OptiTek Mining Consulting Ltd. provides mining engineering services with focus on open pit mine planning and design. OptiTek offers value added professional services through design, optimization, and risk analysis of open pit mining and mineral processing operations. OptiTek integrates expertise in mining engineering, optimization, mathematical programming, and risk analysis to create added value to your enterprise through sophisticated production scheduling solutions that delivers optimum efficiency while meeting all the technical and operational constraints. An optimized life-of-mine production schedule defining the complex strategy of displacement of ore, waste and overburden is developed which leads to reserve estimations compliant with the National Instrument 43-101 guidelines. OptiTek offers expertise at scoping, prefeasibility, feasibility, and operational level in:

- Ore reserve estimation
- Open pit mine design
- Open pit optimization
- Strategic mine planning
- Push-back & phase design
- Long-term scheduling
- Stockpiling & blending
- Cut-off grade optimization
- Short-term scheduling
- Processing calibration
- Multi-mine optimization, scheduling
- Geological uncertainty quantification
- Schedule uncertainty assessment
- Project evaluation
- Cash-flow risk assessment
- Quantitative risk assessment
- Monte Carlo simulation
- Truck and shovel simulation
**Open Pit Mine Planning & Design:**

- NI 43-101 compliant integrated reserve estimation.
- Final pit limits optimization and relevant risk quantification.
- Strategic mine planning, push-back and phase design, mining cuts definition.
- Optimization of long-term production schedule (maximize NPV or reserves).
- Cut-off optimization, stockpiling, blending, and dynamic cut-off grades.
- Short-term production schedule optimization (minimize operational costs).
- Design pits, waste dumps, ramps, roads, slots.

**Quantitative Risk Assessment:**

- Assessment of transfer of geological uncertainty into production schedules.
- Quantitative risk assessment of production schedules and cash-flows.
- Defining probability distributions for uncertain variables (grade, price, ...).
- What-if analysis of production schedules using decision trees.
- Quantitative risk assessment of projects using Monte Carlo simulation.
Discrete-Event Simulation of Mining Systems:

- Simulate production schedules with uncertain production resources.
- Predict fleet productivity for long and short-term planning.
- Evaluate truck, shovel, and crusher availability and utilization.
- Assess possible deviations from target productions.
- Calculate haulage costs.