Sifto Goderich Salt Mine

Continuous miners were replacing drill and blast. **But what would that do to the crushing line?**



A new mining method changes more than the face. The equipment, the haulage and the pattern of feed to the crushers all change with it.

At Sifto's Goderich salt mine, the study needed to know what the transition would do to primary crushing capacity, and whether storage, feeders or fleet changes would protect production.

Integrated underground capacity analysis

Business challenge	Sifto was phasing out drill-and-blast mining in favour of continuous mining. It needed to know how the change would affect primary crushing line capacity, and the production benefit of an intermediate storage pile and different feeder capacities.
Simulation solution	A discrete-event model of the underground operation compared both mining methods on one basis. It became a test bench for change: fleet, feeder and storage options were run against the same crushing line before anything changed underground.

KEY FINDINGS

Mining Methods

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Drill-and-blast and continuous mining on one basis

Storage

Sized

Intermediate pile judged by crushing line throughput

Fleet

Right-sized

Haulage trucks and continuous miners sized for the crushing line

Integrated model scope

FACE → HAULAGE → CRUSHING → CONVEYING → SURGE PILE

Mining methods

Drill-and-blast development and bench mining, and continuous miners loading DUX trucks.

Haulage fleet

Trucks to crushers, LHDs to breakers and DUX trucks to feeders.

Crushing & feeders

Primary crushing and breaking units, and feeder capacities.

Conveying & storage

Materials handling to the surge pile, and intermediate storage.

The model represented the underground chain from the face to the surge pile, with both mining methods in one model, so their effect on crushing line capacity could be compared on a common basis.

Haulage and equipment statistics showed whether a shortfall came from the face, the fleet, the feeders or the crushing line.

Storage was sized for the system. The intermediate pile was judged by what it did for crushing line throughput, not by its own capacity.

Key Takeaway	Changing how ore is mined changes how it arrives. The crushing line has to be tested against the new feed pattern, not the old one.

KEY-PERSONNEL EXPERIENCE

Yes | Bryan Monk, P.Eng, model lead and PM

MISIM CORPORATE ENGAGEMENT

No | prior employer project

CLIENT

Sifto Canada

Historical key-personnel project experience developed during employment at AMEC.