SD Lemieux
DATA SOLUTIONS

Key Projects in the Mining Industry

01 Ore Blending Management System

A complete redesign and modernization of how the ore blend sent to the mill is managed.

30–50 h
saved per month on data entry

Excel → SQL
monthly spreadsheets replaced by a centralized database

The ore blend was originally managed by hand in multiple Excel files, which led to a high error rate and limited long-term analysis (one file per month, one tab per day).

The new solution saves 30 to 50 hours of data entry per month, reduces errors and exposes previously inaccessible data.

Sources (SIMS · LIMS · Mill production) → **Web application** (Data entry) → **SQL Server** (Database) → **SSAS** (Tabular model) → **Power BI** (Reports)

My role covered the architecture design, modeling of the database and tabular model, development of the Power BI reports, management and oversight of the development work, and application support. The web application was coded by Développement Dorion.

Key features

- Integration with SIMS, LIMS and mill production reports
- Secure screens for mine engineering, geology and surface haulage
- Tracking of broken tonnes, underground and surface haulage, silo feed and silo draw
- Production targets for ore (longhole, development ore, cut-and-fill), waste rock, drilling and blasting
- Exception handling (unknown tonnes, reconciliation, overrides, etc.)
- Automatic selection of silo draw based on mill production data
- Geometallurgy module (e.g. throughput forecasting in tonnes/h based on ore composition)

02 Data Democratization

The mine had a 20-year history of working in silos. Departments relied on their own data, copied by hand into Excel, and that data was rarely available to anyone else.

~100
Power BI reports and dashboards

~20
power users

~10
departments served

During my mandate, we led several initiatives to break down these silos and make validated data accessible and shareable, securely.

- Deployed an on-premises Power BI environment
  - Built about a hundred reports and dashboards, most combining multiple data sources
  - Built executive dashboards combining data from some ten departments
  - Used by developers and by some twenty power users across ten or so departments
  - Established a report promotion process from DEV to UAT to Production
  - Retired several Excel “monsters”
- Unlocked SAP data by implementing Simplement
- Unlocked PI data by implementing PI Integrator
- Created a centralized repository of non-sensitive employee data, serving as the master source for 5 synchronized internal and external systems
- Built numerous databases, views, ETL processes and tabular models to expose otherwise inaccessible data
- Enforced strict security on sensitive data, following the principle of least privilege

03 SQL Server Environment Improvements

The mine had no dedicated DBA, so several changes were needed to secure the data, improve visibility and reduce costs.

–80%
in licensing costs through server consolidation

$200,000
per year in undeclared licenses identified

- Conducted a full audit of the environment, with a recommendations report
- Improved the backup system, reducing the risk of data loss while using less storage
- Implemented Redgate Monitor
- Identified over $200,000 per year in undeclared licenses
- Consolidated servers to cut licensing costs by 80%
- Upgraded servers to keep them under Microsoft support
- Tuned configurations, indexes and queries for better performance
- Reviewed access rights to enforce the principle of least privilege