

## **Case Study - Geometallurgical System**

One of the earliest systems built by SATEVA was a Geometallurgical System for a global iron-ore mining company. The system allows for the validation and reconciliation of geo-metallurgical predictions based on the drill hole and blast logging performed by geologists. The major components of this system are the validation tool, the reconciliation tool, and the centralised management of geological material types.

The validation tool allows a geologist to validate the geological logging and verify that the logging is consistent with the assay results. This is done by calculating a set of physicals and theoretical grades from the logging and comparing this with the assay results. If the difference is outside of a predefined tolerance then the geologist knows that a sampling error occurred, the logging is incorrect, or some other problem caused the difference between the theoretical and assay results. A series of charts are available to show the differences between the theoretical and actual assay results for each interval in a drill hole or for each blast hole in a blast. Other charts show each material type's influence on the value of an element's theoretical grade.

The reconciliation tool is used to reconcile the material types by analysing the predicted grades against actual production grades over a period of time or over a series of stockpile builds. The reconciliation tool is an excellent tool to reconcile and update the material types to ensure that future predictions are as accurate as possible, without requiring re-sampling of test material types.

Finally, a centralised material type management tool ensures that geologists across all aspects of the business use a standard set of geological material type codes. The material type management tool also allows historical material types to be mapped to current material types so that historical logging can be used when analysing project data sets.

The Geometallurgical System is a web application developed using Microsoft ASP.Net, SQL Server, and Oracle. The system is used at all Pilbara mine operations and by the evaluation drilling group. The system is also used by the company's exploration group and its overseas operation.

SATEVA is a technology consulting firm based in Perth, Western Australia. SATEVA specialises in providing technology consulting services to the mining, metals, and rail industries. Our company provides application development services in areas such as exploration, mine geology, grade control, planning, rail systems, ore tracking, inventory management, reconciliation, and data management.