From the Core Shed... To the Project Bottom Line

Collection and Application of Mineral Exploration Data

**Goal:** Build a representative 3-D model of material types

**Qualitative field observations are applied to create quantitative boundaries in space between distinct material types in the geological model.**

**Data Collection Workflow – Maximize the Added Value**

The details of every deposit are unique, but these basic material properties should be characterized:
- Lithology
- Alteration
- Oxidation
- Mineralogy
- Structure

Geological Data Applications: Beyond Exploration

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<th>Attribute</th>
<th>Hydrogeology</th>
<th>Metallurgy and Mineral Processing</th>
<th>Mine Engineering</th>
<th>Environmental Geotechnology</th>
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**Keywords:** Logging, data collection, database, material types, geological modeling

Efficient data collection adds value over the life of a mining project, especially where the end purposes of the database are fully considered at the beginning of the exploration stage. The process starts with specifying extra forms and configuring a database to readily import and organize observations and analytical results.

Development of a representative geological model is one of the main goals of the exploration process. This model, illustrated by accurate and complete data collection from field observations, converted to a scalable digital format, is a critical component in generating a solid foundation of data to be essential tools for the mine planning, development, and operation plans.

Initially, the model will depict lithological and other geological contacts and, where mineralized, grade domain boundaries. As a project advances to the development stage, the data set should allow delineation of material types leading to metallurgical, waste rock, and geometrical characteristics.

Many observations, commonly overlooked by exploration geologists, can help define material properties required for designing metallurgical process and mine design. A wide array of mining operations such as blast hole logging, mapping of exploration targets, and all other data interpretation/evaluation can be incorporated into the database and managed in a complete and consistent data set with value to the project and reduces risk to future development.

**Data Collection Sources**

- Observations of Material Properties
- Geological Logging
- Microscopy
- Mapping
- Database of Observations and Measurements
- Drillhole Logs
- Digital Data Tables
- Photographs
- Maps
- Application of Data to Working Model
- Updated Interpretation
- Updated 3-D Model
- New Exploration Targets
- Mineral Resource Estimate
- Geological Model Applications
- Rock Quality: Geotech Engineering, Hydrogeology
- Mineralogy: Metallurgy, Mineral Processing, Mine Closure
- Lithology and Alteration: Applicable to All Aspects of Resource Development... To Find More!