

Permanent Conditions TEO Overview

Areas of study	Objectives
General information on a mineral deposit site (location, natural, weather, hydrographical and orographic conditions, etc.)	Detailed description of all significant aspects
Social aspects and territory	Description of the project impact on the territory development and the description of all significant aspects.
Resources and mineable reserves	Detailed data on the deposit structure, ore bodies structure, distribution of commercial components in the strata. The in-situ resource tonnage is estimated in detail. The mineable reserves are estimated, based on the preliminary mining and geological modelling. Potential losses and dilution are estimated. The delineation of the mineable reserves is based on the detailed analysis.
Rock mechanics	Detailed data on rock mechanics. Preliminary assessment of the stable parameters of workings, rock pressure, etc.
Hydrogeology	Detailed data on the hydrogeological conditions and surface water courses. Approximate estimation of the water-make and mine water quality. An approximate estimation of drainage facilities.
Technological properties of the ore	Processing tests (laboratory studies), prediction of the principal processing parameters and quality of the saleable products.
Infrastructure	Draft location and mine site layout plans. Identification of the main needs in infrastructure with a breakdown by specific aspects (power, heating, etc.). Principal infrastructure architectural and layout solutions.
Tailings	Estimation of the principal parameters of tailings dams, slurry pumps and the scope of construction. Identification of the location site.
Mining methods and access layout	Comparison of the deposit development options and selection of the base mining method and access layout. Justification of range of the optimal mine production capacity. General estimation of losses and dilution. Conceptual mine layout and main issues of development operations.
Mine waste rock storage	Estimation of the principal parameters of dumps, selection of the dumping method. Identification of the location site.
Principal parameters of workings	Principal parameters of main roadways and development headings are identified, and the roof support layout is set.
Drilling and blasting	Estimation of the need in drilling operations and drilling equipment by years. The principal parameters of drilling and blasting (hole spacing, specific consumption, drilling depth, etc.).

Degassing and ventilation	Development of degassing actions. Estimation of the air amount in the mine.
Scheduling	Justified mining schedule with the estimation of the production output, the scope of stripping (roadways drivage and development) and the ore quality. Graphic representation of the mining outline by stages.
Mining equipment	Selection of the equipment types and models. An approximate estimation of the needs in the mining equipment by years of operation.
Processing	Justification of the principal parameters of processing plants. The preliminary estimation of the processing plant equipment by processing stages. Water/slurry balance and mass balance. The forecast of the amount and quality of the saleable products by years of operation.
Environment protection	The principal stages of the environmental impact assessment. Development of environmental actions. Draft estimation of rehabilitation and mine closure activities.
Human resources	Draft estimation of the manpower by subdivisions in view of the operating mode.
Health and safety	Development of the principal health and safety measures. Development of the principal emergency and incident prevention measures.
Civil defence	The issues are considered at a conceptual level.
Subsoil resources protection and rational use	Draft justification of the general and mining losses, based on the regulatory documents. Losses can be estimated, based on the common standards only.
Project risks	Assessment of individual project risks significance. Development of the major measures for risk mitigation.
Economic and financial valuation	The major economic parameters (capital and operating expenditures, etc.) are based on direct calculations of the parameters of the major construction targets, mining operations (roadways drivage, development, etc.) and the mining equipment. The cash flow model includes the estimation of revenues, capital and operating expenditures, taxes, depreciation, sustaining expenditures. The marketing studies are focused on the saleable products and market segments, including a detailed saleable product price forecast. The major project viability parameters (IRR, NPV, TV, payback period, etc.). Testing of the project sensitivity to variable parameters.