A Connected Orebody Knowledge Platform

**Challenge**

**Increasing waste material on top of coal seams magnifies inefficiencies**

A healthy demand for metallurgical coal continues to place pressure on existing production mines to meet or exceed production targets. Operation teams are caught in the middle with little recourse as the geology typically increases in difficulty throughout the life-of-the-mine. While current practice of trial-and-error for coal seam estimation is sufficient for today’s standards, the counter-productivity caused by this practice magnifies and hinders the mine site as a whole. For example, lack of coal seam precision causes rework from under drilling by “drill-stop-check” or over drilling through the seam.

**Solution**

**DataCloud Increases Coal Seam Detection’s Speed and Reliability**

Identifying geological structures during production, such as the coal seam, can remedy the loss of productivity from complexity. With the deployment of orebody knowledge tools production drilling data is transformed into actionable insights. Then departments can receive automatic coal seam depth recommendations at the right time to streamline operations. These insights are integrated with blasting software for near-real time updates on the coal surface. Teams can plan drilling with recommendations for “stand-off” distance from the coal seam, eliminate unnecessary blast damage, and minimize waste material, dilution, to downstream processing.

**1% reduction of lost coal yields $1.5M of additional revenue**

*at a price of USD $175/ton
How It Works

**Holistic Orebody Knowledge Via Browser Log in**

**MinePortal**

MinePortal connects to a mine’s databases of orebody knowledge to automatically find the transition layers from non-coal rock layer to coal-layer, help generates recommended “stand-off” distances, and determine the depths to the next coal seam. The power of cloud computing allows MinePortal to ingest and process information in near real-time while applying our proprietary geostatistical and machine learning algorithms.

**RHINO**

Our blasthole measurements package is easily installed on production drills to enhance geology data right from the source. Vibration signatures in the drill steel are acquired via IoT enabled sensor devices and wirelessly transmit to an edge device in the cab. Initial processing is performed on the edge device prior to compressing the IoT data and streaming it to the cloud via cellular or WiFi networks to MinePortal for remaining analysis.

**Value**

**Increase operational reliability and improve coal recovery**

Uses of bulk density and natural gamma radiation are the standard practices in coal seam detection. They can be inaccurate and costly with lengthy turnaround times. These shortcomings are magnified with challenging geology, worse yet, without added precision. MinePortal’s ability to accurately identify and recommend the top of the coal seam, coal loss is minimized by not putting waste material through commutation. Consistent and timely detection of the seam improves reliability and productivity of planning, drill, and blasting activities. Ultimately, the coal site can recover an estimated $10M/yr loss due to poor coal seam detection.