

Case Study



Smart Ore Movement for Grade Control

Smart Ore Movement, Feed Blending – Daily Load Instructions

THE BUSINESS PROBLEM

Gamsberg is located about 30km from Black Mountain Mining (BMM) in the Northern Cape, South Africa. located in the northern cape province's Kalahari desert. Gamsberg exploits one of the largest known, undeveloped zinc orebodies in the world and comprises an open pit mine and a dedicated processing plant.

For this mine, the ability to adjust the blending strategy based on real time grade reconciliation must ensure a constant feed grade to the plant. Without going into too much detail, two types of ore mined from the two pits have different characteristics

which causes problems with recovery of zinc and manganese in the plant. For this reason, managing the exact grades and blend of ore from each pit to the plant is crucial to the mine's feasibility.

Open Pit Zinc/Manganese Mine



Detailed Stockpile
Model



Real-time Haul-
Truck GeoFencing

Digitalisation In Action

*The Digital Twin:
Enabling Smart Material Tracking*

[Click here to watch the Video](#)

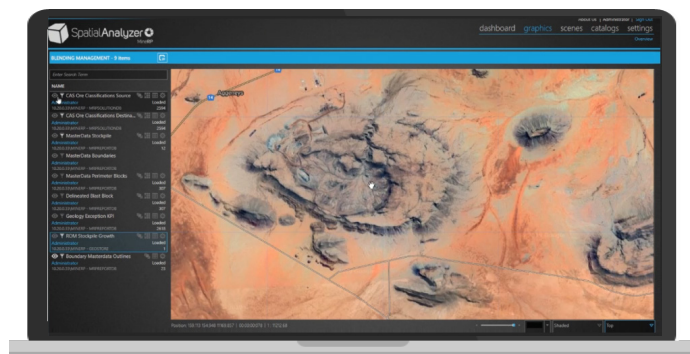
THE MINERP SOLUTION

The concept of 'Smart Ore Movement' (a collaborative project between Gamsberg, GE and MineRP) centers on the need to ensure that all available information about the state of the mine, the quality of ore, the conditions of the processing plant and the value of the output product are not only made available to the mine management team in real-time, but that the information is presented in such a way that it allows for minute-by-minute decision-making.

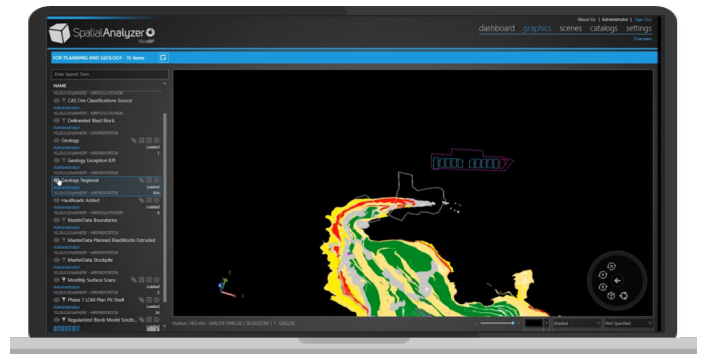
In this project, MineRP amalgamated the Geological Data with GE's Collision Avoidance System in order to understand what the grade content of each haul-truck would be the moment that the truck was loaded. Though smart algorithms, the truck drives could then be directed to an appropriate stockpile, and even location on the stockpile, to tip their loads in such a way as to create a near-uniform grade per stockpile.

Using MineRP's Blending and Scheduling tools, the mine could then mix appropriate content from each stockpile for provision to the plant, keeping the feed-grade optimal and ensuring best recovery possible in the plant.

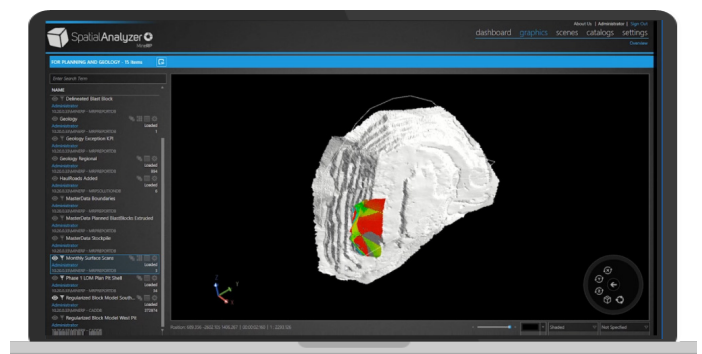
Surface Infrastructure



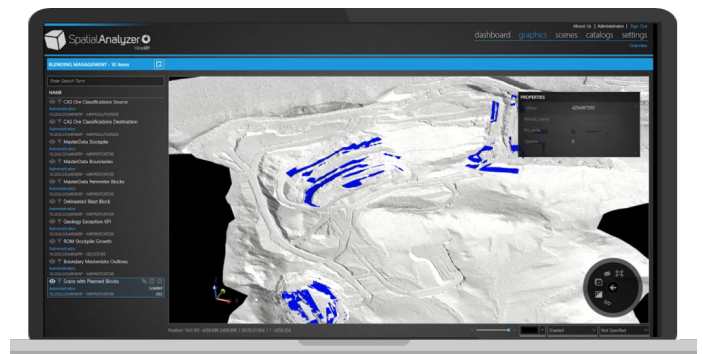
Geology



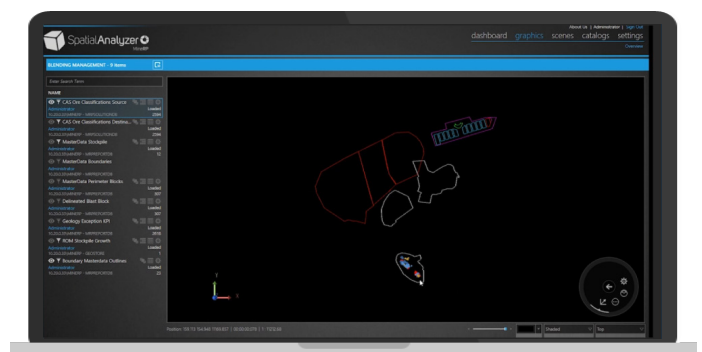
Pit Scans



Planned Mining Blocks



Loading & Dumping Locations



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