite.

44. HYDROFLUORIC METHOD OF EXTRACTING PRECIOUS METALS.

As an alternative, the method of hydrofluoride extraction of noble metals is considered. Their distribution in the processes of flotation and fluorination of the flotation chamber product is studied. It was found that in these conditions it is possible to concentrate 20 times more gold. The use of hydrodifluoride processing techniques in the opening of gold-containing graphite-bearing rocks allows not only to concentrate gold, but also to allocate the associated useful components (ammonium hexafluorosilicate, etc.). This will contribute to the most complete extraction of useful components and the creation of resource-saving technology for processing of solid mineral raw materials of this type.

45. PLASMA-CHEMICAL METHOD OF EXTRACTION USEFUL COMPONENTS.

The first data on the formation of dispersed particles of predominantly rare-earth composition were obtained by using the plasmochemical method of action on graphite substance.

46. THE ARTIFICIAL STOTHESIS OF CARBON NANOTUBES.

The possibilities of using graphite as a starting material for the manufacture of carbon nanotubes of fullerenes in electrolytes by the action of arc discharges have been studied. It seems that the obtained information can serve as the basis for the future technological scheme of production of nano-structured materials.

Russia (2331675)- METHOD OF OXIDATION (PROCESSING) SULFIDE RAW MATERIAL.

Russia (2312908)- METHOD OF EXTRACTION NONFERROUS, RARE AND PRECIOUS METALS FROM REFRACTORY MINERAL RAW MATERIALS.

Russia (2415955)- METHOD OF EXTRACTING PRECIOUS ORES AND CONCENTRATES.
Russia (2415953)- METHOD OF EXTRACTING NON-FERROUS, RARE, RADIOACTIVE AND PRECIOUS METALS FROM REFRACTORY MINERAL RAW MATERIALS.
Russia (2331675)- METHOD OF ANALYSIS OF SOLIDS USING ION-SOURCE GLOW DISCHARGE WITH HOLLOW CATHODE.
Russia (2449576)- METHOD OF EXTRACTING RARE EARTH METALS FROM PHOSPHOGYPSUM.
Russia (2312908)- METHOD OF EXTRACTING RARE EARTH METALS FROM PHOSPHOGYPSUM.

BALTIC SHALE SHIELD

EXAMPLE: (analogue of the Leningrad shale deposit)

-The Australian mining company Aura energy, chooses the highest partners from financial investors at the competition for participation in the project. Ore is typical with ours, but extraction from our is much higher and metal group is larger because of the analytical determination and

-Extraction technology. In our case, the depth of occurrence is less than in Sweden, the technical conditions are much more attractive, the depth of occurrence of shale is on average 6-12 m.

-In February 2012, Aura energy presented an important doctrine by testing the economic viability of its giant Haggan, a uranium deposit in central Sweden, with excellent preliminary research results. These results allowed preparing for the construction of the plant with preliminary

Capital costs of $ 300 million - $ 2 billion before full commissioning. In -May 2012, Aura energy completed an update of the preliminary study, which more accurately reflects the market price of uranium oxide. This put the project in the top five for current and planned uranium mining

-operations with NPV of almost $ 1.9 billion $ (on uranium at a price of $ 65).

-The audit of the preliminary studies of the financial model prepared by the independent consultants of RMDSTEM confirms that Haggan is a

financially reliable project, one of the lowest-cost uranium leaching technology adopted worldwide.

Key points of the preliminary study:

Net present value (NPV) of $ 1.85 US.

** Operating costs: - US $ 13 U_3O_8 when nickel and molybdenum are considered as by-products - US $ 26 U_3O_8*

- *Internal rate of return (IRR) 49%*
- *Payback period is 4.2 years (17% of the project)*

** Preparation for production $ 537, $ 18 million per annum*

** Annual production of 7.8 million pounds (3,538 tons) of uranium, 14,800,000 pounds of nickel and 4.3 million pounds of molybdenum*

** Initial ore volume > 741 000 000tons.*

** Nominal ore production of 30 million tons per year, with ore reserves for 25 years. The low cost of mining - 0.75:1*

** The use of low-risk biotechnology heap leaching is widely used in the copper industry in Chile.*

Today, the mining and processing plant with a capacity of 30 million tons was launched and began work on the mixed technology of heap bacterial leaching.

TOP 20 SHAREHOLDERS	UNIT	% i	NAME
1	11334501	6,72	UBS PTY LTD
2	6887478	4,08	SERVICES PTY LTD
3	6548574	3,88	National nominees of the societyW
4	4800000	2,85	ASHABIA Petit, 000 ASHABIA the Superfund
5	4795000	2,84	DRAKE RESOURCES LIMITED
6	4603834	2,73	YARANDI INVESTMENTS PTY LTD GRIFFITH FAMILY NO 2
7	3780722	2,24	Mr. Mike buck
8	3500000	2,07	PASADENA Pty Limited
9	3238892	1,92	HSBC (Australia) companies
10	3162554	1,87	STOP PTI limited
11	2833334	1,68	SUVALEPTYLTD

12	2778334	1,65	SAM BRAVE PTI LTD SUN
13	2535756	1,5	JP MORGAN Australia Limited
14	2472945	1,47	Ms. Jenny Lee
15	2333334	1,38	DRAKE RESOURCES LIMITED
16	1992372	1,18	Mrs. J.-Ann Weber.
17	1760000	1,04	RAMP Pty limited
18	1633334	0,97	DEWCLAW PETIT, 000
19	1450000	0,86	CRX PTY Limited
20	1400000	0,83	MIDWAY SECURITIES PTY LTD, MIDWAY FAMILY

http://auraenergy.com.au/proiects-australia.html

FREE CONTRACT
BETWEEN THE CO-APPLICANTS OF PATENTS
FOR THE TRANSFER OF THE RIGHTS OF INVENTION (PATENTS)

Parties hereinafter referred to as co-applicants/co-owners of patents, namely:

1. **FOKIN KONSTANTIN SERGEEVICH**

2. **SHAPOVALOV VYACHESLAV DMITRIEVICH**

3. **SHOKHIN ALEXANDER**

NIKOLAEVICH have concluded this

agreement on the following:

I

Transfer the rights to use intellectual property (patents) for free use

indefinitely to Fokin Konstantin Sergeevich of the following patents:

1. METHOD OF PROCESSING SULPHIDE MINERALS RAW MATERIALS AND CONCENTRATES.

The invention relates to hydrometallurgical technology and used for the extraction of non-ferrous, rare and noble metals from sulfide mineral raw materials and concentrates. The technical result of the invention is the creation of conditions for the most complete extraction of metals with the exception of the formation of elemental sulfiir.

The method includes the oxidation of the feedstock in the form of a pulp using oxidizing agents containing nitrogen oxides, and the regeneration of lower nitrogen oxides to higher oxidation.

2. METHOD OF EXTRACTION OF NONFERROUS, RARE AND NOBLE METALS FROM REFRACTORY MINERAL RAW MATERIALS.

The method consists in the treatment of a resistant carbonaceous mineral raw oxygen-containing oxidizer, followed by the

- Extraction of noble metal compounds from the liquid phase. In this case, the treatment of persistent carbonaceous mineral raw oxygen-containing oxidant is carried out in the presence of reducing agents with donor-acceptor Properties. These properties are expressed in the fact that at the first stage of chemical reactions, these reducing agents give their electrons to an Oxygen-containing oxidizer and form a stronger oxidizer as a result than the initial one, in the form of short-lived radicals and intermediate oxidation products of donor-acceptor reducing agents, which are also oxidizers.

3. METHOD OF EXTRACTING NON-FERROUS, RARE, RADIOACTIVE AND PRECIOUS METALS FROM REFRACTORY MINERAL RAW MATERIALS.

The method includes processing of raw materials with a solution of donor-acceptor oxidizers and reducing agents. The pulp obtained after processing the raw material is dried to complete evaporation of water and subjected to firing in the presence of air or oxygen-enriched blast. Firing is carried out at a temperature sufficient for burning out carbon, but not causing

the formation of insoluble salts.

After cooling, the material is leached to obtain technological solutions containing extractable metals.

4. METHOD OF ANALYSIS OF SOLIDS WITH A SOURCE OF GLOW DISCHARGE WITH HOLLOW CATHODE.

The method of analysis of solids, using an ion source of glow discharge with a hollow cathode, includes fixing the axis of the last rod containing the analyzed solid, for example, a mineral substance containing noble metals.

5. THE ION SOURCE A GLOW DISCHARGE WITH INCREASED APERTURE.

The invention is aimed at increasing the aperture of the ion source of the glow discharge by reducing the diffusion losses of ions in the discharge chamber. The source of the glow discharge contains placed with a gap and coaxial cylindrical hollow anode having a shaped bottom part and a hollow cathode disposed in the cavity of the anode side of its open end, together forming a discharge chamber, the output of which is axial hole for pulling and pumping ions formed in the bottom portion of the hollow anode, a sample holder, mounted on the axis of the hollow cathode and the channel for the input of inert gas in the hollow cathode.

6. METHOD OF ANALYSIS OF SOLIDS USING ION-SOURCE GLOW DISCHARGE WITH HOLLOW CATHODE.

The invention consists in the fact that in a prototype method for the analysis of solids by means of an ion source of a glow discharge with a hollow cathode comprising placing a rod containing the analyte on its axis in the latter, the substance is subjected to preliminary homogenization using

ultra-thin dispersion for 10-20 minutes in order to ensure a uniform distribution of the analyzed elements in the substance, and it is formed in a recess at the top of the rod, which is made of metal.

II

The proliferation of patents in the following countries assigned numbers by the patent office:

7. METHOD OF OXIDATION (PROCESSING) SULF.IDE RAW

MATERIAL.

8. Kazakhstan (186SZ)

9.Uzbekistan (IAP 03612)

10. Russia (2331675)

11 Australia (2003275744)

12 Canada (2.522.336)

13. United Kingdom (DB 2415192)

14. United States (7.682.419 B2)

15. South Africa (8250)

16. India (0065)

17. METHOD OF EXTRACTION OF NONFERROUS. RARE AND NOBLE METALS FROM REFRACTORY MINERAL RAW MATERIALS.

18. Kazakhstan (18634)

19. Uzbekistan (IAP03546)

20. Russia (2312908)

21. Australia (2003269743)

22. Canada (2.521.110)

23. United Kingdom (GB 2414740)

24. South Africa (7894)

25 USA (8.913.415.131)

26. India (FG 345.2)

27. METHOD OF EXTRACTING NON-FERROUS, RARE, RADIOACTIVE AND PRECIOUS METALS FROM REFRACTORY MINERAL RAW MATERIALS.

27. Kazakhstan (18634)

28. Uzbekistan (IAP03546)

29. Russia (2312908)

30. Australia (2003269743)

31 .Canada (2.521.110)

32. United Kingdom (GB 2414740)

33. South Africa (7894)

34. USA (8.913.415.BI)

35. India (FG 345.2)

36. METHOD OF EXTRACTING PRECIOUS ORES AND

CONCENTRATES.

37. Russia(2415955)

38. Kazakhstan(009655)

39. Uzbekistan (13788)

40. METHOD OF GOLD EXTRACTION FROM GRAPHITE ORES BY APPLYING THIOUREA

For the first time, a more promising method of using thiourea for concentrating gold instead of the cyanides commonly used in gold mining is proposed. It is established that during the process of thiocarbamide leaching of graphite rocks there is no loss of gold and thiocarbamide as a result of adsorption from graphite.

41. HYDROFLUORIC METHOD OF EXTRACTING

PRECIOUS METALS.

As an alternative, the method ofhydrofluoride extraction ofnoble metals is considered. Their distribution in the processes of flotation and fluorination of the flotation chamber product is studied. It was found that in these conditions it is possible to concentrate 20 times more gold. The use ofhydrodifluoride processing techniques in the opening of gold-containing graphite-bearing rocks allows not only to concentrate gold, but also to allocate the associated usefill components (ammonium hexafluorosilicate, etc.). This will contribute to the most complete extraction ofusefril components and the creation ofre-source-saving technology for processing of solid mineral raw materials of this type.

42. PLASMA-CHEMICAL METHOD OF EXTRACTION OF USEFUL COMPONENTS.

The first data on the formation of dispersed particles of predominantly

rare-earth composition were obtained by using the plasmochemical method of action on graphite substance.

43. THE ARTIFICIAL STOTHESIS OF CARBON NANOTTOES.

The possibilities of using graphite as a starting material for the manufacture of carbon nanotubes offullerenes in electrolytes by the action of arc discharges have been studied. It seems that the obtained information can serve as the basis for the future technological scheme of production of nanostructared materials.

Ill

Patents distributed in the territory of Russia

44. Russia (2331675)- METHOD OF OXIDATION (PROCESSING)

SULFIDE RAW MATERIAL.

45. Russia (2312908)- METHOD OF EXTRACTION OF NONFERROUS, RARE AND NOBLE METALS FROM REFRACTORY MINERAL RAW MATERIALS.

46. Russia (2415955)- METHOD OF EXTRACTING PRECIOUS METALS FROM REFRACTORY ORES AND CONCENTRATES.

47. Russia (2415953)- METHOD OF EXTRACTING NON-FERROUS, RARE, RADIOACTIVE AND PRECIOUS METALS

FROM REFRACTORY MINERAL RAW MATERIALS.

48. Russia (2331675)- METHOD OF ANALYSIS OF SOLIDS US^G ION-SOURCE GLOW DISCHARGE WITH HOLLOW CATHODE.

49. Russia (2331675)- METHOD OF PROCESSING SULFIDE MINERALS AND CONCENTRATES.

50. Russia(2520877) METHOD OFPHOSPHOGYPSUMPROCESSING FOR_CONCENTRATE PRODUCTION OF RARE EARTH METALS AND **GYPSUM**

51 .Russia (2492255) METHOD OF EXTRACTING RARE EARTH

METALS FROM PHOSPHOGYPSUM.

52. Russia (2491362) METHOD OF EXTRACTING RARE EARTH

METALS FROM PHOSPHOGYPSUM.

53. Russia- THE ION SOURCE A GLOW DISCHARGE WITH IN-CREASED APERTURE.

FOKIN KONSTANTIN SERGEEVICH has the rights

of an owner of patents:

IV

1.1. To use the invention in their own production without any restrictions on the part of other co-applicants/patent owners.
1.2. The procedure for using the invention for the benefit of third parties is determined without restrictions.
1.3. The parties undertake to ensure the confidentiality of the information received from each other relating to these inventions, and will take the necessary measures to prevent the disclosure of this information or to familiarize third parties with them without mutual agreement.
1.4. In case of illegal use of the innovation by third parties , the parties undertake to take joint actions immediately to prevent illegal actions.

1.5. In case of disputes and impossibility of their settle the parties, they shall be settled in accordance with the
1.6. The decision to transfer the rights to patents is made by FOKIN KONSTANTIN SERGEYEVICH

Signatures of persons representing the interests of the parties:

1.FOKIN KONSTANTIN SERGEEVIC
2.SHAPOVALOV VYACHESLAV DM
3.SHOKHIN ALEXANDER NIKOLAE

FREE CONTRACT

BETWEEN THE CO-APPLICANTS OF PATENTS

FOR THE TRANSFER OF THE RIGHTS OF INVENTION (PATENTS)

Parties hereinafter referred to as co-applicants/co-owners of patents, namely:
Patentee: Limited Liability Company Mineral "Nano-TechnoIogy»
and
Authors:

1. **FOKIN KONSTANTIN SERGEEVICH**

2. **SIKHARULIDZE GEORGI**

GEORGIEVICH have concluded this agreement

on the following:

I

Transfer the rights to use intellectual property (patents) for free use indefinitely to Fokin Konstantin Sergeevich of the following patents:
1 Russia (2504829) THE ION SOURCE OF GLOW DISCHARGE WITH IN-CREASED FORCE.
FOKIN KONSTANTIN SERGEEVICH has the rights of an owner of patents:

II

1.1. To use the invention in their own production without any restrictions on the part of other co-applicants/patent owners.
1.2. The procedure for using the invention for the benefit of third parties is determined without restrictions.
1.3. The parties undertake to ensure the confidentiality of the information received from each other relating to these inventions, and will take the necessary measures to prevent the disclosure of this information or to familiarize third parties with them without mutual agreement.
1.4. In case of illegal use of the invention by third parties, the parties undertake to take joint actions immediately to prevent illegal actions
1.5. In case of disputes and impossibility of their settlement by negotiations between the parties, they shall be settled in accordance with the current legislation.
1.6. The decision to transfer the rights to patents is made only by FOKINKONSTANTIN SERGEYEVICH.

Signatures of persons representing the interest of parties
I.FOKIN KONSTANTIN SERGEEVIC
2. SIKHARULIDZE GEORGI GEORGIE

FREE CONTRACT

BETWEEN THE CO-APPLICANTS OF PATENTS

FOR THE TRANSFER OF THE RIGHTS OF INVENTION (PATENTS)

Parties hereinafter referred to as co-applicants/co-owners of patents, namely:
Patentee ‹Limited Liability Company Mineral"Nano-Technology»
and
Authors‹
LFOKIN KONSTANTIN SERGEEVICH
2.NESTEROVA ELIZAVETA OLEGOVNA
have concluded this agreement on the following‹

I

1. Transfer the rights to use intellectual property (patents) for free use indefinitely to Fokin Konstantin Sergeevich of the following patents:

1. **METHOD OF EXTRACTING RARE EARTH METALS FROM PHOSPHOGYPSUM.**

Method of processing phosphogypsum involves leaching rare earth metals (REM) and phosphorus with a solution of sulfiiric acid with getting the leaching solution and the insoluble residue, the processing of the insoluble residue a basic calcium compound to pH>5, the allocation of concentrate of rare earth metals from the leaching solution by crystallization, separation of the concentrate of rare earth metals from the mother liquor of crystallization, the addition stage leaching of rare earth metals and phosphorus.

2. METHOD OF EXTRACTING RARE EARTH METALS FROM PHOSPHOGYPSUM.

The invention is aimed at simplifying the technology of phosphogypsum processing, reducing the duration of leaching and solution rare earth metals cation exchange processes (REM), improving the efficiency of sorption and desorption, and the quality of the concentrate while ensuring a rational degree of extraction of REM from phosphogypsum.

3. **METHOD OF PHOSPHOGYPSUM PROCESSING FOR PRODUCTION CONCENTRATE OF RARE EARTH METALS AND GYPSUM**

4. Russia (2449576) - METHOD OF EXTRACTING RARE EARTH METALS FROM PHOSPHOGYPSUM.

4. Russia (2312908) - METHOD OF EXTRACTING RARE EARTH METALS FROM PHOSPHOGYPSUM.

5. Russia (2520877) - METHOD OF PHOSPHOGYPSUM PROCESSING FOR PRODUCTION CONCENTRATE OF RARE EARTH METALS Ai GYPSUM.

FOKIN KONSTANTIN SERGEEVICH has the rights of an owner of patents:

II

1.1. To use the invention in their own production without any restrictions on the part of other co-applicants/patent owners.

1.2. The procedure for using the invention for the benefit of third parties is determined without restrictions.

1.3. The parties undertake to ensure the confidentiality of the information received from each other relating to these inventions, and will take the necessary measures to prevent the disclosure of this information or to familiarize third parties with them without mutual agreement.

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1.5. In case of disputes and impossibility of their settlement by negotiations between the parties, they shall be settled in accordance with the current legislation.

1.6. The decision to transfer the rights to patents is made only by FOKIN KONSTANTIN SERGEYEVICH.

Signatures of persons representing the interests of the parties:-

1. **FOKIN KONSTANTIN SERGEEVICH**

2. **NESTEROVA ELIZAVETA OLEG**