

Training programs for international reporting standards on the results of geological exploration, mineral resources and reserves of KAZRC (CRIRSCO) for 2017

1. The PONEN program

ORIENTATION COURSE ON INTERNATIONAL STANDARDS

CRIRSCO / KAZRC

SEMINAR PROGRAM:

1. International experience on public reporting on the results of exploration, mineral resources and reserves of solid minerals using the standards of CRIRSCO.
2. The Kazakhstan Code of Public Reporting on the Results of Exploration Work, Mineral Resources and Reserves (KAZRC Code).
3. PONEN - Professional association of competent persons. Competent Person in the preparation and signing of public reports.
4. Geology and exploration
 - Basic geological terms
 - Understanding of geological reports and identifying risks
 - Conducting exploration methods and quality control
 - Evaluation of mineral resources
 - International reporting codes (KAZRC, JORC, NI 43-101, etc.)
 - History of the Bre-X scam
2. Design and construction of mining enterprises
 - Objects evaluation (Scoping Study, Pre-Feasibility Study, Feasibility Study)
 - Risks of mining projects
 - Geomechanical research
 - Infrastructure and logistics
3. Mining operations
 - Methods of conducting the mining operations
 - Planning of mining operations
 - Mining equipment
 - Capital and operating costs
4. Enrichment and metallurgy
 - The main stages of ore processing
 - Ore preparation
 - Experimental work and technological schemes
 - Extraction of useful component
 - Tailing dumps. The main types of tailing dumps
5. Ecological and social risks
 - Environmental and social risks in the development of mining projects
6. Finance and marketing
 - Expenses during the stages of exploration, extraction and processing of mineral raw materials
 - Analysis of sensitivity of the project
 - Marketing

2. Training program on the MGIS Micromine modules

For the entire training period, MICROMINE will provide installation files and license keys with the complete composition of the MGIS Micromine modules (ver. 16).

SEMINAR PROGRAM:

Day 1. Introduction of the MGIS Micromine:

- Basic concepts of the program interface (Visex, main menu, View window, Forms of Visex, toolbars)
- Preparation of data for the project
- Concept "Project", creating a new project, connecting, deleting and renaming the project
- Types of internal data
- Import of data
- Creating new data files
- Data checking
- Creation of a database (wells / furrows)
- Checking the database
- Visualization of the database through the layers of Visex in a three-dimensional environment (well trajectories / furrows, points, shots of the wells, interval mark, graph, solid paths)
- The concept of "Forms dialog box", the preservation and use of forms
- Forms Manager
- Use of color coding
- Editor of numerical and text color sets, hatching, editor of character sets
- Construction of a digital surface model from a file of points (wellheads)
- Construction of isolines by digital surface model and visualization
- Import raster graphics files and their binding
- Lowering the bitmap image
- Introduction to the basic settings of the Visex window (background options for Visex, coordinate grid adjustment, toolbar adjustment, vertical stretching, changing styles, language, options for the Visex window)
- Tools for constructing sections, sections saving
- Summary of the day

Day 2.

2.1 Interpretation of data:

- Introduction to tools for creating and editing polylines - strings
- Workshop (honing skills of building and editing polylines)
- Determination of natural board, hurricane content, presence of several populations, analysis of data distribution using statistical tools (descriptive statistics, distribution statistics)
- Geostatistical analysis, work with variograms
- Selection of composites by content
- Interpretation of the ore body by profiles, binding modes

2.2 Working with frames:

- Introduction to triangulation tools
- Construction of skeletons for thongs (contours of the ore body)
- frame inspection
- Framing editing tools
- Counting volumes by solidity
- Preliminary assessment
- Calculation of three-dimensional coordinates for sampling intervals

- Encoding of ordinary samples from the frame sampling file
- Visual verification of the assignment process
- Hurricane cutting in the sampling file

Workshop - self-construction of the frame

Introduction to Module Capabilities Conditional Simulation:

- Brief demonstration of modeling by content, lithology, fault generation, point selection function.

Day 3

3.1 Block Modeling:

- Statistical determination of the composite interval along the length of the sample
- Calculation of composite intervals along the wells
- Concept of sub-block and factor model
- Creation of an empty sub-block model, limited by the frame of the ore body, the main considerations when choosing block sizes
- Visual check of the conformity of the block model of the wireframe model
- Comparison of volumes on a wireframe and block model

3.2 Inventory valuation:

- Inventory valuation by ordinary kriging method
- The theory of the method of reciprocal distances
- Evaluation of contents using the method of back distances, categorizing reserves
- Creating a report on inventory categories
- Comparison of the contents calculated using the Return Distance Method and the contents calculated as the weighted average of the framework
- Visualization of distribution of contents by block model
- Comparison of volumes on a wireframe and block model

3.3 Introduction to the Optimization module

Print Module

- Creating annotations
- Creating 2D drawings
- Creating 3D drawings creating and applying drawing templates

Writing a macro:

- writing a macro for estimating stocks by the method of reverse distances

3. The PERC program. INTRODUCTION TO INTERNATIONAL CRIRSCO STANDARDS

PERC - Pan-European Committee for Reporting Standards member CRIRSCO.

SEMINAR PROGRAM:

During the course there will be an overview of the CRIRSCO codes and analysis of the differences between them. This will allow geologists and mining engineers to obtain additional knowledge on the requirements for compiling public statements on mineral resources and reserves abroad, which will enable them to work on projects in other countries. The main emphasis will be placed on certain aspects of Kazakhstan's KAZRC code.

Most of the course will focus on training the skills of classification, upgrading the category and transferring mineral resources to reserves based on modifying factors.

In addition, students will be introduced to some of the techniques that are valuable for working with geological data, in particular, to study and demonstrate the quality of data, interpretation, models and assessments in the development of reporting on mineral resources and reserves. They are programmed as macros in MS Excel and MS Access, and at the end of the course, students will have an idea about how to use MS Access and Excel for the analysis of geological data.

The course in Kazakhstan will consist of two parts:

Part 1) International codes and best experience for data collection and resource assessment.

Part 2) Use of modifying factors for the transfer of resources into stocks.

4. The MGIM program. INTRODUCTION TO INTERNATIONAL STANDARDS CRIRSCO / KAZRC

MGIM - Mongolian Professional Society of Geologists and Mining Engineers. Member of CRIRSCO

SEMINAR PROGRAM:

Mongolia's experience of transition to CRIRSCO reporting:

- Classification of resources and reserves of Mongolia and comparison with CRIRSCO
- The essence and role of the Competent Person
- National classification of reserves in comparison with international standards

5. The Leapfrog Program

Implicit (conditional) modeling and software development for Leapfrog geological 3D modeling. Highly efficient engine of implicit Leapfrog modeling, FastRBF creates surfaces directly from data (implicit) and eliminates the need for tedious and time-consuming digitization of data. Unusual performance in data processing of FastRBF speeds up the modeling process, given that the engine can work with more than one million data points.

SEMINAR PROGRAM:

The basic Leapfrog training course will cover most of the software functionality.

Basic Skills:

- Quick construction of geological models, skeletons, dikes, etc.
- Quick loading of data and viewing in 3D space (filtering and revealing of trends, creation of combined lithology tables and sampling).
- Automatic update. With the addition of new data to the projects (wells, mapping, geophysical, geochemical data), the model can be automatically updated.
- The use of various structural trends in the distribution of salinity.
- Audit of model building in Leapfrog.

Day 1

- Working with projects
- Import of drilling data
- Creating a topographic surface
- Construction of a simple geological model
- Dynamic Frame Update
- The model of weathering
- Presentation Tools
- Combined models
- Construction of a geological model based on a map using GIS data
- Construction of a geological model based on a map using structural data

Day 2

- The Stratigraphic sequence tool
- Getting started with a porphyry / vein deposit project
- Import and manipulation of data on the porphyry / vein deposit project
- Geological model of the porphyry / vein deposit project

Day 3

- Interpolation of the porphyry / vein deposit project
- Sections of the porphyry / vein deposit project
- Planning of wells for the porphyry / vein deposit project
- Block model of the porphyry / vein deposit project
- Wire modeling
- Geothermal system

6. The program of Kazakhstan Stock Exchange (KASE)

SEMINAR PROGRAM:

Section 1. Stock market: infrastructure and basic elements.

Introduction: Stock Market and Exchange

Stock market:

- stock market infrastructure
- principles of operation
- main participants and requirements for KASE participants:
 - goals and main functions
 - structure of trading platforms
 - market statistics

Brokerage companies: your access to the stock market

- Who are brokers?
- Principles of brokers' work
- The main functions of brokers in the securities market
- Customer interaction procedures
- The order of making deals and making settlements

The main forms of attracting financing:

Promotions. Bonds

- Types of securities
- Advantages and disadvantages
- Building business funding
- Brief aspects of state registration

Section 2. Raising funds through the stock market tools

Listing on the Exchange. Primary requirements. Information disclosure

- Structure of listing
- Requirements for the company and securities
- Subsequent disclosure of information

IPO: a new milestone in business development

- What is an IPO?
- Main stages of preparation for IPO
- Main IPO processes
- Advantages of IPO for the company

IPO company: a living example is better than a thousand words

- History of the IPO company's success

Requirements for financial reporting

- Main requirements for financial reporting
- The order of disclosure of financial and other information
- Auditor in the process of IPO

Legal Adviser: legal support in the IPO process

- The role of legal counsel in the IPO process
- Preliminary legal audit.

Conversion of LLP into JSC

- Main Procedural Issues
- Development of internal documentation
- Compatible analysis of organizational and legal forms

Section 3. Status of the listing company: main aspects

Particular aspects of information disclosure

- The order of preparing and approving documents
- Basic documents of a public company
- Disclosure of information during the IPO and responsibility for the provided information

Corporate governance or "Play by the rules"

- Principles of corporate governance
- The main stages of the process
- Advantages of corporate governance practices for business