



SPb-Giproshakht

Consulting Company

Design of Mining and
Processing Enterprises

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Company Profile



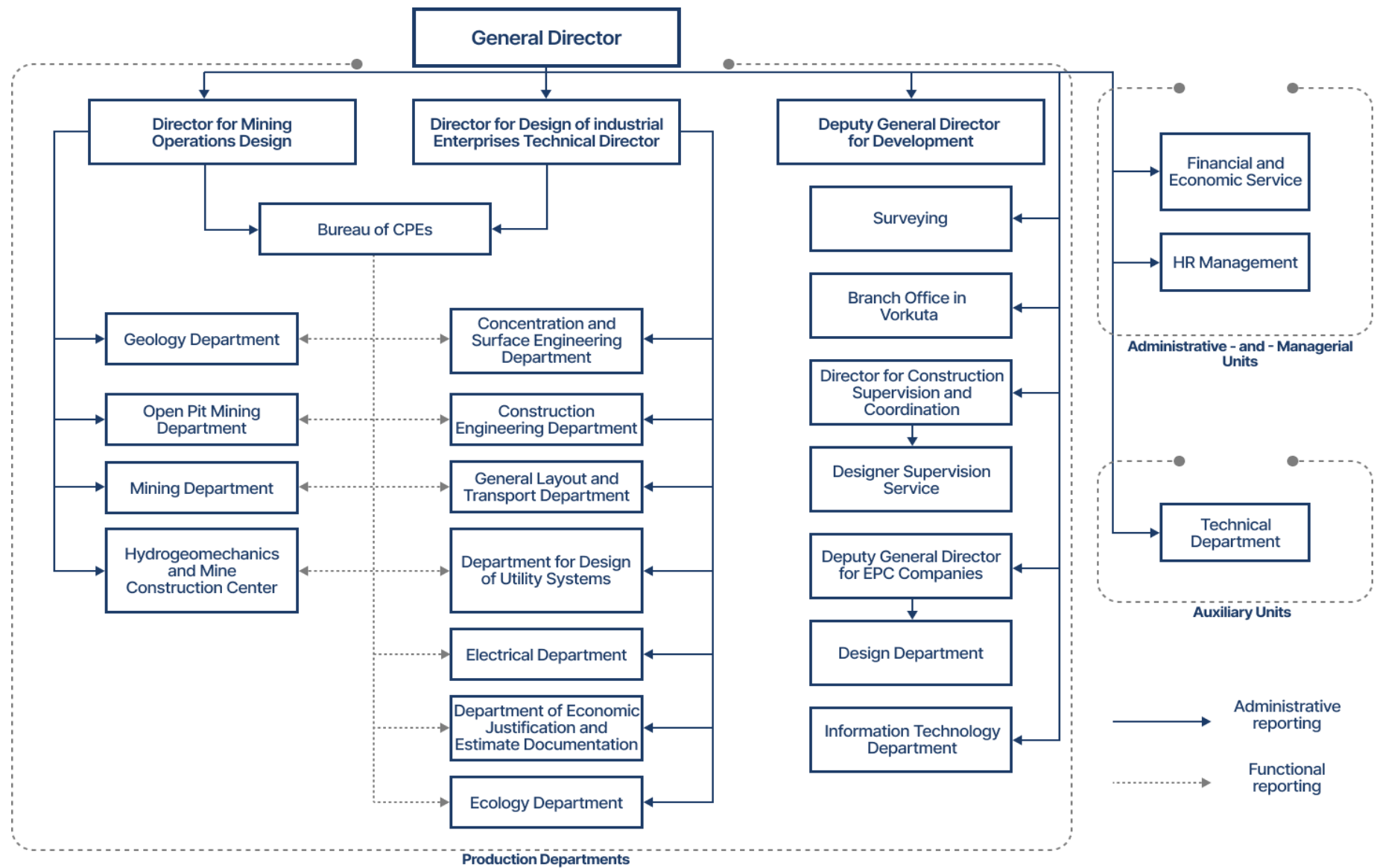
Range of services at the stages of the construction project life cycle



	Consulting	Design documentation	Approval by state bodies	Detailed documentation	Designer supervision
Russian standards	<ul style="list-style-type: none">○ Economic efficiency○ Mining development plans○ Audits of enterprises○ Mining and geological modeling	<p>Development in scope</p> <ul style="list-style-type: none">○ Government Decree No. 87○ Government Decree No. 145○ Government Decree No. 118○ Order of the Ministry of Natural Resources No. 218	<p>Development in scope</p> <ul style="list-style-type: none">○ FAE Glavgosexpertise of Russia○ State Environmental Expert Review○ Rosnedra (TsKR, GKZ)○ Rostekhnadzor○ RF Ministry of Construction○ Non-state expertise of project documentation	<p>Development in the scope necessary for the implementation of a full range of engineering, process and architectural solutions in the construction process</p>	<p>Designer supervision of the construction project under design</p>
Western approach	<ul style="list-style-type: none">○ Conceptual study○ Scoping study○ Pre-feasibility○ Due Diligence	<ul style="list-style-type: none">○ Feasibility	<ul style="list-style-type: none">○ Estimation of mineral resources and ore reserves	<ul style="list-style-type: none">○ Design (basic/ detailed)	<ul style="list-style-type: none">○ Partnership with EPCM-contractors



Company management. Structure






5 500 years of total shared experience of employees

1 Doctor of Science, 11 Candidates of Science The average age of employees is 37 years. Staff **330 employees**

1250 working days per year are spent on employee training

Company management. Automation

Software	Implementation	Users	Active projects	Features
	2012	50	80	<ul style="list-style-type: none"> ▪ Project budgeting ▪ Accounting for actual labor costs ▪ Financial management ▪ Subcontractor Management
	2016	50 - charts 250 - reporting	80	<ul style="list-style-type: none"> ▪ Calendar-network planning ▪ Project progress reporting ▪ Entering actual data on the progress of design work
	2019	300	80	<ul style="list-style-type: none"> ▪ Electronic document management ▪ Internal interaction of project teams ▪ Interface with contractors and customers ▪ Generation of the company's technical archive ▪ Storage and approval of OED ▪ Automation of business processes

SPb-Giproshakht – geographic footprint External customers



- 227 FEEDs
- 297 Engineering projects
- 221 Projects provided with DD documentation
- 234 Projects with the positive expert opinions received
- 68 Projects in the DD area, spooling



FLUOR

ВЕЛЕССТРОЙ



ТАМПО



POLYUS



NORNICKEL



IGP Co.Ltd

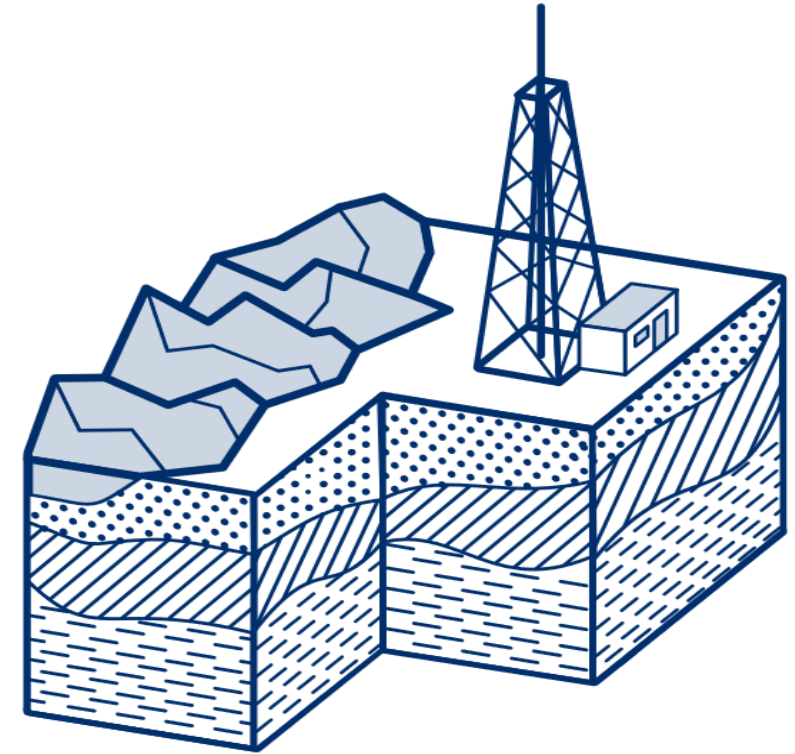


УДОКАНСКАЯ МЕДЬ

Design areas



- Design and support of geological exploration, estimation and entering of geological reserves of all types of solid minerals on the state balance sheet of the Russian Federation
- Audit and estimation of mineral resources as required by international standards (Code JORC 2012, and etc.)
- Geological support of design works
- Creation and maintenance of geological and litho-structural models for planning mining operations at the operational stage



over **7000** mln t

Geological reserves/mineral resources estimated for the last five years

- 01** More than 30 papers were prepared on the mining feasibility study and estimation of reserves for various types of minerals
- 02** Geological models have been built for more than 70 objects
- 03** Successful reasoning in the approval process with the state bodies on the inexpediency of putting on the balance sheet the economically unprofitable reserves of the field for the subsurface user
- 04** Implementation of automated calendar planning procedures at the mining enterprise based on the MineScape and Deswik software packages
- 05** Carrying out geological exploration activities for the purpose of technological testing of technogenic objects
- 06** Application of proprietary set of techniques using specialized software for automating routine operations in the preparation of geological information for design
- 07** Our staff includes: candidate of geological/mineralogical sciences, GKZ experts, members of Eurasian Union of Experts on Subsoil, AIG member
- 08** Modeling and estimation of mineral resources and geological reserves of iron polymetallic ores and coal (stratiform deposits) of complexity groups II-III; gold ores of complexity groups II-IV
- 09** Harmonization of mineral resources/balance reserves for obtaining comparable estimation results as per JORC 2012 Code and GKZ Rosnedra requirements
- 10** Development of regional conditions for iron ore deposits concentrated in a single iron ore cluster

Hydrogeomechanics and Mine Construction Center Services

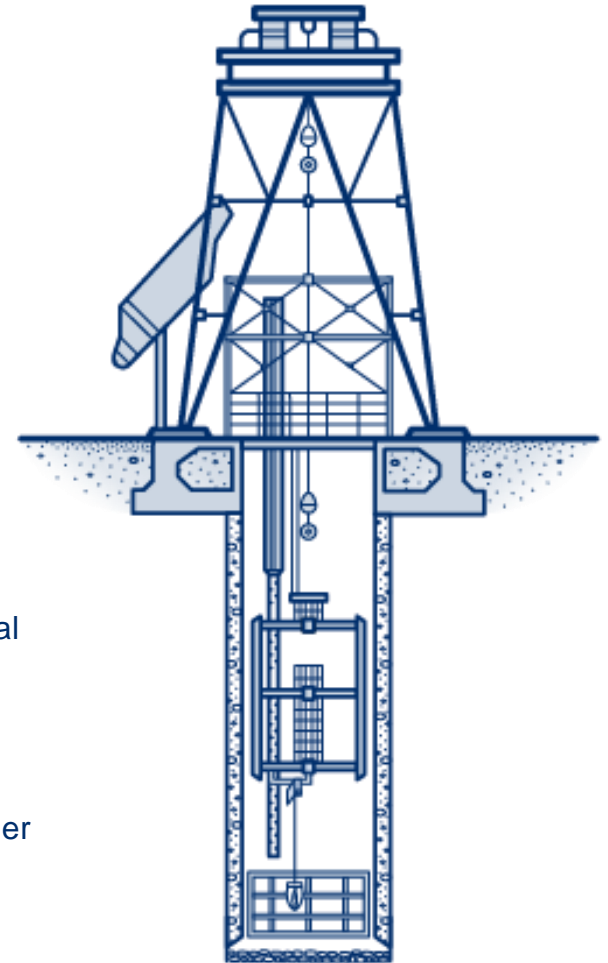
- Modeling of geomechanical processes around underground mine roadways;
- Determination of the lining parameters of underground mine roadways by numerical simulation;
- Selection of the technology for the construction of underground mine roadways;
- Design of vertical and inclined mine shafts;
- Modeling of foundations of structures and machines with dynamic loads;
- Construction of geomechanical models of deposits;
- Assessment of the stability of quarry walls, dumps and dams;
- Assessment of geotechnical and geomechanical conditions of deposits.

Hydrogeology:

- Development of hydrogeological research programs
- Forecasting of inflows into open and underground workings, including geofiltration modeling applied
- Estimation of underground water reserves for placing on the state balance sheet and preparation of technical projects for the development of underground water deposits

Geomechanics:

- Calculation and justification of the lining parameters of the mine shafts and horizontal workings
- Calculation of the stress-strain state of the linings of mine workings and justification of their parameters under the scheme of shared interaction (numerical model study)
- Development of design documentation for fixing mining workings for various purposes
- Development of process documentation for surface excavation and fixing of mine workings



exactly
486
gigabyte

The total weight of numerical models calculated within the period of 2021.

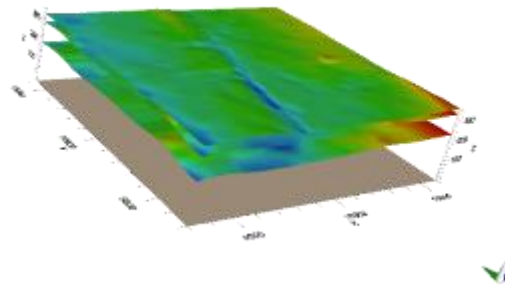
over
5300
m

The total length of capital vertical and inclined mine shafts designed over the past 3 years.

- 01** Development of the design documentation for the construction of vertical mine shafts with a depth of 1150 m.
- 02** Development of Special Technical Conditions for the calculation of the fastening of vertical mine shafts in difficult mining and geological conditions.
- 03** Design of the mechanized method of sinking vertical mine shafts at Nivensky GOK.
- 04** Design of the sinking of vertical mine shafts using a special method: freezing rocks to a depth of 750 m.
- 05** Development of design solutions for pumping water from a 900 m deep vertical mine shaft.
- 06** Design of large cross-section chambers in salt rocks at a depth of 1000 m.
- 07** Development of specialized software.
- 08** Development of a library of materials and mechanisms for the construction of mine shafts.



Setting of initial parameters
(conditions of occurrence of aquifers
and impermeable horizons,
boundary conditions, porosity and
permeability properties)



Creating a conceptual model

Creating a numerical model for
natural (or existing) filtration
conditions

Файл Правка Формат Вид Справка

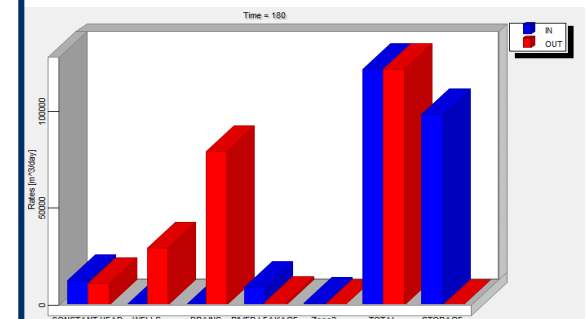
PHWBLF (SUBREGIONAL WATER BUDGET) RUN RECORD
FLOWS ARE CONSIDERED "IN" IF THEY ARE ENTERING A SUBREGION
THE UNIT OF THE FLOWS IS [L³/T]

TIME STEP 1 OF STRESS PERIOD 1

WATER BUDGET OF THE WHOLE MODEL DOMAIN:

FLOW TERM	IN	OUT	IN-OUT
STORAGE	0.000000E+00	0.000000E+00	0.000000E+00
CONSTANT HEAD	7.5508408E+03	5.2435361E-03	7.5508354E+03
WELLS	0.000000E+00	0.000000E+00	0.000000E+00
DRAINS	0.000000E+00	9.1788525E+03	-9.1788525E+03
RECHARGE	1.6280000E+03	0.000000E+00	1.6280000E+03
ET	0.000000E+00	0.000000E+00	0.000000E+00
RIVER LEAKAGE	0.000000E+00	0.000000E+00	0.000000E+00
HEAD DEP BOUNDS	0.000000E+00	0.000000E+00	0.000000E+00
STREAM LEAKAGE	0.000000E+00	0.000000E+00	0.000000E+00
INTERSED STORAGE	0.000000E+00	0.000000E+00	0.000000E+00
MULTI-AQIFR WELL	0.000000E+00	0.000000E+00	0.000000E+00
SUM	9.1788408E+03	9.1788574E+03	-1.6601562E-02
DISCREPANCY [%]	0.00		

Calibration of hydrogeological
parameters set on the model



Modeling of forecast scenarios,
determination of water inflow values,
construction of level surfaces

Development of the GeoGraph program

Creation of our own software that will speed up the process of making basic design solutions when preparing the design documentation for the sinking and construction of vertical mine shafts.

Why is it necessary?

- Centralization of regulatory and reference literature in a single database;
- Acceleration of calculations;
- Freeing up time to search for new unique solutions;
- New approaches in the design.

What has already been done?

- Calculation of parameters of the concrete lining of a vertical shaft in accordance with SP 91.13330.2012;
- Calculation of process parameters of drilling and blasting;
- Preparation for the implementation of the centralized library;
- Template of the final report of a single sample.

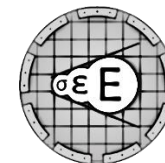


The screenshot shows the GeoGraph software interface. The title bar includes the SPb GIPROSHAKHT logo and the text 'Geomechanical discipline'. The main menu has tabs for 'General information', 'Drilling and blasting', 'Mechanized sinking', 'Special methods', and 'Results'. The 'General information' tab is active, showing a 'Shaft data' section with input fields for various parameters. Below this is a 'Construction diagram' section with radio button options. At the bottom, there are buttons for 'Initial data', '< Home page', and 'Calculation as per SP', along with the version number 'v.0.0.1.6'.

Parameter	Value	Unit
Sinking rate per month (design)	60	m/month
Clear shaft diameter	10	m
Sinking cycle duration	24	h
Shift duration	6	h
Number of working days per month	25	
Lining thickness (design)	200	mm
Shaft depth	1000	m

Construction diagram options:

- ☒ Consistent
- ☐ Parallel
- ☐ Combined



Geomechanical
discipline

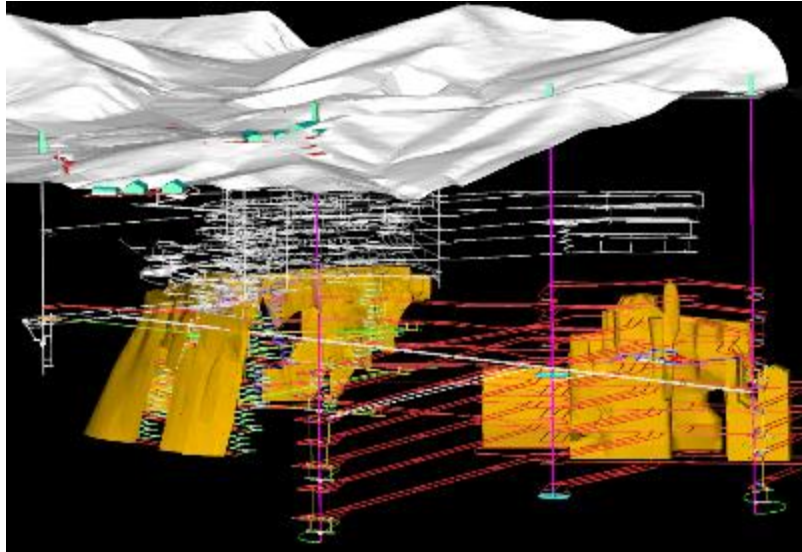
- Selection of methods of opening, preparation and development systems
- Estimation of the deposit commercial reserves, optimization of losses and dilution
- Justification of complex mechanization of cleaning and preparatory works
- Development of regulations for operational processes
- Protection of mineral resources - justification for the full extraction of mineral resources
- Conducting technical audits of enterprises
- Development and annual updating of the Life of Mine Study under the Customer's strategic business planning
- Calculation and modeling of ventilation of mine workings



over **100** mln t

Total annual production capacity of underground mining over the past five years

- 01** Design of enterprises with complex mining and geological conditions (Vorkutaugol objects, Nivenskoye deposit of potash-magnesium salts, Tashtagolsky mine, Burgali mine)
- 02** Modeling of ore drawing from the caved ground
- 03** Exploiting heavy oil fields
- 04** Development of design solutions for vertical and inclined shafts
- 05** Combined mining of deposits



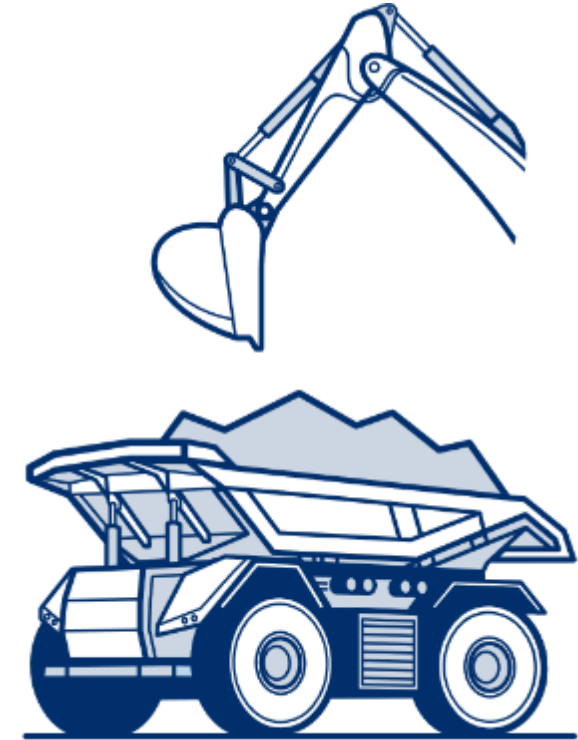
Строит. Name	Длина_м	Сечение_м2	Объем_м3	00	01	02	03	04	05	06	07	08
Камера дозора	0	0.0	1 342									
Камера вентиляции	138	88.3	10 847									
Камера гидропневм.	421	11.4	10 389									
Пункт обслуживания и ремонта	271	33.0	10 400									
Склад ВМ	487	18.8	7 792									
Склад ГСМ	354	22.2	7 874									
	101 623	21.8	2 141 165									
	101 623	21.8	2 141 165									
Камера обслуживания вентилятора (НС)	441	88.8	40 190									
Складной стол (СС)	590	63.3	29 067									
Складной стол (СС)	590	63.3	29 067									
Вспомогательный уголок	3 400	12.2	41 437									
НСН	2 018	1.6	8 121									
Камера ожидания с медпунктом	147	14.5	2 121									
Камера переодевания	354	37.8	12 961									
Камера переодевания	417	47.7	21 036									
Конвейерный уголок	2 116	14.5	40 060									
Монтажный уголок	1 990	12.2	24 365									
Нижняя БС	804	23.6	18 426									
Складной стол (СС)	2 214	22.8	48 176									
Складной стол (СС)	1 101	22.8	25 326									
Складной стол (СС)	3 732	22.8	82 071									
Складной стол (СС)	11 881	22.8	261 071									
Рудоспуск	660	1.5	2 880									
СБВ	5 305	11.5	60 975									

Итого	Средняя	01	02	03	04	05	06	07	08
Мат. - Строит.	0.6	1.5	1.8	1.3	0.4				
Мат. - Гидропневм.	13.7	5.7	1.3	11.3	11.2	16.7	1.5	3.3	2.0
Мат. - Конвейер	1.8	12.5	1.2	14.1	15.1	14.6	1.4	1.1	0.6



Multi-version 5D planning (3D + time line + cost of construction) using specialized software (Studio 5DPlaner and Deswik) with editing function – possibility to amend sequence of mining operations and mine workings attributes - makes it possible to determine the optimal construction time, the requirements for equipment and other parameters of the mining planning

- Final pit shell optimization
- Determination of opening schemes and mine development systems
- Multivariate approach and trade-off study of mine development options
- Determination of the productivity of mining enterprises and the open pit fields limits
- Optimization of general mining plans
- Optimization of cargo flows of a mining enterprise
- Determination and optimization of stable angles of inclination of the pit sides



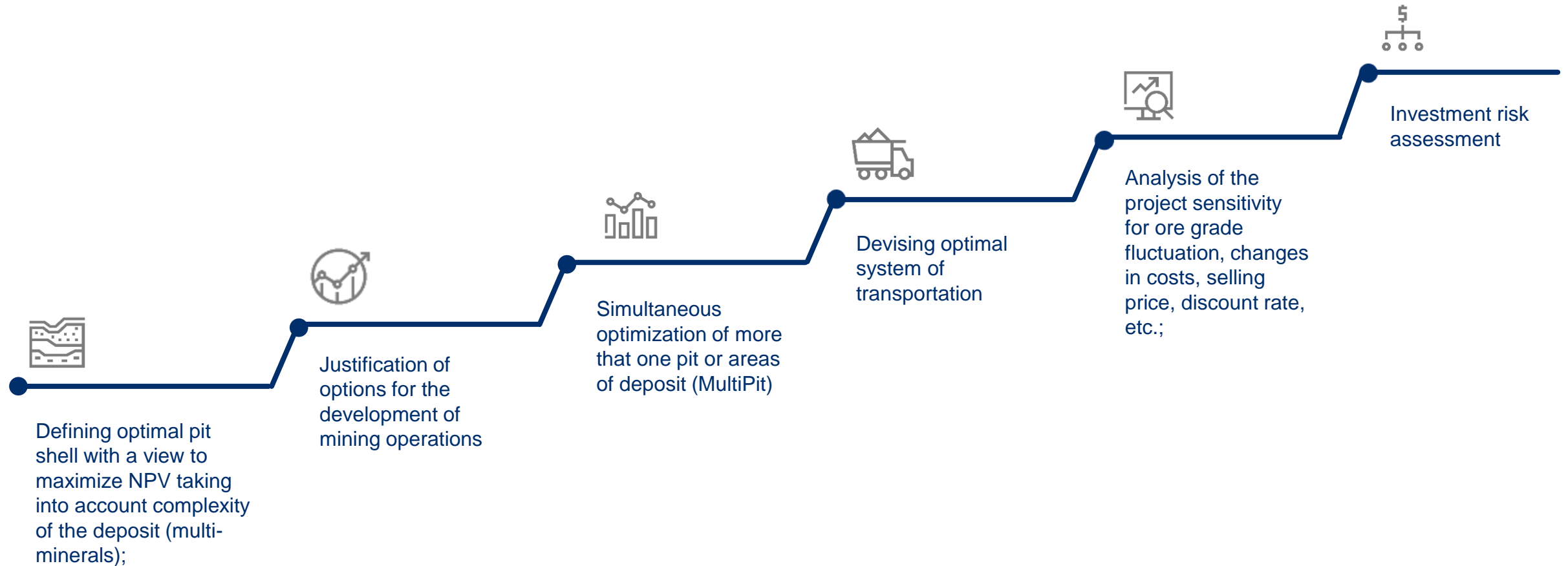
over **150** mln t

Total annual production capacity of open-pit mining over the past five years

- 01** Development of PSTS to justify the reduction of the width of haul roads to optimize the mode of mining operations and reduce the overburden ratio in the deep pits
- 02** Introduction of diesel-electric dump trucks for a radical reduction in the cost of in-pit transportation of rock mass
- 03** Sinking of an inclined trench in difficult mining and geological conditions for the placement of objects of the in-pit crushing and conveying technology complex with a capacity of 20 million tons
- 04** Introduction of in-pit crushing and conveying technology complex of ore extraction and overburden excavation to reduce the fleet of the pit dump trucks
- 05** Justification of reduction of the radius of flyrock travel and seismic impact during drilling and blasting operations
- 06** Design of water-lowering wells for drainage of an open pit field
- 07** Justification of the expediency and effectiveness of using steep-slope conveyors in the crushing and conveying technology schemes
- 08** Use of optimal systems of ore and overburden cargo transportation at upland quarries under conditions of sharply rugged terrain

Open Pit Mining Department

Final Pit Shell Optimization



Mineral processing

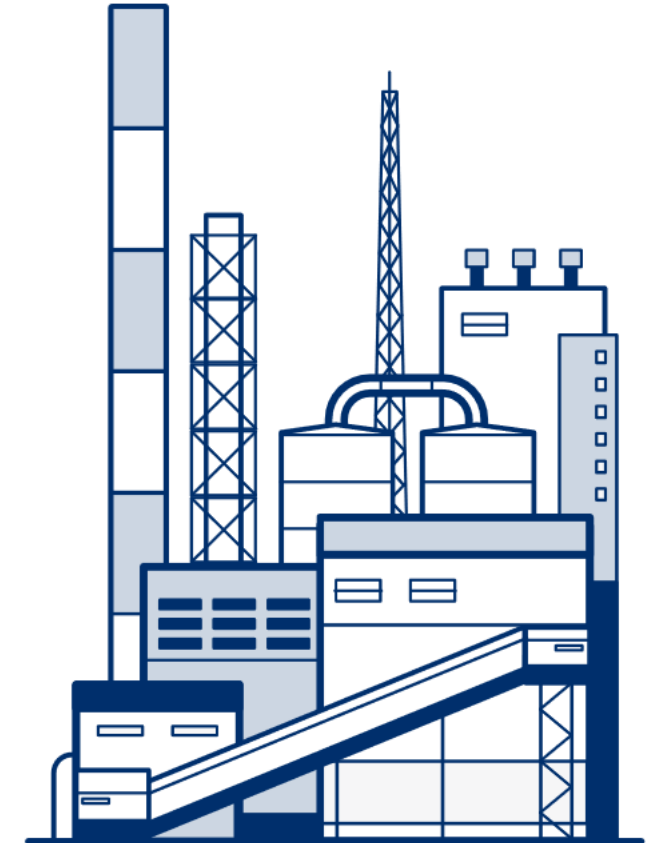
- Development of the production methods for concentrating and briquette factories
- Calculation and evaluation of the quality of commercial products produced and shipped to a consumer
- Justification of the need for processing based on the requirements of consumers
- Development of technological processes, selection and layout of equipment
- Design of stockpiles of commercial minerals of various destinations

Surface Engineering

- Development of the surface processing facility, including mining machinery
- Estimation, selection and installation of equipment
- Selection and justification of the optimal layout of buildings and structures of the surface processing facility

Repair and storage facilities

- Development of repair and storage facilities and other ancillary facilities of the enterprise processing facility (canteens, medical centers, dispatcher's offices, compressor houses, fire depots, etc.)
- Estimation, selection and layout of equipment



Achievements and experience of custom-tailored approach to solving problems

over **100** '000 m²

Total area of the designed concentrating plants, infrastructure facilities and special-purpose objects over the past five years

- 01** Design of a set of hoisting engines with a headgear height of more than 100 meters
- 02** Development of hazardous facility safety justification for the reagent preparation room and floatation reagent dosing systems
- 03** Successful reasoning in the approval process with the state bodies on the inexpediency of putting on the balance sheet the unfeasible ferruginous quartzites
- 04** Application of modular solutions in the area of repair and storage facilities
- 05** Design of cascade systems: repair shop, vehicle wash, maintenance Minimization of building areas Layout optimization

Construction Engineering Department Services

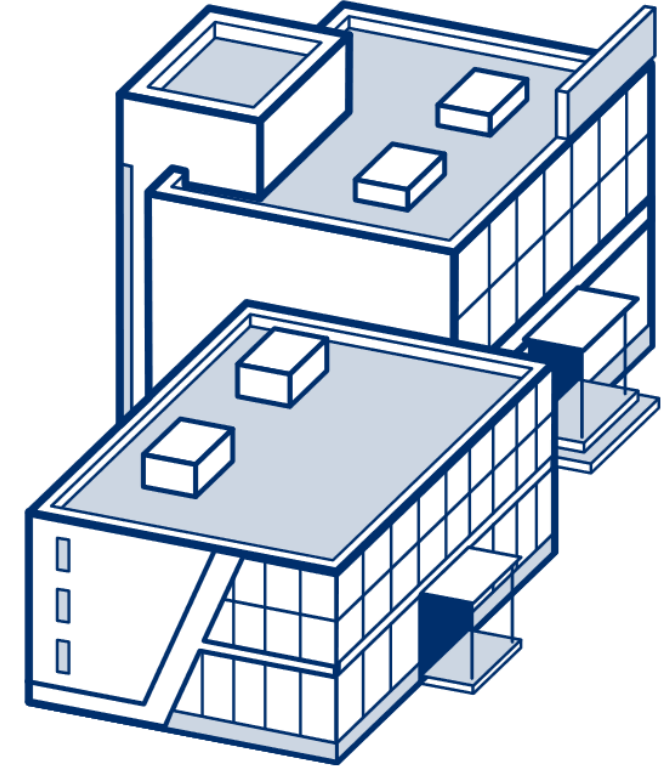
The design of all types of structures for industrial facilities, operations camps, structures with increased responsibility level. The development of structural and spatial solutions, the calculation of fire risks, the development of the section “Civil Defense and Emergency Response”.

Key processes:

- The development of sections of design documentation: Architectural Solutions; Structural and Spatial Solutions; Architectural and Structural Solutions; Fire Safety; Civil Defense and Emergency Response;
- The defense and the support of design documentation in the GGE
- The development of working documentation; the author's supervision. Sections: Architectural Solutions; Architectural and Structural Solutions; Structural Steel Solutions; Structural Reinforced Concrete Solutions;
- The development of architectural and structural solutions for newly constructed and refurbished mining facilities, industrial and civil facilities;
- The development of technical assignments; the approval of work programs; the acceptance of surveys (geotechnical, hydrometeorological, geodetic, inspections of structural elements) and their support in state and non-governmental review authorities.

Delivering:

- Complex design models of structures, including progressive collapse
- Modal analysis, calculations for pulsation, calculation for seismic effects taking into account synthesized accelerograms
- Reconstruction projects taking into account the Brownfield conditions and the surrounding development
- BIM modeling



over **1500**

**Sets of architectural and structural drawings
developed over the last 5 years**

01

Structures completed by CED: retaining walls, tunnels, tank structures, galleries and bridges, transfer units, frame buildings and structures for any purpose, tower headgears, drift entries

02

CED forces have completed a project for the reconstruction of a tower headwork of more than 100 m height; projects of sinking headgear have been completed

03

The key customers are enterprises located in difficult climatic and seismically active areas with seismicity above 7 points

04

Upon the wish of the Client, in addition to main fields of work, indoor designs may also be developed

05

CED consults international partners in the adaptation of documentation to meet Russian regulations and in the processes of different stages of engineering

General layout and transport department Services

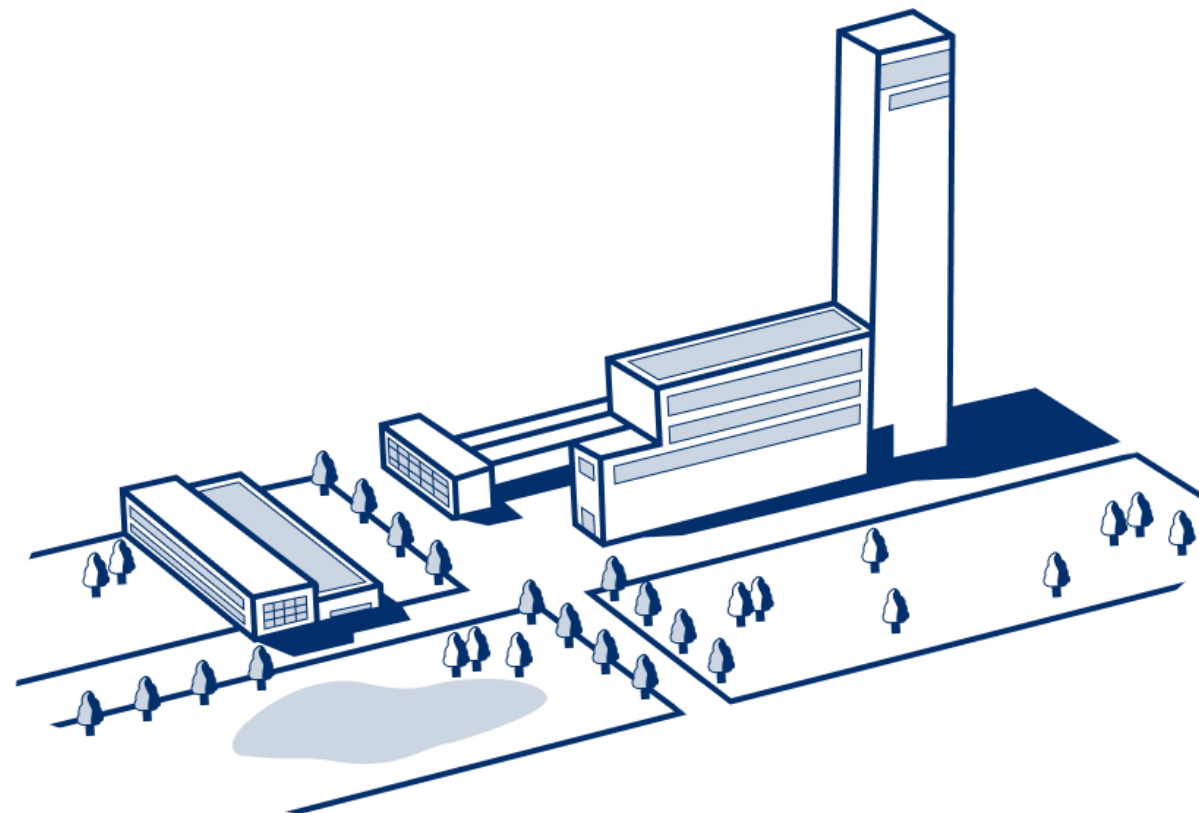
The analysis of occupied land plots regarding their purpose and permitted usage. The analysis and checks of initial permits submitted by the Client and consultations about changes to them. The support of the Client in obtaining an Urban Development Plan. The development of solutions for the engineering protection of areas. Calculating of traffic flows and determining the optimal means of transport.

Development of;

- Master plans of industrial enterprises
- Overall plans of utility grids
- Plans of motor roads
- Plans of railways
- Plans of culverts
- Landscaping plans
- Traffic diagrams

Calculations:

- Road surface structures
- Stability of the roadbed slopes
- Volumes of moved soil masses by area, in line with a given balance



AutoCAD



GEO STAB

Расчет устойчивости откосов и склонов



IndorPavement

Расчёт дорожных одежд

over **6000** ha

Area of construction sites over the past five years

- 01** Engineering protection is included in the development of master plans, accounting for parameters of the construction area
- 02** Work is carried out in 3D. Its result is input data (the design terrain) for a 3D digital model of the facility.
- 03** The design of facilities for harsh climatic conditions with significant height differences in the terrain and dangerous geological processes:
 - flooding;
 - karst and suffusion processes;
 - erosion processes;
 - slope processes (landslides, rockfalls, avalanches, mud flows)
- 04** The optimization of soil mass volumes in accordance with geotechnical reports.
- 05** The assessment of risks emerging due to the presence of zones with special usage conditions and their tracking during the implementation of the project.

Electrical Department Services

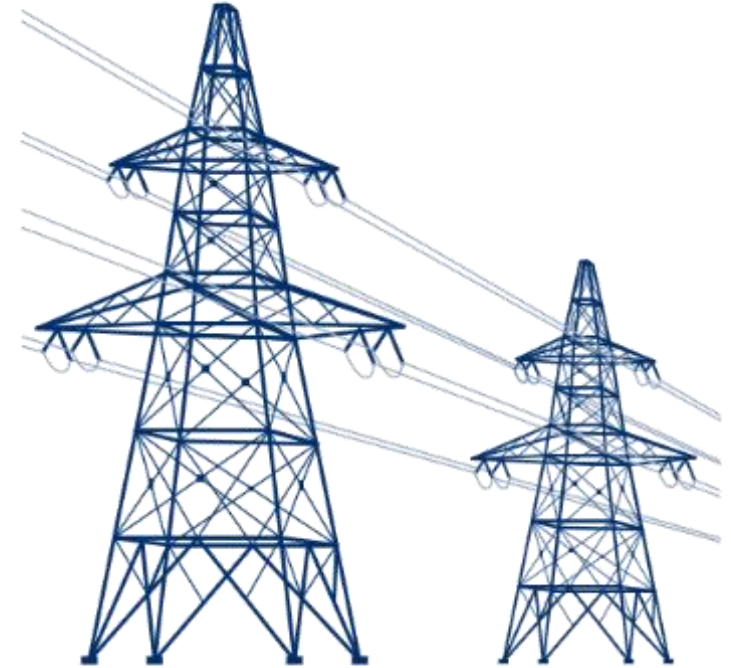
Power systems engineering

Facilities of high, medium, low voltage:

- Development of power supply schemes for industrial enterprises
- Power supply of underground mines, mines, open pits, concentrating plants, industrial sites
- Electrification of mine and underground transport
- Step-down substations
- Overhead power lines
- Cable lines
- Distribution points

Automation, communication

- Integrated automation of mining operations
- Automation of industrial facilities
- Wired networks
- Wireless networks



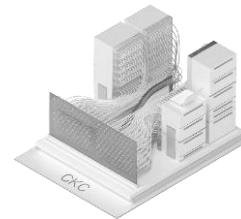
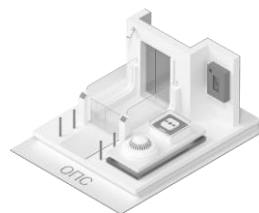
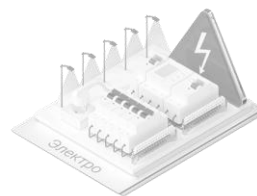
MULTIFUNCTIONAL SAFETY SYSTEMS, ENGINEERING SYSTEMS MONITORING



AutoCAD®



NANOCAD



САПР ЛЭП



CIVIL 3D

over 15000 km

Electricity networks installed under the projects over the past year

**5 SS 110/35/6 kV over
200 PTS and DSS**

Constructed under the projects for the last year

01

Designing objects in non-standard severe conditions: permafrost, altitude above sea level more than 1000 m, seismicity in the design areas up to 9 points

02

Modernization or reconstruction of switchgears with the replacement of existing equipment overaged

03

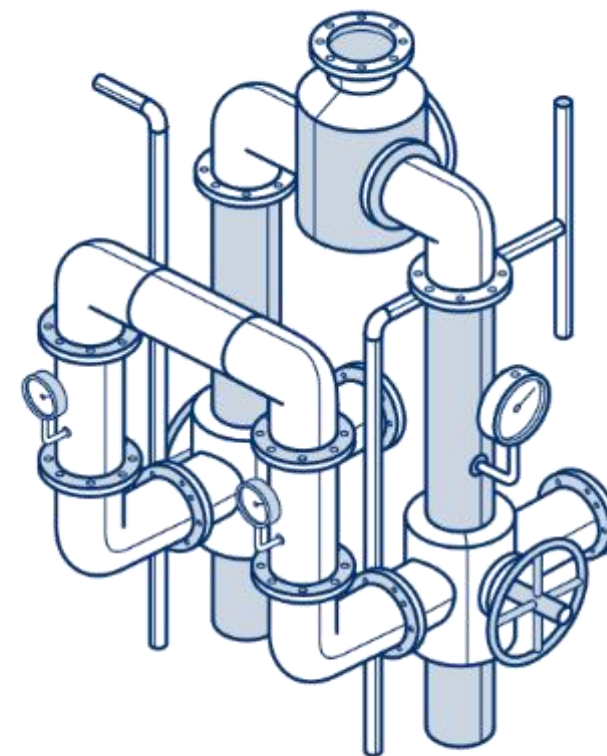
Integration of the latest equipment into the enterprise existing utility systems

04

Integrated solutions for automation and communication of engineering activities and production management

Design of the on-site and off-site sanitary engineering and utility systems:

- Heating
- General exchange ventilation systems
- Heat and cold supply systems
- Air conditioning
- Water supply
- Water removal
- Automatic water fire extinguishing installations
- Hydraulic structures (not higher than hazard class III)
- Heating networks and heat points (individual heating plant, central heat supply station)
- Smoke ventilation systems
- Local ventilation/aspiration systems
- Mine air heating systems



AutoCAD®



NANOCAD



CIVIL 3D



AUTODESK
REVIT



MagiCAD
for Revit



MagiCAD
for AutoCAD

over **200** KM

Utility systems constructed under the projects over the past five years

- 01** Installation of off-site utility systems in permafrost conditions
- 02** Installation of off-site utility systems in areas with seismicity up to 10 points
- 03** Use of modular installations to reduce the project time
- 04** Selection of competent companies for the development of mine and quarry water treatment facilities for the treatment of heavily polluted effluents
- 05** Development of water disposal systems for underspoil waters with the installation of ditches and water collectors
- 06** Development of diversion structures

- Development of environmental protection measures
- Environmental impact assessment study
- Development and approval of the EPMP and EIA, SPZ, ZSP, RNZ sections
- Development of environmental documentation (MPE, WGDT, MAD)
- Conducting technical audits of enterprises in order to identify sources of emissions, noise



AutoCAD®



over **1500** '000 m³

Waste disposed in compliance with the current environmental legislation for the objects over the past five years

01

Location of industrial facilities in cramped urban planning conditions in compliance with the environmental and sanitary requirements

02

Environmental design taking into account use-restricted zones (water protection zones, water supply source protection zones, sanitary protection zones, etc.)

03

Taking into account the interests of the subsurface user in the context of existing environmental regulations

04

Integrated approach to the implementation of environmental measures (EPMP, EIA (including public hearings), SPZ, ZSP, RNZ)

Department of Economic Justification and Estimate Documentation

Department Services

Business case:

- Calculation of technical, economic and financial indicators of the project at any stage of its life cycle: calculation of capital and operating costs, assessment of the project revenue side, assessment of investment efficiency, sensitivity analysis and project risks, etc.
- Performance of technical and economic calculations in comparison of competing options (opening, mining, transport, etc.)
- Justification of the parameters of conditions for estimating reserves of solid mineral deposits
- Assessment of the need for manpower resources
- Audit of economic justifications developed by third-party companies
- Audit of technical and economic indicators of operating mining and processing companies
- Benchmarking



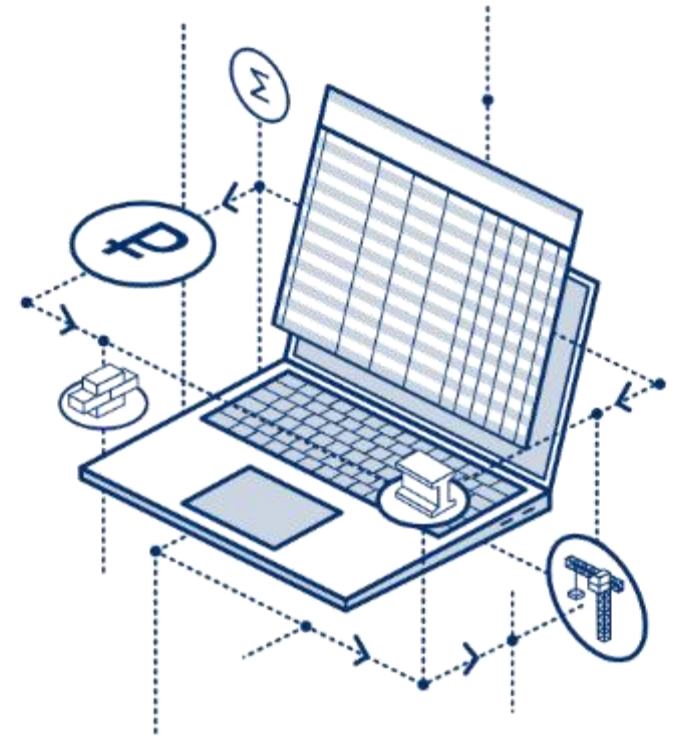
Department Services

Estimate documentation:

- Development of estimate documentation subject to the current state estimate standards and standards of the customer
- Preparation of local calculations and estimates according to the federal and territorial bases of costing standards. Making estimates for mining, hydraulic engineering (tailings storage facilities), installation, construction and heavy construction works. Making calculations
- Preparation of object estimates and summary estimates. Preparation of cost summaries based on the construction phases
- Preparation of estimate documentation based on the construction management plan. Calculation of the costs of relocating equipment and execution of work on a rotational basis
- Calculation of the construction cost subject to the aggregated standards of LLC SPb-Giproshakht
- Making estimates for design and survey work
- Audit of estimate documentation developed by third-party companies

Construction Management:

- Development of projects for the organization of construction operations
- Development of projects for the organization of demolition or dismantling of capital construction facilities
- Development of the section "Requirements for Safe Operation of Capital Construction Facility"
- Audit of the above sections of the project documentation developed by third-party companies



Department of Economic Justification and Estimate Documentation

Achievements and experience of custom-tailored approach to solving problems



over **2500** local estimates
drawn up over the last five years

over **150** technical and economic models
Constructed under the projects over the past five years

- 01 Development of proprietary methods for calculating the minimum industrial content of commercial component in a sample for deposits of potassium-magnesium salts and sulfide copper-nickel ores
- 02 Availability of a database of established technical and economic model / financial economic model templates for regular customers
- 03 Development of innovative technical and economic models for enterprises of the CIS countries subject to the local legislative framework
- 04 Generation of a database of analogue controlled objects and aggregated cost indicators, analysis of the estimated cost structure. Application of the information obtained in determining the cost of construction at the FEED stages
- 05 Methodological work within the department (instructions for drawing up estimates for certain brands of drawings, templates of work scope statements, etc.)
- 06 Specialization of employees in making estimates for certain brands of drawings (items of work) within the department
- 07 Development and approval of documentation with foreign clients, taking into account the expertise current requirements

BIM (building information modeling) – information modeling technology in construction. BIM technology is based on the organization of data in the form of information models. Each model is an electronic copy of a construction object.

BIM Design

Creating an informational 3D model of an object using specialized software during the design process. Model-oriented design. The model is a source of 2D documentation

BIM Modeling

Creating a 3D information model of an object based on 2D drawings of the completed project. Modeling of the model components. 2D documentation is a source for obtaining an informational 3D model

BIM Support

Standardization, analytics, coordination, management of a BIM project. Project support by a remote BIM team



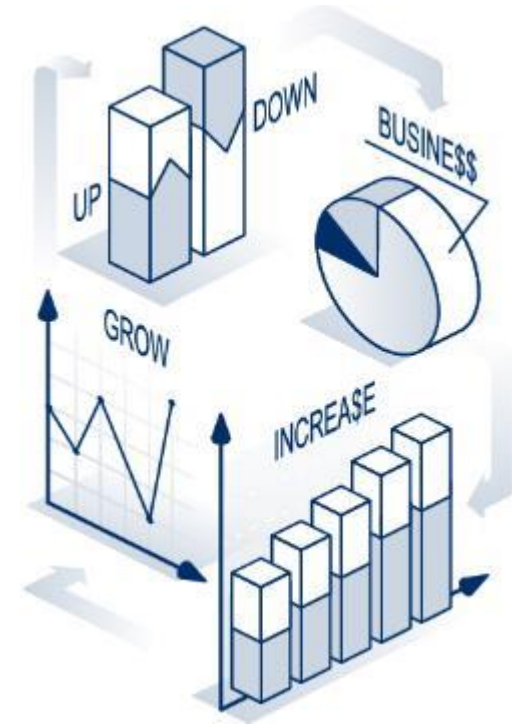
SM – Simulation Modeling as a type of computer modeling using methods of system analysis. A tool for making informed decisions using a digital alter ego. Forecasting and analysis of the technology process.

SM forecasting

Possible "what if" scenarios can be safely applied and analyzed using modeling Virtual experiments with simulation models will be much cheaper and will take less time than experiments with real assets

SM in-process control

Uncertainty in the time and results of operations is easily reflected using a simulation model, which allows to assess the degree of risk and find the most optimal solutions. It becomes possible to observe the behavior of a real system in time with the necessary level of detail



Achievements and experience of custom-tailored approach to solving problems

over **3000** collisions

Fixed in information models for the last four years

over **500** mln rubles

Customer saved money by applying the technology of simulation modeling

- 01 We won the international competition Autodesk Innovation Awards 2013 on BIM (information modeling technology, Las Vegas, Nevada, USA)
- 02 BIM technology based on Tekla Structures software was integrated with GIS for the first time in the Russian Federation – Studio 5D Planner
- 03 Since 2018, the Department has been providing technical and methodological support to the Company's digitalization users and providing services to the foreign market for the development of digital twins
- 04 A simulation model of agglomeration and blast-furnace process for coke production has been developed. The conveyor network transfers the existing mineral raw materials flows without modernization and is able to move an additional volume of raw materials (54 % of the current volume)
- 05 A unique base of technological equipment has been formed. Over 500 BIM components are provided in different formats for using them by specialized software (RVT, NWC, DWG) as an option

- Design of building structures for oil and gas sector facilities: foundations, railway frames, including in areas of high seismicity
- Calculations for progressive collapse in the nonlinear formulation of the problem of metal structure joints
- Design of metal frames of petrochemical enterprises
- Development of albums of standard components of metal structures
- Development of structural engineering drawings
- Development of plug-ins for automating routine operations of a designer



over **100** '000 t

Metal structures installed
under the Department projects
over the past five years

over **30** projects

Construction part in the oil
and gas industry completed
by the Department
employees over the past
five years

01

All designs are carried out in Tekla Structures software, a proprietary Tekla Structures environment has been developed for metalwork, reinforced-concrete structures, structural engineering drawings

02

The experience of manufacturing and supplying metal structures jointly with the enterprises of Severstal Group of Companies has been implemented

03








The documentation is adapted to the requirements of any metalworks

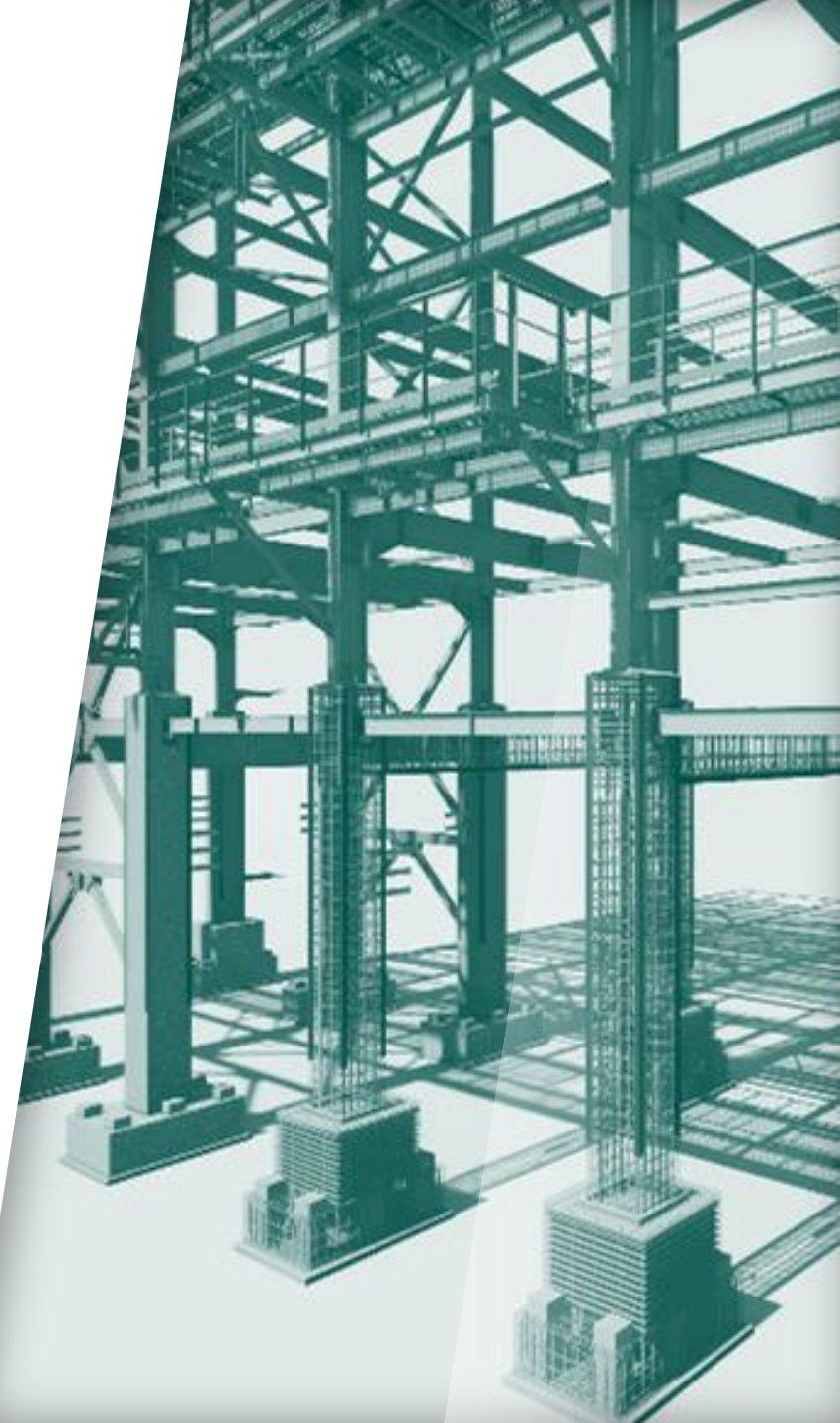
04

We are developing node calculators based on MathCAD and MS Excel, reporting forms of a standard album of standard nodal points, calculation of nodes, taking into account the explosive load

Design Department

Key Projects

Description of Object	Investor	Scope of Work	Completed Work
Ammonia plant	 EUROCHEM MINERAL AND CHEMICAL COMPANY	Steel structures details ▪ 5,785 t (2017-2018)	▪ Development of structural engineering drawings in Russian and English
Gas processing plant	 GAZPROM	Steel structures details ▪ 3,000 t (2019-2020)	▪ Development of structural engineering drawings in Russian and English
Refinery	 LUKOIL OIL COMPANY	Steel structures details ▪ 15,000 t (2018-2020)	▪ Development of structural engineering drawings
Gas processing plant	 GAZPROM	Structural steel + assemblies ▪ 40,000 t (2018-2019)	▪ Development of structural steel drawings in Russian and English ▪ Calculation of nodes
Gas chemical complex	 SIBUR	Metalwork, reinforced-concrete structures, structural drawings ▪ 20,000 t (2020-2022)	▪ Metalwork, reinforced-concrete structures, structural engineering drawings for the entire scope of works in Russian and English
SNG	 NOVATEK GREEN ENERGY	Steel structures details ▪ 9 000 t (2020-2023)	▪ Development of structural engineering drawings in Russian and English
Gas chemical complex	 RUSCHEMALLIANCE РусГазДобыча	Metalwork, reinforced-concrete structures, structural drawings ▪ 6,000 t (2023)	▪ Metalwork, reinforced-concrete structures, structural engineering drawings for the entire scope of works in Russian and English



Significant Projects

Development of the Gross deposit: Gold processing plant of heap leaching and infrastructure facilities

The Gross deposit is located in the Republic of Sakha (Yakutia), the municipal formation "Olekminsky Ulus". The ore processing scheme provides for the following main processes: preparation of the initial ore for laying for heap leaching; ore leaching; hydrometallurgical processing of heap leaching solutions by sorption, desorption, electrolysis; pyrometallurgical processing of hydrometallurgical processing products to obtain the final product - a ligature gold ingot. The structural and process scheme includes the following operations: coarse crushing of class -800 mm to a size of - 170 (200) mm; screening of class - 170 mm to a class of 40 mm to obtain fractions: -170 +40 mm, -40 +0 mm; intermediate crushing of class -170 +40 mm to a size of 40 mm; stacking of ore and leaching with a cyanide solution; collection of leaching solutions and sorption of gold from solutions to activated carbon; acid treatment and neutralization of coal; high-temperature desorption of gold from coal; electrolysis of gold from eluates; thermal reactivation of activated carbon; removal of coal fines and soaking of coal with the addition of fresh sorbent; melting of cathode sediments to obtain a Dore alloy; neutralization of spent solutions upon completion of field mining. The leaching map is an open ore stack with a capacity of 12 million tons. The map is conditionally divided into 10 sections. Size of the entire leaching map in the plan is 500 × 1200 m. The map is dynamic. During the year, there is a continuous section-by-section laying of ore, installation of an irrigation system, leaching process and dumping spent ore. It is planned to process 10 sections of the stack within one year. The total operating time of the enterprise is 20 years.



Region
Sakha Republic

Capacity, MTA
12.0

Types of mineral raw materials
Gold

Types of work
Design documentation /
Expertise support / DD
documentation
Year
2018 – to present

Areas of work
Concentration of extracted raw
materials / Industrial complexes and
objects

Reconstruction of the Pechorsky Concentration Plant

Pechorsky Concentration Plant is located in the Komi Republic near the city of Vorkuta.

The Pechorsky Concentration Plant (PCP) is designed for processing the rock mass of coal extracted by the mines of JSC Vorkutaugol, producing coal concentrate of various brands, depending on the market needs. The construction of PCP was started in 1975 according to a technical project developed by the Leningrad institute Giproschakht.

Currently, a large-scale project on automation of all production processes is being implemented at Pechora concentration plant. 2 groups of coals are processed at PCP, which differ both in their brand composition and in their granulometric and friction characteristics.



Region Komi Republic	Types of work Design documentation / Expertise support / DD documentation
Capacity, MTA 9.5	Year 2012 – to present
Types of mineral raw materials Coal	Areas of work Concentration of extracted raw materials

Mikhailovsky GOK, open-pit mining

The PJSC Mikhailovsky GOK mine is located in the Kursk region near the city of Zheleznogorsk.

The Mikhailovsky iron ore deposit was discovered in 1950. Its reserves are the raw material base of the Mikhailovsky mining and concentrating complex, which carries out: extraction of rich iron ores for the production of sintering and blast furnace ore, ferruginous quartzites for the production of iron ore concentrate and pellets, as well as the use of overburden and host rocks as non-metallic raw materials at the Vereteninsky site of the Mikhailovsky deposit.



Region
Kursk region

Types of work
FEED / Design documentation /
Expertise support / DD documentation

Capacity, MTA
50

Year
2012 – to present

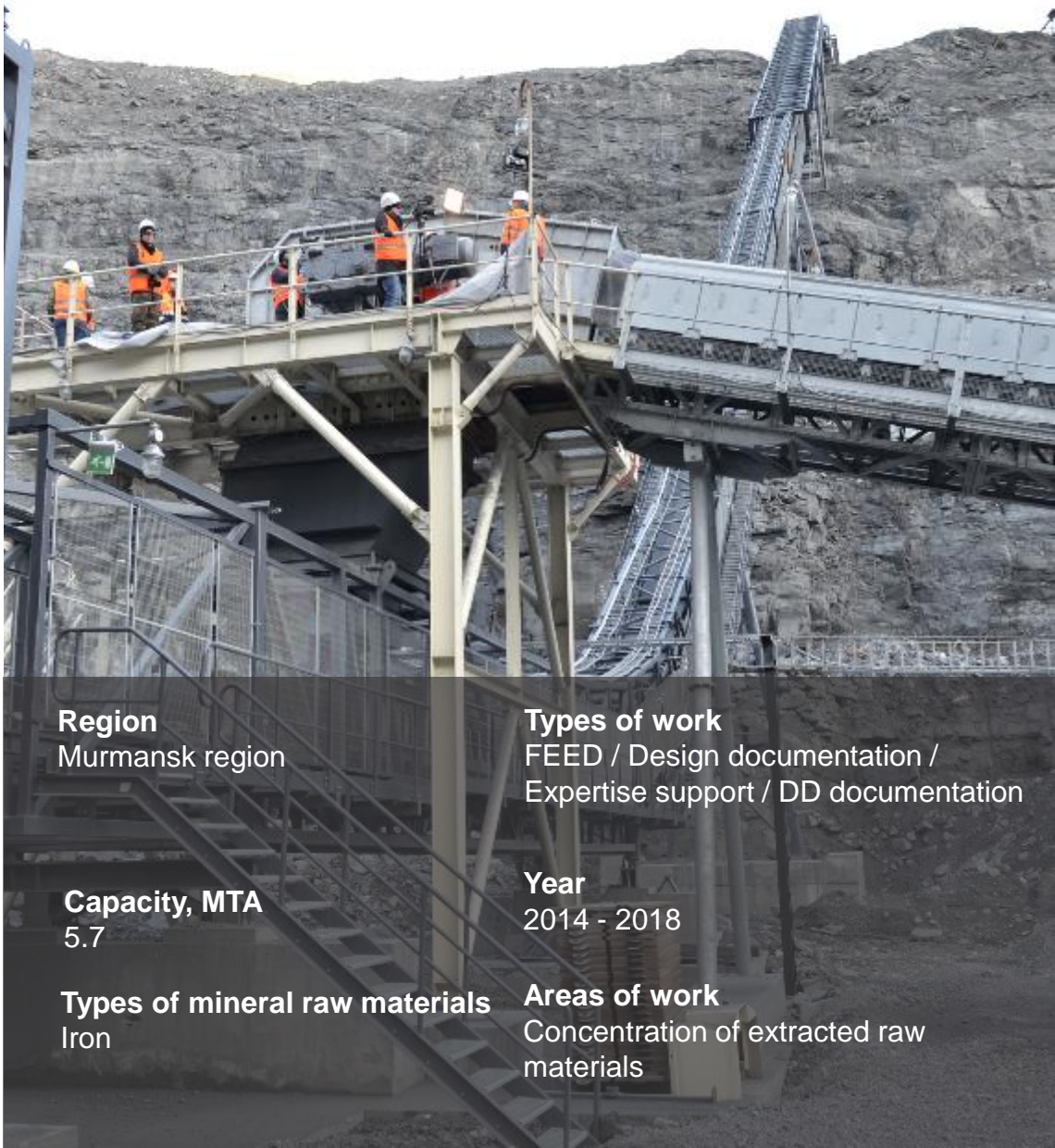
Types of mineral raw materials
Iron

Areas of work
Open Pit Mining Operations

Crushing complex in Olenegorsky mine

The crushing facilities for preparing ore for transportation by conveyors was built within the Olenegorsky mine, which is located near the city of Olenegorsk in the Murmansk region.

The first and so far the only section of the crushing and conveying technology of ore extraction using a steeply inclined (36° to the horizon) conveyor was designed and built in Russia in the Olenegorsky mine. Modern process equipment of the world's leading companies "Metso Minerals S. A." and "Paakkola Conveyors Oy" was procured to equip the facilities.



Region
Murmansk region

Types of work
FEED / Design documentation /
Expertise support / DD documentation

Capacity, MTA
5.7

Year
2014 - 2018

Types of mineral raw materials
Iron

Areas of work
Concentration of extracted raw materials

Drying plant of the iron ore concentrate of the Olenegorsky GOK

JSC Olenegorsky Mining and Concentrating Plant (Olkon) is located in the Olenegorsky district of the Murmansk region on the territory of the municipal formation "Olenegorsk City district with a subordinate territory".

JSC Olkon is located in the Arctic region. The iron ore concentrate drying plant is located directly next to the crushing and processing plant (CPP) of JSC Olkon. The plant extracts iron ore to produce high-quality iron ore concentrate, which is delivered for processing by the metallurgical facilities of PAO Severstal in Cherepovets, Vologda region. Since the company operates in the Arctic conditions, in the period with negative air temperatures, it is necessary to reduce its humidity to acceptable values to solve the problem of freezing of the concentrate in transit.



Region
Murmansk region

Types of work
FEED / Design documentation /
Expertise support / DD documentation

Capacity, MTA
2.6

Year
2017-2019

Types of mineral raw materials
Iron

Areas of work
Concentration of extracted raw
materials



**SPb
GIPROSHAKHT**

We help to assess the potential of subsoil objects and to increase the efficiency of their operation

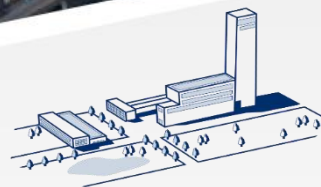
spbgipro.ru



>800
projects completed by the company

>500
mining facilities have been constructed and refurbished

>300
expert reviews have been passed since 2011



PRINCIPAL DESIGN

- ✓ Design documentation
- ✓ Detailed design documentation
- ✓ Consulting
- ✓ Author's supervision
- ✓ Expert review approval
- ✓ Investment assessments

DESIGN

- Open pits and quarries
- Underground mines
- Simulation modeling (SM)
- Processing plants
- Environmental assessment of facilities
- BIM modeling
- Infrastructure
- Power systems
- Geological exploration
- Architectural and structural solutions
- Detailed structural steel design
- Feasibility studies and cost estimates

HYDROMECHANICS AND MINE CONSTRUCTION CENTER

- Development of research programs
- Modeling of geomechanical and hydrogeological processes
- Development of mining methods, excavation support methods, stability calculations
- Technical Projects for the development of groundwater deposits

18
years on the market

>300
team members

1
Doctor of Sciences

11
Candidates of Sciences

39
average age of employees

8
consecutive years BIM leader

OUR CLIENTS



SOFTWARE



Information on expert appraisals

Federal Autonomous Institution "Main Department of State Expertise" ("Glavgosexpertiza of Russia")

Experience in the area

List of works that received a positive opinion of FAE Glavgosexpertiza of Russia for the design documentation from 2012 to 2022.

Project name	Year of submission/ approval	GlavgosExpertiza office location	Client Name	Project Program
Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines. Revision 44 (Design documentation)	2022	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The documentation for the object "Udokan Mining and Processing Complex. Construction train I for the capacity of 12 Mtpa. Sulphide Concentrate Drying Shop" (design and DD documentation)	2022	Moscow	Udokanskaya Med LLC	Non-ferrous metallurgy
Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines (Design documentation)	2022	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The principal design of the capital construction facility "Udokan Mining and Processing Complex. Construction train 1 for the capacity of 12 Mtpa"	2022	Moscow	Udokanskaya Med LLC	Non-ferrous metallurgy
Exploiting reserves of the Komsomolskaya mine. Stage 2 (design documentation)	2022	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Changes to the design documentation "Exploiting reserves of the Vorgashorskaya mine. Stage 1. Mining and transportation" (design documentation)	2021	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The expert support of the design documentation and engineering surveys for the object: "Mining and processing enterprise Kekura. Construction Stage 1"	2021	Moscow	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy
Adjustment of the documentation for the object: Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines and for the development of technical project for the Central Committee for solid mineral deposits development of Rosnedra (design documentation, Technical Project)	2021	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Design and survey work on the object "Construction of conveyor ore transportation plant of the Kostomukshskoye deposit central mine section" (design and DD documentation)	2021	Moscow	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Mining and processing enterprise Kekura. The second stage of construction (design documentation, DD documentation)	2021	Moscow	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy

List of works that received a positive opinion of FAE Glavgosexpertiza of Russia for the design documentation from 2012 to 2022.

Project name	Year of submission/ approval	GlavgosExpertiza office location	Client Name	Project Program
Project of exploiting reserves of the Kostomuksha mine central section of the ferruginous quartzite (adjustment of the mining and transportation) (design documentation)	2021	Moscow	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Development of design documentation for the object: Restructuring of Pechorsky CP, JSC Vorkutaugol, taking into account the adjustment of production capacity to 9.5 Mtpa	2021	Krasnoyarsk	Vorkutaugol JSC PAO Severstal	Coal
Expert support - Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines	2021	Krasnoyarsk	Vorkutaugol JSC PAO Severstal	Coal
Execution of project works on the object: Baranyevsky Underground Mine. Train 1 (design documentation)	2020	Krasnoyarsk	Kamchatskoe Zoloto JSC	Non-ferrous metallurgy
Development of design documentation "Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines. Lava 723"	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Development of design documentation "The underground mining of the reserves of the Primorskoye deposit"	2020	Moscow	Primorskoye LLC	Non-ferrous metallurgy
Opening and mining of the south-western block of the Vorgashorskaya mine	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Exploiting reserves of the Vorgashorskaya mine. Mining and transportation (design documentation)	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Preparation of design documentation for the object JSC Kolskaya GMK. Bagging Plant	2020	Moscow Moscow	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy
Mining and processing enterprise Kekura. The first phase of construction (design documentation, DD documentation)	2020	Krasnoyarsk	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy

List of works that received a positive opinion of FAE Glavgosexpertiza of Russia for the design documentation from 2012 to 2022.

Project name	Year of submission/ approval	GlavgosExpertiza office location	Client Name	Project Program
The development of the design documentation "The combined mining of the Burgali deposit reserves", the Technical Project for the mining of the Burgali deposit reserves and the preparation of the Environmental Impact Assessment (EIA)	2020	Moscow	Omolonskaya Zolotorudnaya Kompaniya LLC Polimetall	Non-ferrous metallurgy
Reconstruction of the Komsomolskaya mine due to the revaluation of reserves (design documentation)	2020	Moscow	Oikon JSC PAO Severstal	Ferrous metallurgy
The development of the design documentation "The combined mining of the Burgali deposit reserves", the Technical Project for the mining of the Burgali deposit reserves and the preparation of the Environmental Impact Assessment (EIA)	2020	Moscow	Omolonskaya Zolotorudnaya Kompaniya LLC Polimetall	Non-ferrous metallurgy
Nivensky Mining and Processing Plant for the extraction and processing of potassium and magnesium salts. Skip and cage shafts. Mining and construction. 1st phase of construction	2020	Moscow	JSC Evraz ZSMK Evraz LLC	Salts
Reconstruction of the Tashtagolsky mine processing facility (design documentation)	2020	Moscow	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Yakovlevsky mine. II phase of construction. Adjustment. Step-by-step increase in production capacity (design documentation)	2019	Moscow	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Preparation of design documentation: Exploiting reserves of the Vorgashorskaya mine. Stage 1. Mining and transportation part.	2019	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Reconstruction of the mine "XV Let Oktyabrya" due to the revaluation of reserves (design documentation, OTR)	2019	Moscow	Oikon JSC PAO Severstal	Ferrous metallurgy
Ventilation shaft No. 4, Komsomolskaya mine. Completion of construction (design documentation)	2019	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Vorkutinskaya mine, development of design and DD documentation "Reconstruction of Administration Building of SP "Mine "Vorkutinskaya" (design and DD documentation)	2018	St. Petersburg (branch)	Vorkutaugol JSC PAO Severstal	Coal

List of works that received a positive opinion of FAE Glavgosexpertiza of Russia for the design documentation from 2012 to 2022.

Project name	Year of submission/ approval	GlavgosExpertiza office location	Client Name	Project Program
The open pad for storing steel-making waste and blast furnace coke (design and DD documentation, author's supervision)	2018	Vologda (GE)	PAO Severstal Projekt	Not mining operations
Cutback of part of the reserves of the Komsomolskaya mine to the Zapolyarnaya 2 mine (design documentation)	2018	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Adjustment of design work on the Gross deposit: Gross Mining and Processing Plant (design documentation)	2018	Moscow	Neryungry-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
The expansion of mining operations with an increase in the productivity of the Mikhailovsky non-oxide ferrous quartzite ore pit to 50 Mtpa (design documentation, Technical Project, engineering surveys)	2017	Moscow	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC Metalloinvest Holding Company JSC	Ferrous metallurgy
The underground mining of the Olcha deposit (design documentation)	2017	Moscow	Omolonskaya Zolotorudnaya Kompaniya LLC Polimetall	Non-ferrous metallurgy
Enterprise for the extraction and processing of oxide ores of the Delmachiksky gold deposit (design and DD documentation)	2017	Moscow	Zoloto Delmachik LLC	Non-ferrous metallurgy
Mining enterprise based on the south-western section of the Noyon-Tologoy deposit (design documentation)	2017	Moscow	Baikalrud LLC AKOO Sredneaziatskaya Serebryanaya Polymetallicheskaya Groupa Limited	Non-ferrous metallurgy
Kirovogorsky mine for the extraction of iron ore due to the revaluation of reserves, reconstruction (design documentation, research and development)	2016	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
The expansion of mining operations with an increase in the productivity of the Mikhailovsky non-oxide ferrous quartzite ore pit (design documentation, engineering surveys)	2016	Moscow	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC Metalloinvest Holding Company JSC	Ferrous metallurgy
Mining of reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines, amendments (design documentation)	2016	Moscow	Vorkutaugol JSC PAO Severstal	Coal

List of works that received a positive opinion of FAE Glavgosexpertiza of Russia for the design documentation from 2012 to 2022.

Project name	Year of submission/ approval	GlavgosExpertiza office location	Client Name	Project Program
Adjustments to the project for the construction of the Mine 6 of PPGKhO LLC for the extraction of useful minerals (design documentation)	2016	Moscow	VNIIPromtekhnologii JSC	Uranium
The new admixture crushing and transportation shop of the Heavy Residues Advanced Refining Unit (design and DD documentation)	2016	The Kazan branch	TAIF-NK OJSC	Hydrocarbons
Exploiting of the south-western block of the Vorgashorskaya mine (design documentation, research and development)	2015	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The preparation and the mining of reserves of the western wing of the Dalnyaya mine and Mine 410 (design documentation)	2015	Moscow	Donskoy Antratsit JSC DTEK	Coal
Olenegorsky GOK iron ore concentrate drying complex (design and DD documentation, engineering surveys, designer supervision)	2015	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
The stripping and the mining of reserves of the Sheregeshevskoe deposit (design documentation, engineering surveys)	2015	Moscow	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Feasibility study of permanent exploration conditions with estimation of reserves of the Komsomolskoye ferrous quartzite deposit	2015	Moscow	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC Metalloinvest Holding Company JSC	Ferrous metallurgy
The mining facility based on the south-eastern part of the Noyon-Tologoy deposit (design documentation), the hydrometeorological survey at the area of the design section "The south-eastern part of the Noyon-Tologoy deposit" (engineering surveys)	2015	Moscow	Baikalrud LLC AKOO Sredneaziatskaya Serebryanaya Polymetallicheskaya Groupa Limited	Non-ferrous metallurgy
Olenegorsky mine for the extraction of iron ore due to the revaluation of reserves, reconstruction (design documentation)	2015	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Mining of reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines (design documentation, engineering surveys)	2014	Moscow	Vorkutaugol JSC PAO Severstal	Coal

List of works that received a positive opinion of FAE Glavgosexpertiza of Russia for the design documentation from 2012 to 2022.

Project name	Year of submission/ approval	GlavgosExpertiza office location	Client Name	Project Program
Preliminary and following cementation of aquifers during bottom-up sinking of the inclined conveyor shaft of the Zapolyarnaya-2 mine (design and DD documentation, engineering surveys)	2014	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Fuel and lubricants warehouse at the Veduginskoye deposit (design documentation)	2014	Moscow	Polymetall Inzhining CJSC	Non-ferrous metallurgy
The crushing complex at the Olenegorsky pit (design and DD documentation, research)	2014	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
The storage complex. The section "Production Technology" (design and DD documentation)	2014	Moscow	Regional Geodetics and Cadaster Office OJSC	Common commercial minerals
Expansion of the repair facilities of the CTA Karelsky Okatysh for servicing heavy-duty dump trucks with a lifting capacity of 220 tons. Additional scope of work including amendments to Project design documentation (design documentation)	2014	St. Petersburg (branch)	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Technical re-equipment of Pechorsky Concentration Plant with an increase in production capacity to 11.5 MTA (design and DD documentation, engineering surveys)	2014	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The Kurkhenpahkh iron ore mine (design documentation)	2014	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
The Olenegorsky underground mine. Train I (design documentation)	2013	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Expansion of the Apsatsky open-cast at the Ugolny section of the Apsatsky coal deposit with an increase in capacity to 500 thousand tons of coal per year, adjustment of the mining and transportation part (design documentation)	2013	Moscow	Arkticheskie Razrabotky LLC SUEK JSC	Coal
Industrial exploiting of the North-Eastern Okino-Klyuchevskoye deposit (design and DD documentation, research and development, engineering surveys)	2013	Moscow	Ugolny Razrez LLC PAO Inter RAO	Coal

List of works that received a positive opinion of FAE Glavgosexpertiza of Russia for the design documentation from 2012 to 2022.

Project name	Year of submission/ approval	GlavgosExpertiza office location	Client Name	Project Program
Expansion of the repair facilities of the CTA Karelsky Okatysh for servicing heavy-duty dump trucks with a lifting capacity of 220 tons (design and DD documentation).	2012	St. Petersburg (branch)	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Exploiting of the south-western block of the Vorgashorskaya mine (design documentation, research and development)	2012	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The preparation and the mining of reserves of the western wing of the Dalnyaya mine and Mine 410 (design documentation)	2012	Moscow	Donskoy Antratsit JSC DTEK	Coal
OHL 49 to water services facilities (design and DD documentation)	2012	St. Petersburg branch (region - Murmansk Oblast)	Oikon JSC PAO Severstal	Ferrous metallurgy

State Environmental Expert Review

Experience in the area

List of works that received a positive opinion of the State Environmental Expert Review from 2016 to 2022

Project name	Year of submission/ approval	Cite of SEER Branch	Client Name	Project Program
Projects for the development of the alluvial gold deposit (design and DD documentation)	2022	Moscow	KGCM Engineering LLC	Non-ferrous metallurgy
The principal design of the capital construction facility "Udokan Mining and Processing Complex. Construction train 1 for the capacity of 12 Mtpa"	2022	Moscow	Udokanskaya Med LLC	Non-ferrous metallurgy
Development of design documentation for the project "Mining of the Komsomolskaya mine reserves. Stage 2".	2021	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Design and survey work on the object "Construction of conveyor ore transportation plant of the Kostomukshskoye deposit central mine section" (design and DD documentation)	2021	Moscow	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Project of exploiting reserves of the Kostomuksha mine central section of the ferruginous quartzite (adjustment of the mining and transportation) (design documentation)	2020	Moscow	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Development of design documentation "The underground mining of the reserves of the Primorskoye deposit"	2020	Moscow	Primorskoye LLC	Non-ferrous metallurgy
Execution of project works on the object: Baranyevsky Underground Mine. Train 1 (design documentation)	2020	Moscow	Kamchatskoe Zoloto JSC	Non-ferrous metallurgy
Mining and processing enterprise Kekura. The second stage of construction (design documentation, DD documentation)	2020	Moscow	Bazovie Metally JSC Russian Precious Metals	Non-ferrous metallurgy
Preparation of design documentation for the object JSC Kolskaya GMK. Bagging Plant	2020	Moscow	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy
Restructuring of Pechorsky CP JSC Vorkutaugol, taking into account the adjustment of production capacity to 9.5 MTA (design and DD documentation)	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Nivensky Mining and Processing Plant for the extraction and processing of potassium and magnesium salts. Skip and cage shafts. Mining and construction. 1st phase of construction	2020	Moscow	K-Potash Service LLC	Salts

List of works that received a positive opinion of the State Environmental Expert Review from 2016 to 2022

Project name	Year of submission/ approval	Cite of SEER Branch	Client Name	Project Program
Reconstruction of the Tashtagolsky mine processing facility (design documentation)	2020	Novosibirsk	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Mining and processing enterprise Kekura. The first phase of construction (design documentation, DD documentation)	2020	Magadan	Bazovie Metally JSC Russian Precious Metals	Non-ferrous metallurgy
The development of the design documentation "The combined mining of the Burgali deposit reserves", the Technical Project for the mining of the Burgali deposit reserves and the preparation of the Environmental Impact Assessment (EIA)	2019	Moscow	Omolonskaya Zolotorudnaya Kompaniya LLC Polimetall	Non-ferrous metallurgy
The development of the design documentation "The combined mining of the Burgali deposit reserves", the Technical Project for the mining of the Burgali deposit reserves and the preparation of the Environmental Impact Assessment (EIA)	2019	Moscow	Omolonskaya Zolotorudnaya Kompaniya LLC Polimetall	Non-ferrous metallurgy
"The technical project for the open mining of reserves within the Karagailinsky Yuzhiy license area of the Karagailinskoye carboniferous deposit. Stage I"	2019	Kemerovo Oblast, Kemerovo	Shakhtoupravlenie Karagailinskoe LLC Zarechnaya Coal Company	Coal
Reconstruction of the Komsomolskaya mine due to the revaluation of reserves (design documentation)	2019	Murmansk	Oikon JSC PAO Severstal	Ferrous metallurgy
The open pad for storing steel-making waste and blast furnace coke (design and DD documentation, author's supervision)	2018	Vologda	PAO Severstal Projekt	Non-mining operations
Feasibility study of permanent exploration conditions with estimation of coal reserves of the Karagailinsky deposit, the Karagailinsky Yuzhny section (design documentation)	2018		Shakhtoupravlenie Karagailinskoe LLC Zarechnaya Coal Company	Coal
Reconstruction of the mine "XV Let Oktyabrya" due to the revaluation of reserves (design documentation, OTR)	2017	Murmansk	Oikon JSC PAO Severstal	Ferrous metallurgy
The expansion of mining operations with an increase in the productivity of the Mikhailovsky non-oxide ferrous quartzite ore pit to 50 Mtpa (design documentation, Technical Project, engineering surveys)	2017	-	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC Metalloinvest Holding Company JSC	Ferrous metallurgy

List of works that received a positive opinion of the State Environmental Expert Review from 2016 to 2022

Project name	Year of submission/ approval	Cite of SEER Branch	Client Name	Project Program
The underground mining of the Olcha deposit (design documentation)	2017	Moscow	Omolonskaya Zolotorudnaya Kompaniya LLC Polimetall	Non-ferrous metallurgy
Jeruy deposit, Talassky Mining and Processing Plant (design documentation)	2017	Bishkek	Alliance Altyn LLC Group of companies Russian Platinum	Non-ferrous metallurgy
Jeruy deposit, Talassky Mining and Processing Plant (design documentation)	2017		Alliance Altyn LLC Group of companies Russian Platinum	Non-ferrous metallurgy
The mining of the Kovzhinsky Section of the Belorucheyskoye flux limestone deposit (research, design documentation, Technical Project)	2016	Vologda	PAO Severstal Proyekt	Ferrous metallurgy
Jeruy deposit, Talassky Mining and Processing Plant (design documentation)	2016	Bishkek	Alliance Altyn LLC Group of companies Russian Platinum	Non-ferrous metallurgy
Enterprise for the extraction and processing of oxide ores of the Delmachiksky gold deposit (design and DD documentation)	2016	City of Chita	Zoloto Delmachik LLC	Non-ferrous metallurgy
Kirovogorsky mine for the extraction of iron ore due to the revaluation of reserves, reconstruction (design documentation, research and development)	2016	Murmansk	Oikon JSC PAO Severstal	Ferrous metallurgy



Industrial Safety Expert Review

Experience in the area

List of works that received a positive opinion of the Industrial Safety Expert Review from 2012 to 2022

Project name	Year of submission/ approval	City of ISER Branch	Client Name	Project Program
The refurbishment of the ex-pit oxide quartzite stockpile of the Mikhailovsky pit; passing all necessary expert reviews and obtaining initial permits for the commissioning of the facility (obtaining initial permits)	2022	Moscow	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC, METALLOINVEST, UK LLC	Ferrous metallurgy
The development of documentation for the closure of the hazardous industrial facility, SP Severnaya Mine (design documentation)	2022	Sykttyvkar	Vorkutaugol JSC Russkaya Energiya Group LLC	Coal
Changes to the documentation "The Olenegorsky underground mine. Train I "(design documentation)	2022	St. Petersburg	Olkon JSC PAO Severstal	Ferrous metallurgy
The development of documentation for the object: Yakovlevsky GOK. The underground mine. The technical re-equipment of pumps of the sump pumping units of Shafts 1 and 2 (design and DD documentation)	2021	Gubkin	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
The development of the technical re-equipment documentation for the object: " Korpanga LLC. Shaft 2 main dewatering system. Technical re-equipment" (design and DD documentation)	2021	Gubkin	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Development of the documentation for the technical re-equipment of the hazardous industrial facility of Korpanga LLC. Medium crushing building, including a pilot industrial site of fine crushing (design documentation)	2021	Moscow	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Project of technical re-equipment of the gold processing plant of Gross Mining and Processing Plant	2021	Yakutsk	Neryungry-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Preparation of design documentation for the object "Kekura Mining and Processing Enterprise, 2nd construction phase. Infrastructure"	2020	-	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy
Preparation of design documentation for the object "Kekura Mining and Processing Enterprise. Construction Stage 2 Infrastructure"	2020	Moscow	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy
Development of design documentation for the object: Restructuring of Pechorsky CP, JSC Vorkutaugol, taking into account the adjustment of production capacity to 9.5 Mtpa	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Justification of the hazardous production facility Coal Processing Plant of Pechorskaya CP, JSC Vorkutaugol	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Preparation of design documentation for the object JSC Kolskaya GMK. Bagging Plant Project for technical re-equipment for the object "JSC Kolskaya GMK. Concentrating plant"	2019	St. Petersburg	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy
JSC Kolskaya GMK Refining shop. Concentrate export terminal (Monchegorsk)	2019	St. Petersburg	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy

List of works that received a positive opinion of the Industrial Safety Expert Review from 2012 to 2022

Project name	Year of submission/ approval	City of ISER Branch	Client Name	Project Program
Project of additional exploration and pilot mining of iron ores at the central site of the Yuzhno-Kakhozerskoe deposit (design documentation, geological exploration)	2019	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Development of the calendar plan for the development of mining operations of the Yakovlevsky mine for 2018. Development of design documentation for the mining of reserves of the Yakovlevsky mine	2018	Gubkin	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Vorgashorskaya mine, change in the adjustment of the feasibility study for opening and mining of the II-th horizon and the south-western block of the mine due to the technical re-equipment (design documentation)	2018	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Development of design documentation "Mining of residual reserves of Komsomolskaya mine"	2018	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Development of the calendar plan for the development of mining operations of the Yakovlevsky mine for 2018. Development of design documentation for the mining of reserves of the Yakovlevsky mine	2018	Gubkin	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Development of the calendar plan for the development of mining operations of the Yakovlevsky mine for 2018. Development of design documentation for the mining of reserves of the Yakovlevsky mine	2018	Gubkin	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
The Baranievskoye deposit. Exploration and prospecting operations at the Baranievskoye deposit of the Bakhach gold-bearing zone in 2017-2020	2018	Khabarovsk	Kamchatskoe Zoloto JSC	Non-ferrous metallurgy
Works for the preparation of the "Project for conservation (liquidation) of the mine after prof. Bauman of JSC Olkon" (design documentation)	2017	St. Petersburg	Olkon JSC PAO Severstal	Ferrous metallurgy
Jeruy deposit, Talassky Mining and Processing Plant (design documentation)	2017	Bishkek	Alliance Altyn LLC Group of companies Russian Platinum	Non-ferrous metallurgy
Jeruy deposit, Talassky Mining and Processing Plant (design documentation)	2017	Bishkek	Alliance Altyn LLC Group of companies Russian Platinum	Non-ferrous metallurgy

List of works that received a positive opinion of the Industrial Safety Expert Review from 2012 to 2022

Project name	Year of submission/ approval	City of ISER Branch	Client Name	Project Program
Jeruy deposit, Talassky Mining and Processing Plant (design documentation)	2017	Bishkek	Alliance Altyn LLC Group of companies Russian Platinum	Non-ferrous metallurgy
Jeruy deposit, Talassky Mining and Processing Plant (design documentation)	2016	Bishkek	Alliance Altyn LLC Group of companies Russian Platinum	Non-ferrous metallurgy
The Rasvumchorr mine. The closure of the industrial site of the Central Pit and the vertical shaft (design documentation)	2016	Murmansk	Apatit JSC FosAgro	Non-metallic minerals
The expansion of mining operations with an increase in the productivity of the Mikhailovsky non-oxide ferrous quartzite ore pit (design documentation, engineering surveys)	2016	-	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC Metalloinvest Holding Company JSC	Ferrous metallurgy
Adjustment of the feasibility study for opening and mining of the II-th horizon and the south-western block of the Vorgashorskaya mine due to the technical re-equipment (design documentation)	2016	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Apsatskoye coal deposit, section Ugolny, expansion of open-cast Apsatsky with an increase in capacity to 500 thousand tons of coal per year (design documentation)	2015	St. Petersburg	Arkticheskie Razrabotky LLC SUEK JSC	Coal
Technical re-equipment of Pechorsky Concentration Plant with an increase in production capacity to 11.5 MTA (DD documentation)	2015	-	Vorkutaugol JSC PAO Severstal	Coal
The key engineering solutions for the technical re-equipment of the Boshnyakovsky coal mine (FEED studies)	2015	St. Petersburg	Boshnyakovsky Ugolny Razrez LLC Sakhalinugol Management Company LLC	Coal
Completion of the remaining reserves of the Severnaya mine due to the technical re-equipment (technical project)	2015	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Conservation of the inclined conveyor shaft of the Zapolyarnaya 2 mine in KP275 m ÷ KP249+4.6 m	2015	-	Vorkutaugol JSC PAO Severstal	Coal

List of works that received a positive opinion of the Industrial Safety Expert Review from 2012 to 2022

Project name	Year of submission/ approval	City of ISER Branch	Client Name	Project Program
Mining of reserves of the Severnaya mine (design documentation)	2015	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Transfer of the existing production of air separation products to the existing building of CHPP site with partial replacement of equipment (design and DD documentation)	2015	-	Kovdorsky GOK JSC JSC Mineralno Khimicheskaya Kompania EvroKhim	Non-mining operations
The technical re-equipment of a hazardous industrial facility, the Vorgashorskaya mine (design documentation)	2015	-	Vorkutaugol JSC PAO Severstal	Coal
Power supply of SS-35/6 kV of Sheregeshevskoe deposit (design documentation, engineering surveys)	2015	-	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Adjustment of the justification for opening and preparing the II horizon for the mining of residual reserves, technical re-equipment of Vorgashorskaya mine (design documentation)	2014	-	Vorkutaugol JSC PAO Severstal	Coal
The technical re-equipment of the hazardous industrial facility, the Zapolyarnaya 2 mine, related to the replacement of mining equipment (design documentation)	2014	-	Vorkutaugol JSC PAO Severstal	Coal
Industrial mining of the North-Eastern Okino-Klyuchevskoye deposit site, technical re-equipment of the mining and transportation part (design documentation)	2013	Krasnoyarsk	Ugolny Razrez LLC PAO Inter RAO	Coal
The closure and the temporary closure of mine workings during the joining of the Zapolyarnaya and Vorkutinskaya mines (design documentation)	2013	-	Vorkutaugol JSC PAO Severstal	Coal
Technical re-equipment of the Korpangskoye deposit mines (design documentation)	2013	-	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Technical re-equipment of the drying plant no. 2 in the drying building of the Pechorsky CP (design documentation)	2012	-	Vorkutaugol JSC PAO Severstal	Coal

List of works that received a positive opinion of the Industrial Safety Expert Review from 2012 to 2022

Project name	Year of submission/ approval	City of ISER Branch	Client Name	Project Program
Calendar plan for the construction of dumps No. 7 and No. 8 of the Mikhailovsky GOK for 2012-2016 (design documentation)	2012	-	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC Metalloinvest Holding Company JSC	Ferrous metallurgy
The mining schedule for the pit over 2011-2015. Mikhailovsky GOK (design documentation)	2012	-	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC Metalloinvest Holding Company JSC	Ferrous metallurgy
DOF, Technical re-equipment of the slurry pumping station 1A (design and DD documentation)	2012	-	Olkon JSC PAO Severstal	Ferrous metallurgy
Technical re-equipment of the main building of the Pechorsky CP (design and DD documentation)	2012	-	Vorkutaugol JSC PAO Severstal	Coal
Mining of the Komsomolskaya iron ore deposit, adjustments (design documentation)	2012	-	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy



Non-Governmental Expert Review (NGE)

Experience in the area

List of works that received a positive opinion of non-state expertise from 2017 to 2022.

Project name	Year of submission/ approval	City of NGE Branch	Client Name	Project Program
The development of documentation for "The project of motor vehicle dumps for waste rock and loose overburden at the Pechegubskoye ferrous quartzite deposit" (design and DD documentation)	2022	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Development of documentation for the object: "The storage complex at the industrial site of Shaft 3 of Korpanga LLC" (design and DD documentation)	2021	Krasnoyarsk	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Project of mining the Gross deposit: The operations camp of the Gross mining and processing complex, adjustments to the design documentation (PD, E40-20)	2021	Moscow	Neryungri-Metallic LLC Nord Gold N.V.	Gold
Preparation of design documentation for the object "Kekura Mining and Processing Enterprise. Construction Stage 2 Infrastructure"	2020	Moscow	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy
Preparation of design documentation for the object "Kekura Mining and Processing Enterprise. Construction Stage 2 Rotation Camp"	2020	Moscow	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy
JSC Kolskaya GMK Rts. Concentrate export terminal (FEED studies, design and DD documentation)	2020	Volgograd	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy
Development of design documentation for mine water treatment facilities of JSC Vorkutaugol of the Komsomolskaya mine. Exploiting reserves of the Komsomolskaya mine. Stage 2.	2020	St. Petersburg	Vorkutaugol JSC PAO Severstal	Coal
Exploiting reserves of the Komsomolskaya mine. Stage 2 (design documentation)	2020	St. Petersburg	Vorkutaugol JSC PAO Severstal	Coal
JSC Kolskaya GMK Rts. Concentrate export terminal (FEED studies, design and DD documentation)	2020	Volgograd	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy
JSC Kolskaya GMK Refining shop. Concentrate export terminal (Monchegorsk)	2019	Volgograd	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy
Mining and processing enterprise Kekura. The first phase of construction (design documentation, DD documentation)	2019	SertPromTest LLC	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy

List of works that received a positive opinion of non-state expertise from 2017 to 2022.

Project name	Year of submission/ approval	City of NGE Branch	Client Name	Project Program
JSC Kolskaya GMK Rts. Concentrate export terminal (FEED studies, design and DD documentation)	2018	Volgograd	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy
Gross deposit, preparation of DD documentation for the water supply of the Temnoe-Tabornoye mine	2018	St. Petersburg	Neryungry-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Vorkutinskaya mine, development of design and DD documentation "Reconstruction of Administration Building of SP "Mine "Vorkutinskaya" (design and DD documentation)	2018	St. Petersburg	Vorkutaugol JSC PAO Severstal	Coal
Execution of project works on the object: Storage site for ammonium nitrate with a modular mobile process train for the production of non-explosive components of emulsion explosives of JSC Orika CIS	2018	Moscow	JSC Orika CIS	Non-ferrous metallurgy
Development of the Gross deposit: Operations Camp (design documentation, DD documentation)	2017	St. Petersburg	Neryungry-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
JSC Kolskaya GMK Rts. Concentrate export terminal (FEED studies, design and DD documentation)	2017	Volgograd	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy



Central Commission on Mineral Reserves of Rosnedra

Experience in the area

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2012 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
Technical project for the development of the Vorkutinskoye coal deposit. The mining of coal reserves of the subsurface allotments "Vorkutinskaya mine field", "Zapolyarnaya mine field", "Komsomolskaya mine field" and "Section 1 of Komsomolskaya mine" within the Zapolyarnaya-2 mine field. Amendment 3 (design documentation)	2022	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Mining of the Vorgashorskaya mine reserves with addition of blocks up to 43 (design documentation)	2022	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Amendment 3 to Technical Project "The mining of iron ore reserves up to horizon -350 m of the Tashtagol deposit" (design documentation, Technical Project)	2022	Moscow	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
The Technical Project for the development of the sand pit at the Bolshemayachkinskoye deposit, Stage II (Technical Project)	2022	Belgorod Oblast	JSC Yakovlevsky GOK PAO Severstal	Common commercial minerals
The extraction of drainage groundwater at the Dozmershor section for supplying water to the Zapolyarnaya mine of Vorkutaugol JSC. The re-assessment of mineable reserves of sweet groundwater at the site of the operating water intake. The extension of license SYK 02552 VE (design documentation, geological exploration)	2022	Komi Republic	Vorkutaugol JSC PAO Severstal	Coal
The Egdegkych Southern section of the Baimskaya Area. The development of design documentation for the open mining of alluvial gold deposits (design documentation)	2022	Anadyr	GDK Baimskaya LLC	Other
The development of design documentation for the project "The closure of the Professor Bauman pit"	2022	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
The Technical Project for the open mining of ferrous quartzite reserves of the Central section of the Yuzno-Kakhozerskoye deposit in 2022-2030	2022	Murmansk Oblast	Olkon JSC PAO Severstal	Ferrous metallurgy
The development of alluvial gold deposits at the Levaya Peschanka Creek and the Pravaya Peschanka Creek (tributaries of the Egdegkych Creek) within the Baimskaya license area (design documentation, Technical Project)	2022	Anadyr	GDK Baimskaya LLC	Non-ferrous metallurgy
The Technical Project for the mining of the Korbalikhinskoye polymetallic deposit. Adjustment 1	2022		SIBIR-POLIMETALLY JSC	Non-ferrous metallurgy
The development of design documentation	2022	Murmansk Oblast	Olkon JSC PAO Severstal	Ferrous metallurgy

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2012 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
The open mining of the Korpanga deposit (design documentation, Technical Project)	2022	Moscow	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The open mining of the Severniy-3 section of the Korpanga subsurface area (design documentation)	2022	Moscow	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Project of exploiting reserves of the Kostomuksha mine central section of the ferruginous quartzite (adjustment of the mining and transportation) (design documentation)	2022	Moscow	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Project of exploiting reserves of the Kostomuksha mine central section of the ferruginous quartzite (adjustment of the mining and transportation) (design documentation)	2021		Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The development of the design documentation "Technical Project for the underground mining of the Southern part of the Norilsk-1 deposit. Disseminated ores"	2021	Moscow	Taimyrskaya Mining and Metallurgical Company LLC	Non-ferrous metallurgy
Changes to the design documentation "Exploiting reserves of the Vorgashorskaya mine. Stage 1. Mining and transportation" (design documentation)	2021		Vorkutaugol JSC PAO Severstal	Coal
The Tashtagol deposit, Addition 2 to the Technical Project "The mining of iron ore reserves to the minus 350 m horizon" (design documentation)	2021	Moscow	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Adjustment of the design documentation for the object: Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines and for the development of technical project for the Central Committee for solid mineral deposits development of Rosnedra	2021	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Feasibility study of balancing overburden rocks suitable for the production of building stone	2021	Murmansk Oblast	Olkon JSC PAO Severstal	Ferrous metallurgy
Development of design documentation "The underground mining of the reserves of the Primorskoye deposit"	2021	Magadan	Primorskoye LLC	Non-ferrous metallurgy
Adjustment of the design documentation "Project of joint mining of reserves of the mine wing of the Dalnaya mine and mine No. 410" (design documentation)	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Exploiting reserves of the Komsomolskaya mine. Stage 2 (design documentation)	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2012 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
The preparation and the mining of reserves of the western wing of the Dalnyaya mine and Mine 410 (design documentation)	2020		Donskoy Antratsit JSC DTEK	Coal
The development of the Technical Project for the combined mining of the Burgali deposit reserves	2020	Magadan	Omolonskaya Zolotorudnaya Kompaniya LLC Polimetall	Non-ferrous metallurgy
Technical project for the development of the Bebyaevsky gypsum deposit. Mining of balance reserves within the boundaries of the Peshelansky gypsum mine, taking into account the North-Western section of the deposit (Technical Project)	2020	Nizhny Novgorod Oblast	Peshelansky gypsum plant LLC	Non-metallic minerals
Exploiting reserves of the Komsomolskaya mine. Stage 2 (design documentation)	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Amendment 1 to Technical Project "The mining of iron ore reserves up to horizon -350 m of the Tashtagol deposit" (design documentation, Technical Project)	2020	Moscow	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Technical project for the mining of the Kovzhinsky section of the Belorucheyskoye deposit of flux limestones for the period 2017-2037, amendments (technical project)	2019	Moscow	PAO Severstal	Non-metallic minerals
Reconstruction of the Tashtagolsky mine processing facility (design documentation)	2019	Moscow	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Execution of project works on the object: Baranyevsky Underground Mine. Train 1 (design documentation)	2019	Moscow	Kamchatskoe Zoloto JSC	Non-ferrous metallurgy
Technical project for the development of the Vorgashorsky coal deposit. Mining of the Vorgashorskaya mine reserves (design documentation)	2019	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The project for the development of the Central section of the Ulug-Khemsky coal basin	2019	Moscow	UlugkhemUgol LLC PAO Severstal	Coal

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2012 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
The development of design documentation "The project for the open-pit completion of reserves of the Central section pit of the Yuzhno-Kakhozerskoye ferrous quartzite deposit"	2019	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Yakovlevsky mine. II phase of construction. Adjustment. Step-by-step increase in production capacity (design documentation)	2019	Moscow	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Technical project for the development of the Vorgashorsky coal deposit. Mining of the Vorgashorskaya mine reserves (design documentation)	2019	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Amendment 1 to the Technical Project for the development of the Komsomolskoye deposit	2018	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Development of design documentation "Mining of residual reserves of Komsomolskaya mine"	2018	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Feasibility study of permanent exploration conditions with estimation of coal reserves of the Karagailinsky deposit, the Karagailinsky Yuzhny section (design documentation)	2018	Moscow	Shakhtoupravlenie Karagailinskoe LLC Zarechnaya Coal Company	Coal
The Baranievskoye deposit. Exploration and prospecting operations at the Baranievskoye deposit of the Bakhach gold-bearing zone in 2017-2020	2018	Moscow	Kamchatskoe Zoloto JSC	Non-ferrous metallurgy
Technical project of mining of the Central section of the Western part of the Ulug-Khemsy coal basin (design documentation)	2017	Moscow	UlugkhemUgol LLC PAO Severstal	Coal
Works for the preparation of the "Project for conservation (liquidation) of the mine after prof. Bauman of JSC Olkon (design documentation)	2017	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Akkermanovskoye deposit of flux limestones and clays (technical project)	2017	Moscow	Yuzhno-Uralskaya Mining and Processing Company	Non-metallic minerals

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2012 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
Cutback of part of the reserves of the Komsomolskaya mine to the Zapolyarnaya 2 mine (design documentation)	2017	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The Iletskeye mineral salt deposit (Technical Project)	2017	Moscow	Russol LLC	Non-metallic minerals
Mining enterprise based on the south-western section of the Noyon-Tologoy deposit (design documentation)	2017	-	Baikalrud LLC	Non-ferrous metallurgy
Technical project for the mining of the Kovzhinsky section of the Belorucheyskoye deposit of flux limestones for the period 2017-2037	2017	Moscow	PAO Severstal	Non-metallic minerals
Mining of reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines (design documentation, engineering surveys)	2017		Vorkutaugol JSC PAO Severstal	Coal
The combined mining of the Olcha deposit (Technical Project)	2017	Magadan	Omolonskaya Zolotorudnaya Kompaniya LLC Polimetall	Non-ferrous metallurgy
Enterprise for the extraction and processing of oxide ores of the Delmachiksky gold deposit (design and DD documentation)	2016	-	Zoloto Delmachik LLC	Non-ferrous metallurgy
Mining of reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines, amendments (design documentation)	2016	-	Vorkutaugol JSC PAO Severstal	Coal
Mining of the North-Eastern Okino-Klyuchevskoye deposit section (technical project)	2016	Ulan-Ude TKR	Ugolny Razrez LLC PAO Inter RAO	Coal
The preparation and the mining of reserves of the western wing of the Dalnyaya mine and Mine 410 (design documentation)	2016	-	Donskoy Antratsit JSC DTEK	Coal

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2012 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
The expansion of mining operations with an increase in the productivity of the Mikhailovsky non-oxide ferrous quartzite ore pit (design documentation, engineering surveys)	2015	-	Mikhailovsky GOK named after Andrey Vladimirovich Varichev JSC Metalloinvest Holding Company JSC	Ferrous metallurgy
Development of the Stoilensky iron ore deposit for the period 2016-2020. (technical project)	2015	Moscow	JSC Stoilensky GOK	Ferrous metallurgy
The mining facility based on the south-eastern part of the Noyon-Tologoy deposit (design documentation), the hydrometeorological survey at the area of the design section "The south-eastern part of the Noyon-Tologoy deposit" (engineering surveys)	2015	Chita	Baikalrud LLC	Non-ferrous metallurgy
Reconstruction of the Komsomolskaya mine due to the revaluation of reserves (design documentation)	2015	-	Olkon JSC PAO Severstal	Ferrous metallurgy
Olenegorsky mine for the extraction of iron ore due to the revaluation of reserves, reconstruction (design documentation)	2015	-	Olkon JSC PAO Severstal	Ferrous metallurgy
The mining of the Kovzhinsky Section of the Belorucheyskoye flux limestone deposit (research, design documentation, Technical Project)	2015	-	Severstal-Proyekt LLC" PAO Severstal	Ferrous metallurgy
The stripping and the mining of reserves of the Sheregeshevskoe deposit (design documentation, engineering surveys)	2015	Moscow	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Adjustment of the justification for opening and preparing the II horizon for the mining of residual reserves, technical re-equipment of Vorgashorskaya mine (design documentation)	2014	-	Vorkutaugol JSC PAO Severstal	Coal
The Olenegorsky underground mine. Train I (design documentation)	2014	-	Olkon JSC PAO Severstal	Ferrous metallurgy
The Kurkhenpahkh iron ore mine (design documentation)	2014	-	Olkon JSC PAO Severstal	Ferrous metallurgy

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2012 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
Exploiting of the south-western block of the Vorgashorskaya mine (design documentation, research and development)	2013	-	Vorkutaugol JSC PAO Severstal	Coal
Expansion of the Apsatsky open-cast at the Ugolny section of the Apsatsky coal deposit with an increase in capacity to 500 thousand tons of coal per year, adjustment of the mining and transportation part (design documentation)	2013	Moscow	Arkticheskije Razrabotky LLC	Coal
Industrial exploiting of the North-Eastern Okino-Klyuchevskoye deposit (design and DD documentation, research and development, engineering surveys)	2013	-	Ugolny Razrez LLC PAO Inter RAO	Coal
The Eastern pit of the Yuzhno-Kakhozersky deposit (design documentation)	2012	-	Olkon JSC PAO Severstal	Ferrous metallurgy



State Commission on Mineral Reserves of Rosnedra

Experience in the area

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2011 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
The operational revision of the ferrous quartzite reserves of the Komsomolskoye deposit (design documentation)	2022	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
The mining feasibility study of permanent exploratory conditions for the assessment of coal reserves at the Central section of the Western part of the Ulug-Khemsy coal basin (mining feasibility study)	2022	Moscow	UlugkhemUgol LLC PAO Severstal	Coal
The extraction of drainage groundwater at the Dozmershor section for supplying water to the Zapolyarnaya mine of Vorkutaugol JSC. The re-assessment of mineable reserves of sweet groundwater at the site of the operating water intake. The extension of license SYK 02552 VE (design documentation, geological exploration)	2022		Vorkutaugol JSC PAO Severstal	Coal
Development of documentation for the object: "The operational re-assessment of iron ore deposits of the XV Let Oktyabrya deposit (design documentation, assessment of reserves)	2021	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Operational change in the state of iron ore reserves of the Kirovogorsky deposit in the Murmansk region based on the geological exploration results	2021	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Development of feasibility study (TEO) of permanent exploration conditions with the estimation of reserves of the Yakovlevsky deposit of rich iron ores	2021	Moscow	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Feasibility study of permanent exploration conditions with estimation of coal reserves of the Vorkuta deposit within the boundaries of the license areas of JSC Vorkutaugol (TEOc)	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Operational change in the state of coal reserves based on the results of revaluation of reserves as of 01.01.2020 within the boundaries of the distributed subsurface fund of the Vorkuta deposit in terms of write-off of reserves attributed to total losses	2020	Moscow	Vorkutaugol JSC PAO Severstal	Coal
The Technical Project for the mining of the reserves of the Northern Section of the Leningrad oil shale deposit (design documentation)	2020	St. Petersburg	Slantsy-Dobycha LLC JSC ATEK Group	Coal
Feasibility study of permanent exploration conditions and estimation of oil shale reserves of the Severny section of the Leningradskoye deposit	2020	St. Petersburg	Slantsy-Dobycha LLC JSC ATEK Group	Coal

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2011 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
Adjustment of the feasibility study of permanent exploration conditions with the estimation of reserves of the southern section of the Norilsk-1 deposit	2019	Moscow	Taimyrskaya Mining and Metallurgical Company LLC	Non-ferrous metallurgy
Feasibility study of industrial conditions and recalculation of reserves for the South-Eastern Nurkazgan gold and copper deposit	2019	Nur-Sultan	Hatch Engineering and Consulting LLC Hatch Ltd.	Non-ferrous metallurgy
Feasibility study of permanent exploration conditions with estimation of reserves of the Blagodatnoye deposit (the mining feasibility study of conditions, assessment of reserves)	2018	Moscow	Mnogovershinnoye JSC Russdragnet	Non-ferrous metallurgy
Development of the calendar plan for the development of mining operations of the Yakovlevsky mine for 2018. Development of design documentation for the mining of reserves of the Yakovlevsky mine	2018	Moscow	JSC Yakovlevsky GOK PAO Severstal	Ferrous metallurgy
Feasibility study of permanent exploration conditions with estimation of reserves of the Maslovskoye deposit (the mining feasibility study of conditions, assessment of reserves).	2018	Moscow	Norilsk Nickel	Non-ferrous metallurgy
Geological report with the estimation of coal reserves within the boundaries of the distributed subsoil fund of the Vorkuta deposit of the Pechora coal basin (mining feasibility study of conditions, assessment of reserves)	2018	-	Vorkutaugol JSC PAO Severstal	Coal
Feasibility study of permanent exploration conditions of the Noyon-Tologoy polymetallic deposit (TEOc)	2017	Moscow	Baikalrud LLC	Non-ferrous metallurgy
The Abashevskaya mine. The re-assessment of coal reserves within license areas based on the permanent exploration conditions authorized as per the established procedure.	2017	Moscow	Yubileinaya Mine LLC	Coal
Preparation of the geological section of the feasibility study of industrial conditions and recalculation of reserves of gold-copper ores and useful components for the Western section of the Nurkazgan deposit	2017	-	Hatch Engineering and Consulting LLC Hatch Ltd.	Non-ferrous metallurgy
Feasibility study of permanent exploration conditions with estimation of ferrous quartzite reserves of the XV Let Oktyabrya deposit	2016	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2011 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
Feasibility study of permanent exploration conditions with estimation of coal reserves of the Karagailinsky deposit, the Karagailinsky Yuzhny section (design documentation)	2016	Moscow	Shakhtoupravlenie Karagailinskoe LLC Zarechnaya Coal Company	Coal
Feasibility study of industrial conditions and recalculation of reserves of gold-copper ores and useful components for the Western section of the Nurkazgan deposit	2016	Astana	Hatch Engineering and Consulting LLC Hatch Ltd.	Non-ferrous metallurgy
Feasibility study of industrial conditions and recalculation of reserves of gold-copper ores and useful components for the Western section of the Nurkazgan deposit	2016	Karaganda	Hatch Engineering and Consulting LLC Hatch Ltd.	Non-ferrous metallurgy
Feasibility study of industrial conditions and recalculation of reserves of gold-copper ores and useful components for the South-Western section of the Nurkazgan deposit	2016	Astana	Hatch Engineering and Consulting LLC Hatch Ltd.	Non-ferrous metallurgy
Feasibility study of permanent exploration conditions with estimation of coal reserves of the Vorkuta deposit trough bend	2015	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Feasibility study of permanent exploration conditions with estimation of reserves of the Komsomolskoye ferrous quartzite deposit	2015	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
Mining feasibility study and recalculation of the balance reserves of the Vorgashorskoye coal deposit within the license boundary of the Vorgashorskaya mine (expert review of reserves)	2014	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Feasibility study of permanent exploration conditions and estimation of reserves within the boundaries of the mine field no. 1 of the Usinskoye coal deposit (assessment of reserves)	2014	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Mining feasibility study and recalculation of the balance reserves of the Vorgashorskoye coal deposit within the license boundary of the Vorgashorskaya mine (expert review of conditions)	2014	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Mining feasibility study and estimation of iron ore reserves of the Olenegorskoye deposit	2014	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy

List of works that received a positive opinion of the State Commission on Mineral Reserves of Rosnedra (CCR/TKR) from 2011 to 2022.

Project name	Year of submission/ approval	City of CCR/TKR Branch	Client Name	Project Program
Feasibility study of permanent exploration conditions and estimation of reserves within the boundaries of the mine field no. 1 of the Usinskoe coal deposit (justification of conditions)	2014	Moscow	Vorkutaugol JSC PAO Severstal	Coal
Feasibility study of the conditions of the Central section of the Western part of the Ulug-Khemsy coal basin	2014	Moscow	Krasnoyarskaya Drilling Company	Coal
Feasibility study of permanent exploration conditions of the Korpanga iron ore deposit (the mining feasibility study of conditions, modeling)	2013	Moscow	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The mining feasibility study of the permanent conditions for the assessment of coal reserves at the Khmelyovskaya mine field (mining feasibility study of conditions, assessment of reserves)	2013		MarrTEK LLC	Coal
The development of the mining feasibility study of the permanent conditions with the assessment of coal reserves of the Biryulinskaya mine subsurface allotment	2012	Moscow	Biryulinskaya Mine LLC KOKS KG	Coal
Feasibility study of regional conditions for a group of deposits of the Zaimandrovsky iron ore area located on the territory of the Olenegorsky district of the Murmansk region	2012	Moscow	Olkon JSC PAO Severstal	Ferrous metallurgy
The Eastern pit of the Yuzhno-Kakhozersky deposit (design documentation)	2012	-	Olkon JSC PAO Severstal	Ferrous metallurgy
The development of the mining feasibility study of the permanent exploration conditions for the assessment of primary ore reserves of the Pogromnoye gold ore deposit (mining feasibility study of conditions)	2011		Nord Gold N.V.	Non-ferrous metallurgy



Open Pit Mining

Experience in the design area

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
The construction of the mining and stripping complex with cyclic-flow equipment for the Central section of the pit of the Kostomukshskoye deposit (author's supervision)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Project of exploiting reserves of the Kostomuksha mine central section of the ferruginous quartzite (adjustment of the mining and transportation) (design documentation)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The approval of Technical Assignments for investment activities of Karelsky Okatysh JSC (consulting)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The approval of Technical Assignments and budget estimates for investment activities of Karelsky Okatysh JSC (consulting)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The open mining of the Severniy-3 section of the Korpanga subsurface area (design documentation)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The open mining of the Korpanga deposit (design documentation, Technical Project)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The Technical Project for the mining of reserves of the North-Eastern Section "Other reserves" of the Okino-Kluchevskoye brown coal deposit (author's supervision)	2022	Inter-RAO	Coal
Olkon JSC. Treatment facilities for the pit at the XV Let Oktyabrya deposit (detailed design documentation)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Pre-FEED documentation for "The feasibility study of the construction of a mining and processing complex at the Monchetundrovskoye deposit" (pre-FEED)	2022	Severstal Management JSC PAO Severstal	Non-ferrous metallurgy
The common minerals pit ARS-1 for the Aerodromniy section (design documentation)	2022	GDK Baimskaya LLC	Non-ferrous metallurgy
The common minerals pit IND-3 for the Promyshlennyi section (design documentation)	2022	GDK Baimskaya LLC	Non-ferrous metallurgy
"Mining and processing enterprise Kekura. The second stage of construction (design documentation, DD documentation)	2022	Bazovie Metally JSC	Non-ferrous metallurgy
The development of additional documentation for the facility: "Mining and processing enterprise Kekura. Construction train 1 "(design documentation)	2022	Bazovie Metally JSC	Non-ferrous metallurgy
The operational revision of the ferrous quartzite reserves of the Komsomolskoye deposit (TEOk)	2022	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
The geodetic, geotechnical, environmental and hydrometeorological surveys for the design documentation for the object: "The bulldozer overburden dump for the Northern-3 section of the Yuzhno-Korpangskoye deposit"	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
A due diligence audit for the Kimkano-Sutarsky GOK and the Kimkanskiye, Sutarskiye, Garinskoye and Kostenginskoye deposits (feasibility study, audit)	2022	Gazprom Bank JSC GAZPROM	Ferrous metallurgy
Project for increasing the ore processing capacity of the Gross mining and processing plant up to 18 Mtpa (detailed design documentation)	2022	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
The Peschanka deposit, the mining complex (design and detailed design documentation) Consulting services regarding the surface infrastructure, engineering surveys and the Chulbaktan deposit heap leaching pad project (consulting, engineering services)	2022	GDK Baimskaya LLC	Non-ferrous metallurgy
The Peschanka deposit, the mining complex (design and detailed design documentation) Consulting services regarding the surface infrastructure, engineering surveys and the Chulbaktan deposit heap leaching pad project (consulting, engineering services)	2022	Golder Associates (UK) Limited	Non-ferrous metallurgy
Design and survey work on the object "Construction of conveyor ore transportation plant of the Kostomukshskoye deposit central mine section" (design and DD documentation, engineering surveys)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The modeling of transport flows for the implementation of Train 1 of the Udokan mining and processing complex (imitation modeling)	2022	Udokanskaya Med LLC	Non-ferrous metallurgy
The development of alluvial gold deposits at the Levaya Peschanka Creek and the Pravaya Peschanka Creek (tributaries of the Egdegkych Creek) within the Baimskaya license area (design documentation, Technical Project)	2022	GDK Baimskaya LLC	Non-ferrous metallurgy
The development of design documentation for the project "The closure of the Professor Bauman pit"	2022	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
The development of the mining feasibility study for the construction of a mining and processing complex at the Verkhoturovskoye deposit	2022	RHI Magnesita GmbH	Non-metallic minerals
The construction of the mining and stripping complex with cyclic-flow equipment for the Central section of the pit of the Kostomukshskoye deposit. Set 1 (detailed design documentation)	2022	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The common minerals pit ARS-1 for the Aerodromniy section (design documentation)	2021	GDK Baimskaya LLC	Common commercial minerals

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
The Olenegorsky mine. The geomechanical justification of pit wall stability, the research and development support (research)	2021	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
The operational revision of the ferrous quartzite reserves of the Komsomolskoye deposit (design documentation)	2021	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Development of documentation for the object: "The operational re-assessment of iron ore deposits of the XV Let Oktyabrya deposit (design documentation, assessment of reserves)	2021	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
The development of the project for the increase of processing capacity of the Gross mining and processing complex (design and DD documentation)	2021	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
The development of the mining feasibility study for the construction of a mining and processing complex at the Verkhoturovskoye deposit (mining feasibility study)	2021	PAO Severstal	Non-metallic minerals
The geodetic, geotechnical, environmental and hydrometeorological surveys for the design documentation for the object: "The bulldozer overburden dump for the Northern-2 section of the Kostomuksha deposit"	2021	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Project for increasing the ore processing capacity of the Gross mining and processing plant up to 18 Mtpa (design documentation)	2021	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
The development of the land reclamation project for the facility "Udokan mining and processing complex" (design documentation)	2021	Udokanskaya Med LLC	Non-ferrous metallurgy
The Yumiyaginsky coal quarry. The Technical Project for the closure of the hazardous industrial facility (design and DD documentation)	2021	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Development of documentation for the object: "Gross mining and processing complex. Heap Leach Pad Stormwater Runoff Settlement Pond" (design documentation)	2021	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
The development of additional documentation for the facility: "Mining and processing enterprise Kekura. Construction train 1 "(design documentation)	2021	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy
Development of documentation for the object: "The vapor junction between exhaust pipelines of the thermal power plant of the Gross mining and processing complex" (DD documentation)	2021	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
The economic feasibility assessment for the development of the new iron ore deposit by Karelsky Okatysh JSC (FEED studies)	2021	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
The development of the documentation "The technical re-equipment of the hazardous industrial facility, the Western pit of the Korpanga deposit" (design documentation)	2021	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Development of documentation for the object: "Project of mining the Gross deposit: The operations camp of the Gross mining and processing complex. Stages 4 - 11" (design documentation)	2021	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
The environmental, hydrometeorological, geodetic and geotechnical surveys for the object: "The project for the mining of the Mezhdurechie pit in the Northern section of the Leningrad oil shale deposit"	2021	Slantsy-Dobycha LLC JSC ATEK Group	Coal
The Technical Project for the mining of the reserves of the Northern Section of the Leningrad oil shale deposit (design documentation)	2021	Slantsy-Dobycha LLC JSC ATEK Group	Coal
The technical audit of the reserves of the Pavlik deposit (technical audit)	2021	WOOD CANADA LIMITED	Non-ferrous metallurgy

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Feasibility study for balancing overburden rocks suitable for the production of crushed stone with the estimation of reserves of the ferrous quartzite deposit	2021	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Performance of work: Assessment of the costs of liquidation (dismantling) of the Dark-Taborny mine facilities	2020	Rudnik Taborny LLC Nord Gold N.V.	Non-ferrous metallurgy
Implementation of feasibility study for the mining of reserves of the Ozeroye deposit, including the development of a calendar plan for the mining operations	2020	Ozeroye LLC Ozernaya Ore Mining Company LLC	Non-ferrous metallurgy
Performing additional work on the adjustment of the previously developed DD documentation for the object Neryungri-Metallic LLC. "Project of mining the Gross deposit: Construction of gold processing plant of heap leaching and infrastructure facilities	2020	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Designer supervision over the project construction - Ozerny GOK (Republic of Buryatia) and its infrastructure facilities	2020	Ozeroye LLC Ozernaya Ore Mining Company LLC	Non-ferrous metallurgy
Development of design documentation "Adjustment of the project for pilot operation of the central section mine of the Yuzhno-Kakhozersky deposit of ferrous quartzites"	2020	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Development of a geological grid model of the subsurface area "Side Vostochny and Vostochno-Yunyaginskaya trough bend of the Yunyanginsky coal deposit" (FEED studies)	2020	Vorkutaugol JSC PAO Severstal	Coal
Estimation of costs for liquidation (dismantling) of mining and processing plant facilities at the GROSS deposit	2020	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Reconstruction of the Komsomolskaya mine due to the revaluation of reserves (design documentation)	2020	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Development of the Gross deposit: Gold extraction factory (detailed design documentation)	2020	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Feasibility study of permanent exploration conditions with estimation of coal reserves of the Karagailinsky deposit, the Karagailinsky Yuzhny section (design documentation)	2020	Limited Liability Company Karagailinskoe Mine Administration Zarechnaya Coal Company LLC	Coal
Feasibility study of permanent exploration conditions and estimation of oil shale reserves of the Severny section of the Leningradskoye deposit (TEOc)	2020	Slantsy-Dobycha LLC JSC ATEK Group	Coal
Execution of work on the development of detailed design documentation for the capital construction object: Ozerly GOK (Republic of Buryatia) and its infrastructure facilities	2020	Ozernoye LLC Ozernaya Ore Mining Company LLC	Non-ferrous metallurgy
464 Non-ore minerals plant, liquidation of mine workings using waste of hazard class IV from the production of ferrous metals (design and DD documentation)	2020	Non-ore minerals plant LLC PAO Tulachermet	Non-metallic minerals
"Mining and processing enterprise Kekura. Construction train 1 (design documentation, DD documentation)	2020	Bazovie Metally JSC Russdragmet LLC	Non-ferrous metallurgy
Optimization of the mining of the Okino-Klyuchevskoye deposit reserves (FEED studies)	2019	Ugolny Razrez LLC PAO Inter RAO	Coal
Evaluation of investments for the implementation of the project "Construction of crushing and conveying technology plant of the central section of the Kostomukshskoye deposit" (investment feasibility study)	2019	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Execution of design and survey works "Mining of reserves of the southern part of the Norilsk-1 deposit"	2019	Taimyrskaya Mining and Metallurgical Company LLC Group of companies Russian Platinum	Non-ferrous metallurgy

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Technical project for the mining of the Kovzhinsky section of the Belorucheyenskoye deposit of flux limestones for the period 2017-2037, amendments (technical project)	2019	PAO Severstal	Non-metallic minerals
Reconstruction of the mine "XV Let Oktyabrya" due to the revaluation of reserves (design documentation, OTR)	2019	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Justification for the write-off of peat reserves of the Kurge-Suo deposit in the Kalevsky district of the Republic of Karelia on the territory of the Kostomukshskoe deposit of ferrous quartzites (TEOc)	2019	Karelsky Okatysh JSC PAO Severstal	Common commercial minerals
Development of feasibility study and selection of the mining option for the second stage of the Olenegorsky underground mine (TEO)	2019	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Conducting engineering and geodetic surveys for the preparation of design documentation for the object "Project for mining reserves of the central section of the Kostomukshskoe mine deposit of ferruginous quartzites (adjustment of the mining and transportation part)"	2019	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Project of additional exploration and pilot mining of iron ores at the central site of the Yuzhno-Kakhozerskoe deposit (design documentation)	2019	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Engineering-ecological and engineering-hydrometeorological surveys on the object "Project of mining reserves of the central section of the Kostomukshskoe mine deposit of ferruginous quartzites (adjustment of the mining and transportation part)" (design documentation)	2018	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Conducting an independent underground survey at the Okino-Klyuchevskoe brown coal deposit of the Bichursky district of the Republic of Buryatia for 2016-2017	2018	Coal Company of Buryatia LLC	Coal
Feasibility study of permanent exploration conditions of the Noyon-Tologoy polymetallic deposit (TEOc)	2018	Baikalrud LLC AKOO Sredneaziatskaya Serebryanaya Polymetallicheskaya Groupa Limited	Non-ferrous metallurgy

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Evaluation of production indicators of the Bystrinskoe deposit mining using simulation models of the Bystrinsky-2, Verkhne-Ildikansky minse (FEED studies)	2018	GRK Bystrinskoe LLC PAO Nornikel	Non-ferrous metallurgy
Optimization of the mining of the Bystrinskoe deposit reserves (FEED studies)	2018	GRK Bystrinskoe LLC PAO Nornikel	Non-ferrous metallurgy
Methods of operational planning, control, reporting and adjustment of plans for the development of mining operations for open-pit coal mining based on the DigiMine software product	2018	Limited Liability Company Karagailinskoe Mine Administration Zarechnaya Coal Company LLC	Coal
Adjustment of design work on the Gross deposit: Gross Mining and Processing Plant (design documentation)	2018	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Consulting services on the subject "Basic technical solutions for optimizing the mining of reserves of the Apsatskoe coal deposit" (FEED studies)	2018	Sibniigleobogaschenie LLC SUEK JSC	Coal
Polyanka deposit, engineering analysis of the investment project for the object "Construction of enterprise for the extraction and processing of oxide ores"	2018	NGK Resource LLC Dubaste Investments Limited	Non-ferrous metallurgy
Enterprise for the extraction and processing of oxide ores of the Delmachiksky gold deposit (design and DD documentation)	2018	Zoloto Delmachik LLC	Non-ferrous metallurgy
Development of the main technical and economic parameters of the conveyor ore transportation complexes at the Karelian Okatysh mines	2017	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Technical project for the mining of the Kovzhinsky section of the Belorucheyskoye deposit of flux limestones for the period 2017-2037	2017	PAO Severstal	Non-metallic minerals

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Execution of FEED activities: Assessment of the resource potential, development prospects, investment and operating costs of the production assets of the Group Sibuglemt	2017	PAO Severstal	Coal
Railway dump of loose overburden no. 9, Mikhailovsky GOK (design documentation, engineering surveys)	2017	Joint-Stock Company Mikhailovsky GOK named after Andrey Vladimirovich Varichev Metalloinvest Holding Company JSC	Ferrous metallurgy
Reconstruction of the Olenegorsky mine due to the revaluation of reserves (design documentation, technical project, research and development)	2017	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Akkermanovskoye deposit of flux limestones and clays (technical project)	2017	Yuzhno-Uralskaya Mining and Processing Company Holding Akkermann Cement	Non-metallic minerals
Deposit mine named after Professor Bauman, conservation project (design documentation)	2017	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Krasnobrodsky Yuzhny Coal Mine (technical audit)	2017	Hatch Engineering and Consulting LLC Hatch Ltd.	Coal
Supplement to the project of mining the Ugolny section at the Apsatskoye deposit on diverting of the Ugolny stream (design documentation)	2016	Arkticheskie Razrabotky LLC SUEK JSC	Coal
Mining of the North-Eastern Okino-Klyuchevskoye deposit section (technical project)	2016	Ugolny Razrez LLC PAO Inter RAO	Coal
Krasnobrodsky Yuzhny Coal Mine (technical audit)	2016	Hatch Engineering and Consulting LLC Hatch Ltd.	Coal

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Feasibility study and proposals for the development of the Yubileyny subsurface area of the Konstantinovskoe brown coal deposit	2016	Solntsevsky Coal Mine LLC Vostochnaya Mining Company LLC	Coal
Construction of the Mezhdurechye mine for the mining of reserves of the Severny section of the Leningrad oil shale deposit (TEO)	2016	Slantsy-Dobycha LLC JSC ATEK Group	Coal
Reconstruction of the Kirovogradsky pit due to the revaluation of reserves (design documentation)	2016	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Development of the Stoilensky iron ore deposit for the period 2016-2020. (technical project)	2015	Stoilensky GOK JSC Novolipetsky Metallurgical Complex JSC	Ferrous metallurgy
Technical audit of the Krasnobrodsky Yuzhny coal mine located in the Kemerovo Region	2015	Hatch Engineering and Consulting LLC Hatch Ltd.	Coal
Elginskoe deposit, coal mine (technical audit)	2015	Rangi CJSC	Coal
The key engineering solutions for the technical re-equipment of the Boshnyakovsky coal mine (FEED studies)	2015	Limited Liability Company Boshnyakovsky coal mine Sakhalinugol Management Company LLC	Coal
Mining feasibility study and estimation of iron ore reserves of the Olenegorskoe deposit	2014	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Industrial exploiting of the North-Eastern Okino-Klyuchevskoye deposit (design and DD documentation, research and development, engineering surveys)	2013	Ugolny Razrez LLC PAO Inter RAO	Coal

Completed projects 2006-2022. Open-pit mining operations

Project name	Completion Year	Client	Project Program
Grounding circuit of the Vostochny mine of the Yuzhno-Kakhozersky deposit (DD documentation)	2013	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
The development of design documentation Technical re-equipment of the industrial mining of the North-Eastern section of the remaining reserves of the Okino-Klyuchevskoye deposit (mining and transportation part)	2013	Ugolny Razrez LLC PAO Inter RAO	Coal
Technical re-equipment of the Korpangskoye deposit mines (design documentation)	2013	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Development of project documentation Supplement to the project "Adjustment of the Kostomukshskoe deposit mining project in terms of solutions for the placement of overburden dumps	2013	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Expansion of the Apsatsky open-cast at the Ugolny section of the Apsatsky coal deposit with an increase in capacity to 500 thousand tons of coal per year, adjustment of the mining and transportation part (design documentation)	2013	Arkticheskie Razrabotky LLC SUEK JSC	Coal
Calendar plan for the construction of dumps No. 7 and No. 8 of the Mikhailovsky GOK for 2012-2016 (design documentation)	2012	Joint-Stock Company Mikhailovsky GOK named after Andrey Vladimirovich Varichev Metalloinvest Holding Company JSC	Ferrous metallurgy
Development of computer models of the Sobstvenno-Kachkanarskoye deposit for the design of object: Vanadium (Model)	2012	PeterGORproekt JSC Evraz LLC	Ferrous metallurgy
Feasibility study (project) for the construction of the mine of the eastern section of the Yuzhno-Kakhozersky deposit	2011	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Feasibility study of regional conditions for a group of deposits of the Zaimandrovsky iron ore district located on the territory of the Olenegorsky district of the Murmansk region	2012	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Ground loop of the Kurkenpakh mine (DD documentation)	2014	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy



Underground Mining Operations

Experience in the design area

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Author's supervision over the implementation of the project "Reconstruction of the Tashtagolsky mine processing facility", "New Site", the pad and the tower headframe of the Sibiriak shaft, the new administrative and amenities building of the Tashtagolsky mine (author's supervision)	2022	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Primary development under the design documentation by Metall-grupp LLC. Yakovlevsky mine. II phase of construction. Adjustment. Step-by-step increase in production capacity (author's supervision)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Exploiting reserves of the Komsomolskaya mine. Stage 2 (design documentation)	2022	Vorkutaugol JSC PAO Severstal	Coal
The retrofitting of a hazardous industrial facility - the Komsomolskaya mine of Vorkutaugol JSC - regarding the outfitting of belt conveyors with an automatic conveyor and feeder control system (detailed design documentation)	2022	Vorkutaugol JSC PAO Severstal	Coal
The implementation of design solutions for the facility: "Metall-grupp LLC Yakovlevsky mine. II phase of construction. Adjustment. Step-by-step increase in production capacity" in accordance with the preliminary schedule approved by parties (author's supervision)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The development and the implementation of procedures for optimizing the scheduling of mine operations (scheduling)	2022	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
The method support of geological prospecting at the assessment stage of the development of the Sovinoe gold deposit (consulting)	2022	UGRK Urantsvetmet JSC	Non-ferrous metallurgy
The calculation of launch complexes to determine investment costs for YAGOK LLC (pre-FEED)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The comprehensive detailed (instrumental) inspection of the technical condition of buildings to be demolished at the central pad and the Shaft 3 pad at the facility: The expansion of the Yakovlevsky Mining and Processing Plant with an increase in output (pre-FEED)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The comprehensive detailed (instrumental) inspection of the technical condition of utility sewage treatment facilities: The expansion of the Yakovlevsky Mining and Processing Plant with an increase in output (inspection)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Technical project for the development of the Vorkutinskoye coal deposit. The mining of coal reserves of the subsurface allotments "Vorkutinskaya mine field", "Zapolyarnaya mine field", "Komsomolskaya mine field" and "Section 1 of Komsomolskaya mine" within the Zapolyarnaya mine field	2022	Vorkutaugol JSC PAO Severstal	Coal
Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines (Design documentation)	2022	Vorkutaugol JSC PAO Severstal	Coal
The expansion of the Yakovlevsky mine with an increase in output (design documentation)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The pre-FEED documentation for "The feasibility study of the construction of a mining and processing complex at the Monchetundrovskoye deposit" (pre-FEED)	2022	Severstal Management JSC PAO Severstal	Non-ferrous metallurgy
The operation procedures for the mining of reserves of the Central section of the Yakovlevskoye deposit (pre-FEED)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Amendment 3 to Technical Project "The mining of iron ore reserves up to horizon -350 m of the Tashtagol deposit" (design documentation, Technical Project)	2022	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
The author's supervision over the implementation of the project "Reconstruction of the Tashtagolsky mine processing facility" (author's supervision)	2022	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
The author's supervision of the implementation of the project "The stripping and the mining of reserves of the Sheregeshskoye deposit" (author's supervision)	2022	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
The retrofitting of a hazardous industrial facility "Underground Mine", "The implementation of new equipment and changes to directions of preparatory mining operations during the mining of the Tashtagolskoye deposit"	2022	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
The mining feasibility study of permanent exploratory conditions for the assessment of coal reserves at the Central section of the Western part of the Ulug-Khemsy coal basin (mining feasibility study)	2022	Ulugkhem Ugol LLC PAO Severstal	Coal
Yakovlevsky underground mine. The ventilation and assembly mine workings at horizon -395 m (detailed design documentation)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The revision of detailed design documentation for the facility: "Korpanga LLC Shaft 2 Main Dewatering. Technical Re-equipment" (DD documentation)	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Changes to the documentation "The Olenegorsky underground mine. Train I (design documentation)	2022	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
The extraction of drainage groundwater at the Dozmershor section for supplying water to the Zapolyarnaya mine of Vorkutaugol JSC. The re-assessment of mineable reserves of sweet groundwater at the site of the operating water intake. The extension of license SYK 02552 VE (design documentation)	2022	Vorkutaugol JSC PAO Severstal	Coal
Development of documentation for the object: Ventilation shaft complex no. 4 of the Komsomolskaya mine (detailed design documentation)	2022	Vorkutaugol JSC PAO Severstal	Coal
The Zapolyarnaya 2 mine. Changes to the project of mining of reserves of the seams Triple and Fourth (design documentation)	2022	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
The refurbishment of the pithead of the auxiliary cage shaft of the Zapolyarnaya 2 mine. The cage shaft at the main industrial site of the Vorkutinskaya mine (design and DD documentation)	2022	Vorkutaugol JSC PAO Severstal	Coal
The mining feasibility assessment of development options for the Yakovlevskoye deposit	2022	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Project for increasing the ore processing capacity of the Gross mining and processing plant up to 26 Mtpa (FEED studies)	2022	Neryungry-Metallic LLC Nord Gold N.V.	Gold
The communication line from the main industrial site of the Komsomolskaya mine to Ventilation Shaft 4 (detailed design documentation)	2022	Vorkutaugol JSC PAO Severstal	Coal
Changes to the documentation for the object: "Mine water treatment facilities complex - train 1 of the Sheregeshskaya mine" (design documentation)	2021	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
The mining feasibility study of permanent exploratory conditions for the assessment of coal reserves at the Central section of the Western part of the Ulug-Khemsy coal basin (mining feasibility study)	2021	Ulugkhem Ugol LLC PAO Severstal	Coal
Design development for the sanitary protection zone for Korpanga LLC (design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The Tashtagol deposit, Addition 2 to the Technical Project "The mining of iron ore reserves to the minus 350 m horizon" (design documentation)	2021	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Changes to the design documentation "Exploiting reserves of the Vorgashorskaya mine. Stage 1. Mining and transportation" (design documentation)	2021	Vorkutaugol JSC PAO Severstal	Coal
Reconstruction of the Tashtagolsky mine processing facility. The New Site (detailed design documentation)	2021	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
The justification of safety of the hazardous industrial facility "Korpanga LLC underground mine" (design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Development of documentation for the technical re-equipment of the facility: "Korpanga LLC Shaft 2 Main Dewatering. Technical Re-equipment" (design and DD documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The implementation of design solutions during the operation under the project "Reconstruction of the Tashtagolsky mine processing facility" (author's supervision)	2021	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
The implementation of design solutions under the project "The stripping and the mining of reserves of the Sheregeshskoye deposit" (author's supervision)	2021	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Korpanga. The underground mine. Horizon minus 500 m. Ventilation and transport upwards shaft (detailed design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The project for the construction and the operation of the Ulugkhem mine	2021	UlugkhemUgol LLC PAO Severstal	Coal
Development of documentation for the object: "Mine Water Treatment Facilities. Exploiting reserves of the Vorgashorskaya mine. Surface facilities" (design documentation)	2021	Vorkutaugol JSC PAO Severstal	Coal
Changes to the ventilation scheme of the Sheregeshskaya mine. Determining the basic technical solutions (pre-FEED studies)	2021	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
The development of documentation for the stowing complex building at the Yakovlevsky GOK facility for the operation of the building in an undermined area (detailed design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Development of documentation for the object: "Central Underground Substation TsPP-1" (detailed design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Adjustment of the documentation for the object: Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines and for the development of technical project for the Central Committee for solid mineral deposits development of Rosnedra (design documentation, Technical Project)	2021	Vorkutaugol JSC PAO Severstal	Coal
Developing documentation for the object: Temporary mobile stowing complex #2 of Korpanga LLC (design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Adjustment of the documentation for the object: "The Olenegorsky underground mine" (design documentation)	2021	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
The technical re-equipment of the hazardous industrial facility (Hazard Class II) of the Korpanga LLC underground mine regarding the mining of mine workings in block 9 and the assembly of the underground ore crushing complex (Sandvik-CJ411 jaw crusher with plate feeder) (design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The addition to the Mine Surveying Management Plan for Korpanga LLC (design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Development of documentation for the object: "Korpanga LLC Block 10. Stage I. The formation of the protective ceiling" (detailed design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The mining feasibility assessment of development options for the Yakovlevskoye deposit (mining feasibility study)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
The mining of the Zapolyarnaya 2 mine reserves (design documentation)	2021	Vorkutaugol JSC PAO Severstal	Coal
Baranyevsky Underground Mine. Train 1 (design documentation)	2021	Kamchatskoe Zoloto JSC	Non-ferrous metallurgy
The underground mining of the Primorskoye deposit reserves (design documentation)	2021	Primorskoye LLC	Non-ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Ventilation shaft No. 4, Komsomolskaya mine. Completion of construction (design documentation)	2021	Vorkutaugol JSC PAO Severstal	Coal
Technical project for the development of the Bebyaevsky gypsum deposit. Mining of balance reserves within the boundaries of the Peshelansky gypsum mine, taking into account the North-Western section of the deposit	2021	Peshelansky gypsum plant LLC	Non-metallic minerals
Development of documentation for the technical re-equipment of the facility: Yakovlevsky GOK. The underground mine. Technical re-equipment of the skip lifting installation of the shaft no. 1	2021	Corpanga LLC PAO Severstal	Ferrous metallurgy
Performing research and development work on the topic: Application of descending layer mining system with extended bench widths with the stowing of the mined space in the conditions of the Yakovlevsky iron ore deposit	2021	Corpanga LLC PAO Severstal	Ferrous metallurgy
Execution of works on the object: The revision of the design documentation. "The Olenegorsky underground mine. Train I"	2021	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Preparation and issuance of the "Conclusion on the detailed design documentation for the preparation of pilot chambers for testing a new technology for mining the Tashtagolskoye deposit"	2021	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Development of documentation "Increasing the productivity of the skip lifting installation of shaft no. 1"	2021	Corpanga LLC PAO Severstal	Ferrous metallurgy
Development of technical documentation, program for conducting pilot tests of a descending layer mining system with bench widths with the stowing of the mined space in the conditions of the Yakovlevskoe deposit	2021	Corpanga LLC PAO Severstal	Ferrous metallurgy
Performing the calculation of launch complexes for determining the investment costs of Korpanga LLC	2021	Corpanga LLC PAO Severstal	Ferrous metallurgy
Development of feasibility study (TEO) of permanent exploration conditions with the estimation of reserves of the Yakovlevsky deposit of rich iron ores, stage 1	2021	Corpanga LLC PAO Severstal	Ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Feasibility study of permanent exploration conditions with estimation of coal reserves of the Vorkuta deposit within the boundaries of the license areas of JSC Vorkutaugol (mining feasibility assessment of conditions)	2021	Vorkutaugol JSC PAO Severstal	Coal
Performing work on the documentation development: Liquidation of Intaugol JSC (design documentation)	2020	Intaugol JSC	Coal
Adjustment of the DD documentation packages for the air ventilation pit no. 4 of the Vorgashorskaya mine	2020	Vorkutaugol JSC PAO Severstal	Coal
Development of DD documentation for the object "Organization of delivery of materials to the shaft no. 1. Parking of diesel truck"	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Development of DD documentation for the technical re-equipment of the facility: Contact network of electric haulage of the underground mine	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Technical project of the balance reserves mining of the Fourth and Triple layers in blocks 21 and 2 Yuzhny and the Komsomolskaya mine. Technical re-equipment	2020	Vorkutaugol JSC PAO Severstal	Coal
Designer supervision at the construction sites of Vorkutaugol JSC (surface objects)	2020	Vorkutaugol JSC PAO Severstal	Coal
Designer supervision at the construction sites of Vorkutaugol JSC (mining and capital works)	2020	Vorkutaugol JSC PAO Severstal	Coal
Development of detailed design documentation "Layered system of mining with the extraction of reserves with diamond-shaped cuts with the stowing of the mined space. Pilot industrial tests. Blocks no. 1 and no. 7"	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Development of detailed design documentation, section "Automation" for the object "Complex of workings of the filling mixture of the dumping down holes nos. 1-BIS, 2-BIS"	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Design of the on-site utilities and consumable warehouses of the relocated surface stowing complex no. 2	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
The development of the cost estimate for design surveying for the underground mining of the Birkhachan deposit (form 2-P)	2020	Counterparty Polymetall JSC	Non-ferrous metallurgy
Performance of services in the area of geological exploration of the subsurface in terms of analysis and assessment of the validity of the geological and economic characteristics of the Yakovlevskoye iron ore deposit	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Execution of work on the calculation of launch complexes for determining investment costs in Korpanga LLC, Yakovlevsky GOK for 2021.	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Implementation of the designer supervision over the implementation of engineering solutions during operation under the project: Reconstruction of the Tashtagolsky mine processing facility.	2020	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Inspection of mining and capital workings to determine the scope of work for commissioning. Comparison of the actual state with the deesign documentation solutions.	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Development of the regulations of the production process "Sinking of horizontal and inclined mine workings"	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Development of the project of the sanitary protection zone of JSC Yakovlevsky GOK and assessment of the environmental impact of the refueling point	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Yakovlevsky GOK, underground gallery of the surface stowing complex no. 1 (DD documentation)	2020	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Research and development on the subject: Justification of safe mining of the central section of the Yakovlevsky deposit when expanding the boundaries of the excavation to the mountains. minus 525 m and the existing mining allotment on the flanks	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Construction Management Plan The Olenegorsky underground mine Train I , revisions (design documentation)	2020	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Adjustment of the design and detailed design documentation for the technical re-equipment of the hazardous production facility. JSC Yakovlevsky GOK Medium crushing building, including a pilot industrial site of fine crushing"	2020	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Zapolyarnaya 2 mine, auxiliary industrial site, construction of boiler house (design documentation)	2020	Vorkutaugol JSC PAO Severstal	Coal
Reconstruction of the Tashtagolsky mine processing facility (design documentation)	2020	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Geological report with the estimation of coal reserves within the boundaries of the distributed subsoil fund of the Vorkuta deposit of the Pechora coal basin (TEOc)	2020	Vorkutaugol JSC PAO Severstal	Coal
Development of detailed design documentation for the object "Workings of the filling mixture receipts of the stowing complex no. 2 of the horizon minus 370 m, stage II of construction of the Yakovlevsky mine"	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
The author's supervision over the implementation of design solutions during operation under the project "Opening and mining of reserves of the Sheregeshevskoye deposit".	2020	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Maintenance of the operational geological model of the Yakovlevsky deposit within the boundaries of the mine field (design documentation)	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Construction management projects for underground facilities of the second phase of construction of the underground mine (design documentation)	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Development of design documentation for the object "Mining of the Vorgashorskaya mine reserves. Stage 1. Mining and transportation part. Adjustment"	2020	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Development of design documentation Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines. Lava 723	2020	Vorkutaugol JSC PAO Severstal	Coal
Execution of work on the development of basic engineering solutions for the re-equipment of surface stowing complex no. 1 for the maximum possible and sound production capacity	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Buildings and structures of the Zapolyarnaya 2 mine (DD documentation, engineering surveys)	2020	Vorkutaugol JSC PAO Severstal	Coal
Development of design documentation for the object "Mining of the Komsomolskaya mine reserves. Stage 1. Mining and transportation part. Adjustment"	2020	Vorkutaugol JSC PAO Severstal	Coal
Performing a survey of the technical condition of building structures "Buildings of the temporary stowing complex, number of floors-2, area - 2,052 sq. m (Building of the temporary stowing complex) inv. No. 9-006224", at the Yakovlevsky GOK object of Korpanga LLC	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Opening and mining of the south-western block of the Vorgashorskaya mine	2020	Vorkutaugol JSC PAO Severstal	Coal
Comprehensive audit of the Olenegorsky underground mine (FEED studies)	2019	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Execution of works on the development of process design criteria for technological processes for the object: Baranyevsky Underground Mine. 1st stage (FEED studies)	2019	Kamchatskoe Zoloto JSC GK Renova	Non-ferrous metallurgy
The Vorkutinskaya mine. The refurbishment of the utility building (design and DD documentation)	2019	Vorkutaugol JSC PAO Severstal	Coal
Design documentation for the technical re-equipment of the hazardous production facility Zapolyarnaya2 Coal Mine	2019	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
The development of design documentation Technical project of the balance reserves mining of the Fourth and Triple layers in blocks Yuzhny and 2-nd Yuzhny of the Komsomolskaya mine. Technical re-equipment Supplement 2	2019	Vorkutaugol JSC PAO Severstal	Coal
Mining of the Vorgashorskaya mine reserves with addition of blocks 53-s and 43-yu (main technical solutions)	2019	Vorkutaugol JSC PAO Severstal	Coal
Mining of the Komsomolskaya mine reserves, revisions (design documentation)	2019	Vorkutaugol JSC PAO Severstal	Coal
Design development for the sanitary protection zone of JSC Yakovlevsky GOK (design documentation)	2019	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Technical project for the development of the Vorgashorsky coal deposit. Mining of the Vorgashorskaya mine reserves (design documentation)	2019	Vorkutaugol JSC PAO Severstal	Coal
The development of design documentation Project of organization of construction for the objects of the surface stowing complex no. 2 (PZK No. 2), Project of organization of construction for underground objects of the second phase of construction of the Yakovlevsky mine. Horizon - minus 500	2019	Corpanga LLC PAO Severstal	Ferrous metallurgy
Execution of design and survey works "Mining of reserves of the southern part of the Norilsk-1 deposit"	2019	Taimyrskaya Mining and Metallurgical Company LLC Group of companies Russian Platinum	Non-ferrous metallurgy
Yakovlevsky mine. II phase of construction. Adjustment. Step-by-step increase in production capacity (design documentation)	2019	Yakovlevsky Mining and Processing Plant JSC	Ferrous metallurgy
Performing research work on the object: Baranyevsky Underground Mine. 1st stage (FEED studies)	2019	Kamchatskoe Zoloto JSC GK Renova	Non-ferrous metallurgy
Korpanga LLC Skip Loading Complex of Shaft no. 1 (design documentation)	2019	Corpanga LLC PAO Severstal	Ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Project of organizing the construction of underground gallery to the dumping down holes 1-bis, 2-bis (design documentation)	2019	Corpanga LLC PAO Severstal	Ferrous metallurgy
Development of feasibility study and selection of the mining option for the second stage of the Olenegorsky underground mine (TEO)	2019	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Package of works and services for the designer supervision over the implementation of design solutions during operation under the project "Opening and mining of reserves of the Sheregeshevskoye deposit".	2019	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Adjustment of the documentation for the object "Documentation for the technical re-equipment of hazardous production facility. Metall-grupp LLC Yakovlevsky mine. Dumping down holes no. 1-bis and no. 2-bis (design and DD documentation)	2019	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Feasibility study of options for the development of the Oktyabrsky mine, subject to the mining of reserves located in the commercial contour limits under the license agreement (feasibility study)	2019	AMC Consultants Pty Ltd	Non-ferrous metallurgy
Ventilation shaft complex no. 3 of the Severnaya mine (detailed design documentation)	2019	Vorkutaugol JSC PAO Severstal	Coal
Technical project of mining of the Central section of the Western part of the Ulug-Khemsky coal basin (design documentation)	2019	UlugkhemUgol LLC PAO Severstal	Coal
Execution of works "Analysis and assessment of existing methods of mine water treatment for structural unit Komsomolskaya Mine	2019	Vorkutaugol JSC PAO Severstal	Coal
Feasibility study of industrial conditions and recalculation of reserves of gold-copper ores and useful components for the South-Western section of the Nurkazgan deposit	2019	Hatch Engineering and Consulting LLC Hatch Ltd.	Non-ferrous metallurgy
Feasibility study of the reconstruction of external power supply of the ventilation shaft no. 1 of the Komsomolskaya Mine (TEO)	2019	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Development of safety justification for the hazardous production facility "Underground Mine" of JSC Yakovlevsky GOK (lack of waterproof dams) (research and development)	2019	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Adjustment of the feasibility study of permanent exploration conditions with the estimation of reserves of the southern section of the Norilsk-1 deposit	2019	Taimyrskaya Mining and Metallurgical Company LLC Group of companies Russian Platinum	Non-ferrous metallurgy
Package of works and services for the designer supervision over the implementation of design solutions developed by the contractor under contract. Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines	2019	Vorkutaugol JSC PAO Severstal	Coal
Adjustment of building survey reports and scientific and technical support of facilities	2019	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Exploiting reserves of the Vorgashorskaya mine. Mining and transportation" (design documentation)	2019	Vorkutaugol JSC PAO Severstal	Coal
Package of works and services for the designer supervision over the implementation of design solutions during operation under the project "Opening and mining of reserves of the Sheregeshevskoye deposit".	2019	JSC Evraz ZSMK Evraz JSC	Ferrous metallurgy
Development of design documentation of JSC Yakovlevsky GOK. Construction of drying complex. Open burden stockpile	2019	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines The revision of the design model of ventilation at Stage I with fresh air supplied through the skip rock shaft, ventilation shaft 8.	2019	Vorkutaugol JSC PAO Severstal	Coal
Opening and mining of the south-western block of the Vorgashorskaya mine The commissioning of surface process facilities	2019	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Feasibility study of permanent exploration conditions of the Noyon-Tologoy polymetallic deposit (TEOc)	2018	Baikalrud LLC AKOO Sredneaziatskaya Serebryanaya Polymetallicheskaya Groupa Limited	Non-ferrous metallurgy
Cutback of part of the reserves of the Komsomolskaya mine to the Zapolyarnaya 2 mine (design documentation)	2018	Vorkutaugol JSC PAO Severstal	Coal
Development of 3D models using Minscape and Deswik software of the mine fields of the structural divisions of JSC Vorkutaugol (FEED studies)	2018	Vorkutaugol JSC PAO Severstal	Coal
Feasibility study of the liquidation of the Vorkutaugol JSC facilities	2018	Severstal Management JSC PAO Severstal	Coal
Amendments to the design documentation "Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya 2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines"	2018	Vorkutaugol JSC PAO Severstal	Coal
Preparation of materials for the design, support of engineering surveys and inspection of buildings and structures for the "Reconstruction of the processing facility of the Tashtagolsky mine with an increase in productivity to 4.0 million tons of ore per year" (FEED studies)	2018	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Vorgashorskaya mine, adjustment of the feasibility study for opening and mining of the II-th horizon and the south-western block of the mine due to the technical re-equipment (design documentation)	2018	Vorkutaugol JSC PAO Severstal	Coal
Mining of reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines (design documentation, engineering surveys)	2017	Vorkutaugol JSC PAO Severstal	Coal
FEED studies on optimization of design solutions for the Baranyevskoye deposit mining	2017	Kamchatskoe Zoloto JSC GK Renova	Non-ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Amendments to the design documentation "Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya 2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines"	2017	Vorkutaugol JSC PAO Severstal	Coal
Zapolyarnaya 2 mine, comprehensive surveying of the technical condition of the base and structures of the boiler house complex	2017	Vorkutaugol JSC PAO Severstal	Coal
Audit of the estimated documentation for the sinking of shafts of the Nivesky-1 site	2017	K-Potash Service LLC Vyrex B.V.	Salts
Vorgashorskaya mine, Automation of the loading point of the inclined conveyor shaft (DD documentation)	2017	Vorkutaugol JSC PAO Severstal	Coal
Technical project of mining of the Central section of the Western part of the Ulug-Khemsky coal basin (design documentation)	2017	UlugkhemUgol LLC PAO Severstal	Coal
Execution of FEED activities: Assessment of the resource potential, development prospects, investment and operating costs of the production assets of the Group Sibuglemet	2017	PAO Severstal	Coal
Execution of works on the calculation of the ventilation of the startup complex I of the south-western section, using the main fan unit DK-40-6- no. 19 in the shaft collar Auxiliary 2 (FEED studies)	2017	Baikalrud LLC AKOO Sredneaziatskaya Serebryanaya Polymetallicheskaya Groupa Limited	Coal
Preparation of the geological section of the feasibility study of industrial conditions and recalculation of reserves of gold-copper ores and useful components for the Western section of the Nurkazgan deposit	2017	Hatch Engineering and Consulting LLC Hatch Ltd.	Non-ferrous metallurgy
Mine workings conservation project of Zapolyarnaya 2 mine	2017	Vorkutaugol JSC PAO Severstal	Coal
Changes to the project of mining of reserves of the seams Triple and Fourth of the Zapolyarnaya 2 mine	2017	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
The transfer of mined rock from the vertical cage shaft of the Zapolyarnaya 2 mine to structural unit Pechorsky Concentration Plant (PCP)	2017	Vorkutaugol JSC PAO Severstal	Coal
Mining of reserves of the Severnaya mine (design documentation)	2017	Vorkutaugol JSC PAO Severstal	Coal
Mining enterprise based on the south-western section of the Noyon-Tologoy deposit (design documentation)	2017	Baikalrud LLC AKOO Sredneaziatskaya Serebryanaya Polymetallicheskaya Groupa Limited	Non-ferrous metallurgy
Package of works and services for the designer supervision over the implementation of design solutions developed for the ventilation shaft complex no. 3 of the Severnaya mine	2017	Vorkutaugol JSC PAO Severstal	Coal
Exploiting of the south-western block of the Vorgashorskaya mine (design documentation)	2017	Mine Vorgashorskaya 2 CJSC PAO Severstal	Coal
Additional work on amendments to the design documentation "Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya 2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines"	2017	Vorkutaugol JSC PAO Severstal	Coal
Package of works and services for conducting designer supervision over the implementation of design solutions developed for the mining of residual reserves of the Komsomolskaya mine	2017	Vorkutaugol JSC PAO Severstal	Coal
Olkhovsko-Chibizhevskaya area, audit of the project of prospecting and estimation works for hardrock gold	2017	Sibresurs LLC	Non-ferrous metallurgy
Feasibility study of the opening of the Norilsk-1 deposit. The first stage, taking into account the ore processing at the concentrating plant of the Chernogorskoe deposit	2016	AS "Amur" JSC Group of companies Russian Platinum	Non-ferrous metallurgy

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Severnaya Mine (engineering surveys)	2016	Vorkutaugol JSC PAO Severstal	Coal
Execution of engineering and geodetic surveys on the object: Project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines	2016	Vorkutaugol JSC PAO Severstal	Coal
Mine water pipeline with heating networks from vent. shaft no. 6 to the mining water treatment plant of the Zapolyarnaya 2 mine (DD documentation)	2016	Vorkutaugol JSC PAO Severstal	Coal
Underground mining workings of the Zapolyarnaya 2 mine (detailed design documentation)	2016	Vorkutaugol JSC PAO Severstal	Coal
Reconstruction of the main drainage complex -780 m of the Zapolyarnaya 2 mine (detailed design documentation)	2016	Vorkutaugol JSC PAO Severstal	Coal
Adjustment of the feasibility study for opening and mining of the II-th horizon and the south-western block of the Vorgashorskaya mine due to the technical re-equipment (design documentation)	2016	Vorkutaugol JSC PAO Severstal	Coal
Optimization of the mining of reserves of the southern block of the Zapolyarnaya 2 mine, using XPAC software (FEED studies)	2016	Vorkutaugol JSC PAO Severstal	Coal
Cutback of the reserve section no. 1 to the Zapolyarnaya 2 mine (detailed design documentation)	2016	Vorkutaugol JSC PAO Severstal	Coal
Mine water pipeline from the ventilation shaft no. 6 to mine water treatment plant of the Zapolyarnaya 2 mine (DD documentation)	2016	Vorkutaugol JSC PAO Severstal	Coal
Execution of the documentation Isolation of mine workings of the hazardous production facility "Zapolyarnaya Coal Mine 2" at the merger of the Zapolyarnaya and Vorkutinskaya mines	2016	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Surveying of the technical condition of building structures of buildings and facilities at the sites of the Zapolyarnaya 2 mine	2016	Vorkutaugol JSC PAO Severstal	Coal
Design of mining and processing plant at the Baranyevskoye deposit (FEED studies)	2016	Kamchatskoe Zoloto JSC GK Renova	Non-ferrous metallurgy
Adjustment of the project of exploiting reserves of seams Triple and Fourth of the Zapolyarnaya-2 mine on the basis of the combined Zapolyarnaya and Vorkutinskaya mines	2016	Vorkutaugol JSC PAO Severstal	Coal
Power supply of ventilation shaft no. 3 of the Severnaya mine (DD documentation)	2015	Vorkutaugol JSC PAO Severstal	Non-mining operations
Complex of the inclined conveyor shaft of the Zapolyarnaya 2 mine (DD documentation, engineering surveys)	2015	Vorkutaugol JSC PAO Severstal	Coal
Project of mining of the Usinskoe deposit section no. 1 (design documentation)	2015	Vorkutaugol JSC PAO Severstal	Coal
Completion of the remaining reserves of the Severnaya mine due to the technical re-equipment (technical project)	2015	Vorkutaugol JSC PAO Severstal	Coal
Power supply of SS-35/6 kV of Sheregeshevskoe deposit (design documentation, engineering surveys)	2015	JSC Evraz ZSMK Evraz LLC	Ferrous metallurgy
Operational change in the state of coal reserves of the Vorkutinskoe coal deposit based on the results of geological exploration (mining feasibility study, estimation of reserves)	2015	Vorkutaugol JSC PAO Severstal	Coal
Conservation of the inclined conveyor shaft of the Zapolyarnaya 2 mine in KP275 m ÷ KP249+4.6 m	2015	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Project of conservation of the ventilation shaft no. 3 of the Severnaya mine as part of deconservation (design documentation)	2015	Vorkutaugol JSC PAO Severstal	Coal
Opening and mining of the south-western block of the Vorgashorskaya mine (DD documentation)	2014	Vorkutaugol JSC PAO Severstal	Coal
Ventilation shaft complex no. 3 of the Severnaya mine (DD documentation)	2014	Vorkutaugol JSC PAO Severstal	Coal
Technical expertise of company engaged in the extraction of copper and copper-zinc ore, Bashkirkoe Shaft Sinking Management (Consulting)	2014	Findeale Holdings Limited	Non-ferrous metallurgy
Feasibility study of the conditions of the Central section of the Western part of the Ulug-Khemsy coal basin	2014	Krasnoyarskaya Drilling Company CJSC	Coal
Development of the mining feasibility study and recalculation of the balance reserves of the Vorkutskoye deposit within the license boundary of the Severnaya mine, Vorkutaugol JSC (mining feasibility study)	2013	Vorkutaugol JSC PAO Severstal	Coal
Preliminary and following cementation of aquifers during bottom-up sinking of the inclined conveyor shaft of the Zapolyarnaya-2 mine (design and DD documentation, engineering surveys)	2013	Vorkutaugol JSC PAO Severstal	Coal
Mining feasibility study and recalculation of balance reserves of the Vorkutskoe deposit (mining feasibility study)	2013	Vorkutaugol JSC PAO Severstal	Coal
Mining and processing plant at the Baranyevskoye deposit (TEO)	2013	Kamchatskoe Zoloto JSC	Non-ferrous metallurgy
Biryulinskaya mine of the Berezovo-Biryulinskoe deposit of Kuzbass (design documentation, research, engineering surveys)	2013	Biryulinskaya Mine LLC KOKS-Mining LLC	Coal

Completed projects 2006-2022. Underground mining operations

Project name	Completion Year	Client	Project Program
Feasibility study of regional conditions for a group of deposits of the Zaimandrovsky iron ore area located on the territory of the Olenegorsky district of the Murmansk region	2012	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Checking the feasibility of installing a headwork mounted on the auxiliary shaft of the Ayach-Yaga mine on the ventilation shaft no. 4 of the Zapolyarnaya mine	2012	Vorkutaugol JSC PAO Severstal	Coal
Execution of design documentation: Change in the adjustment of the feasibility study for opening and mining of the II-th horizon and the south-western block of the Vorgashorskaya mine due to the technical re-equipment. Supplement 1	2018	Vorkutaugol JSC PAO Severstal	Coal
Preparation of 3D models using Minescape and XPAC software for the JSC Vorkutaugol mines	2017	Vorkutaugol JSC PAO Severstal	Coal
Automated control system of the Zapolyarnaya 2 mine facilities (DD documentation)	2016	Vorkutaugol JSC PAO Severstal	Coal
Biryulinskaya Mine (TEO)	2011	Biryulinskaya Mine LLC KOKS-Mining LLC	Coal
Development of the mine field no. 3 of the Usinskoe deposit (TEO)	2011	Vorkutaugol JSC PAO Severstal	Coal
Plotnikovskaya mine at the Ushakovskoe deposit (TEO)	2011	Neftegazindustria-Dobycha LLC Neftegazindustria	Coal

Concentration and Surface Engineering

Experience in the design area

Completed projects 2006-2022. Concentration (processing)

Project name	Completion Year	Client	Project Program
Development of the Gross deposit. The gold heap leach facility (HLF) and infrastructure facilities (the author's supervision)	2022	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
The installation of a KAES-2000 conveyor ore analyzer at conveyor 72 of the Ore/Rock Crushing section of the Olkon Crushing and Processing Plant (DD documentation)	2022	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
The complex for the Pellet Production Shop of the Coking, Agglomeration and Blast-Furnace Facility (pre-FEED)	2022	PAO Severstal	Ferrous metallurgy
The complex for the Pellet Production Shop of the Coking, Agglomeration and Blast-Furnace Facility. The development of a preliminary construction Master Plan (DD documentation)	2022	PAO Severstal	Ferrous metallurgy
Consulting services regarding the surface infrastructure, engineering surveys and the Chulbaktan deposit heap leaching pad project (consulting, engineering services)	2022	Golder Associates (UK) Limited	Non-ferrous metallurgy
Development of the documentation for the construction of the anti-seepage barrier for the Western Primary Dam at the facility of the Udokan Mining and Processing Complex. Construction train 1 for the capacity of 12 Mtpa (design and DD documentation)	2022	Udokanskaya Med LLC	Non-ferrous metallurgy
Project for increasing the ore processing capacity of the Gross mining and processing plant up to 26 Mtpa (FEED studies)	2022	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Development of the Gross deposit. The gold heap leach facility (HLF) and infrastructure facilities (the author's supervision)	2021	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Expert review of the documentation for the construction and the turnkey ramp up to the design capacity of the capital construction facilities: the Chernogorskaya Processing Plant and the Chernogorskaya Thermal Power Station (design documentation)	2021	Chernogorskaya GRK LLC Chernogorskaya GRK LLC	Non-ferrous metallurgy

Completed projects 2006-2022. Concentration (processing)

Project name	Completion Year	Client	Project Program
Development of the documentation for the technical re-equipment of the hazardous industrial facility of Korpanga LLC. Medium crushing building, including a pilot industrial site of fine crushing (design documentation)	2021	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Construction of the process ore and concentrate intake and processing complex at Karelsky Okatysh JSC (FEED studies)	2021	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Restructuring of Pechorsky CP JSC Vorkutaugol, taking into account the adjustment of production capacity to 8.0 MTA (design and DD documentation)	2021	Vorkutaugol JSC PAO Severstal	Coal
JSC Kolskaya GMK Rts. Concentrate export terminal (FEED studies, design and DD documentation)	2021	JSC Kolskaya GMK PAO Nornikel	Non-ferrous metallurgy
Expert review of the completed works for compliance with the design and DD documentation of the objects "Construction of the ore drying complex, phase 1"	2020	Corpanga LLC PAO Severstal	Ferrous metallurgy
Performing additional work on the adjustment of the previously developed DD documentation for the object Neryungri-Metallic LLC. Project for the development of the Gross deposit. Construction of gold processing plant of heap leaching and infrastructure facilities	2020	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Adjustment of the design documentation for the object (complex): JSC Kolskaya GMK Refining shop, concentrate export terminal	2020	Promyshlennoe Snabzhenie LLC	Non-ferrous metallurgy
Execution of design work on the object: Reconstruction of the main building of Gold Processing Plant "Belaya Gora", construction of new objects "Sorption-Desorption Department" and "Pre-Cyanidation Section"	2020	Belaya Gora LLC	Non-ferrous metallurgy
Estimation of costs for liquidation (dismantling) of mining and processing plant facilities at the GROSS deposit	2020	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Development of the Gross deposit: Gold extraction factory (detailed design documentation)	2020	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy

Completed projects 2006-2022. Concentration (processing)

Project name	Completion Year	Client	Project Program
Reconstruction of the structural unit "Pechorsky CP", JSC Vorkutaugol, with an increase in capacity to 11.5 MTA (designer supervision)	2019	Vorkutaugol JSC PAO Severstal	Coal
Execution of FEED studies of aspiration system of the raw material concentration plant	2019	Yakovlevsky Mining and Processing Plant JSC PAO Severstal	Ferrous metallurgy
Feasibility study of permanent exploration conditions of the Noyon-Tologoy polymetallic deposit (TEOc)	2018	Baikalrud LLC AKOO Sredneaziatskaya Serebryanaya Polymetallicheskaya Groupa Limited	Non-ferrous metallurgy
Enterprise for the extraction and processing of oxide ores of the Delmachiksky gold deposit (design and DD documentation)	2018	Zoloto Delmachik LLC	Non-ferrous metallurgy
Feasibility study of the construction of electric substation and two power transmission lines for the power supply of the coal processing plant "Pechorsky CP", JSC Vorkutaugol, (design documentation)	2018	Vorkutaugol JSC PAO Severstal	Coal
FEED studies on optimization of design solutions for the Baranyevskoye deposit mining	2017	Kamchatskoe Zoloto JSC GK Renova	Non-ferrous metallurgy
Development of DD documentation for the object: Aspiration system of the grading building no. 2 and reloading units nos. 4,5,6 (detailed design documentation)	2017	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Development of the main technical and economic parameters of the conveyor ore transportation complexes at the Karelsky Okatysh JSC mines	2017	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Execution of FEED activities: Assessment of the resource potential, development prospects, investment and operating costs of the production assets of the Group Sibuglemet	2017	PAO Severstal	Coal
Olenegorsky GOK iron ore concentrate drying complex (design and DD documentation, engineering surveys, designer supervision)	2017	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy

Completed projects 2006-2022. Concentration (processing)

Project name	Completion Year	Client	Project Program
Project of mining the Gross deposit: Construction of gold processing plant of heap leaching and infrastructure facilities, adjustment (detailed design documentation)	2016	Neryungri-Metallic LLC Nord Gold N.V.	Non-ferrous metallurgy
Noyon-Tologoy deposit, processing plant (engineering surveys)	2016	Baikalrud LLC AKOO Sredneaziatskaya Serebryanaya Polymetallicheskaya Groupa Limited	Non-ferrous metallurgy
Tailings storage facility of the Karelsky Okatysh JSC concentrate production section (design documentation)	2015	Karelsky Okatysh JSC PAO Severstal	Ferrous metallurgy
Heat recovery using flue gases of drum dryer (TEO)	2015	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Heating network from the boiler house of Pechorsky CP to central heating station of the Zapolyarnaya 2 mine (design documentation, engineering surveys)	2015	Vorkutaugol JSC PAO Severstal	Coal
Operational change in the state of coal reserves of the Vorkutinskoe coal deposit based on the results of geological exploration (mining feasibility study, estimation of reserves)	2015	Vorkutaugol JSC PAO Severstal	Coal
Mining feasibility study and estimation of iron ore reserves of the Olenegorskoe deposit	2014	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Feasibility study of permanent exploration conditions and estimation of reserves within the boundaries of the mine field no. 1 of the Usinskoe coal deposit	2014	Vorkutaugol JSC PAO Severstal	Coal
Mining feasibility study and recalculation of the balance reserves of the Vorgashorskoye coal deposit within the license boundary of the Vorgashorskaya mine	2014	Vorkutaugol JSC PAO Severstal	Coal

Completed projects 2006-2022. Concentration (processing)

Project name	Completion Year	Client	Project Program
Technical re-equipment of Pechorsky Concentration Plant with an increase in production capacity to 11.5 MTA (design and DD documentation, engineering surveys)	2014	Vorkutaugol JSC PAO Severstal	Coal
Mining and processing plant at the Baranyevskoye deposit (TEO)	2013	Kamchatskoe Zoloto JSC GK Renova	Non-ferrous metallurgy
Feasibility study of regional conditions for a group of deposits of the Zaimandrovsky iron ore district located on the territory of the Olenegorsky district of the Murmansk region	2012	Joint Stock Company Olenegorsky Mining and Processing Plant PAO Severstal	Ferrous metallurgy
Technical re-equipment of the drying plant no. 2 in the drying building of the Pechorsky CP (design documentation)	2012	Vorkutaugol JSC PAO Severstal	Coal
Technical re-equipment of the main building of the Pechorsky CP (design and DD documentation)	2012	Vorkutaugol JSC PAO Severstal	Coal
Development of options for stockpiling of the finished products of the Pechorsky Concentration Plant, Vorkutaugol JSC (TEO)	2011	Vorkutaugol JSC PAO Severstal	Coal
Rock dump of Pechorsky CP, supplements (design documentation)	2011	Vorkutaugol JSC PAO Severstal	Coal