

# ANGLOGOLD ASHANTI STREAMLINES SCHEDULING AT FOUR GOLD MINES IN AFRICA

GEOVIA Services and Software Help Boost Efficiency and Increase Productivity



Navachab Gold Mine in Namibia was the first mine converted to MineSched.

### **Challenge:**

AngloGold Ashanti Ltd. needed to produce more reliable and transparent long-term schedules to improve productivity and planning at four open pit gold operations in Africa.

### **Solution:**

GEOVIA MineSched™ enables engineers at AngloGold Ashanti's Mine Planning Hub to create and run multiple scenarios for mining schedules and budgets. Option analysis improves the decision-making process on profitable mine plans.

### **Benefits:**

With MineSched, AngloGold Ashanti can create multiple sophisticated mining operation scenarios in hours to improve the value of long-term operations without customization, scripts or macros. MineSched also offers better auditability and transparency of the mine scheduling process because of its unique graphical user interface for visualization during sequencing of scheduling activities.

## **IMPROVING PROFITS AND PRODUCTIVITY**

When Jason Vos (Vossie) became senior manager of mine planning, he and his team in Perth had a daunting task of meeting high expectations. As part of AngloGold Ashanti's Mine Planning Hub (MPH), Vossie was charged with improving mine planning in AngloGold Ashanti's four African open pit operations and all of the scenarios required to maximize profits with fluctuating commodity prices.

Their job of long-term mine planning and engineering involves generating models that include a dizzying array of variables: the shape of the pit, amount of material available, economic projections, schedules, equipment required and process flows for cutbacks, drilling, hauling, blasting, stockpiling, and waste disposal. This all must be accomplished with transparency, accuracy, easy auditability and the ability to quickly run multiple "what if" scenarios.

"We are always looking for tools to provide more accurate schedules and budgets," says Vossie. "The business must be able to trust our budgets and plans to make long-term decisions that both reduce costs and help maximize productivity, leading to increased profits. MineSched proved to be the ideal solution."

## **ELIMINATING A MAJOR BOTTLENECK**

Until recently, AngloGold Ashanti's long-term mine planning, especially for the continental Africa mines, was inconsistent. At issue: five full-time and one part-time mining engineers at the Perth Hub and roughly 17 others in the field were relying on mine planning and scheduling solutions that required complex software scripting and macros.

Adding to the challenge, creating multiple scenarios required a new round of data processing. If the software could not generate a scenario, it crashed, without attempting to devise an answer. Additionally, some teams were using spreadsheets, which did not provide the spatial representation required or the ability to share information with ease.

## **HARNESSING A BROAD SET OF CAPABILITIES**

In an attempt to find an easy-to-use, effective solution, AngloGold Ashanti's Perth team turned to MineSched. For Vossie, the software's comprehensive capabilities and the hands-on, "can-do" attitude exhibited by Dassault Systèmes' GEOVIA team sealed the decision to move the entire MPH operation over to MineSched from a competing product.

## **IMPROVED ACCURACY AND PRODUCTIVITY**

AngloGold Ashanti wanted to modify the aggregated outputs from a process in MineSched, to mass balance rejected and beneficiated material, allowing qualities to be beneficiated for use in the downstream process. Recognizing the need for this process, the GEOVIA R&D team introduced the functionality into the next software release of MineSched. With this new software enhancement, AngloGold Ashanti now replicates process recoveries, allowing them to be both visual and auditable, accommodating on-the-fly changes between scenarios rather than having to record and revalidate the model. The end result for AngloGold Ashanti is improved accuracy and productivity, enabling them to meet plan.

## **FLEXIBLE LONG TERM PLANNING**

The team now uses MineSched to generate long-term plans that respect industry-standard rules—plans that are flexible enough to incorporate any number of mining locations. With simple setup, the application can create and repeatedly recreate long-term schedules to explore multiple options. MineSched blends materials from mines, stockpiles, and multiple processing plants, producing extensive reports with graphical results in just minutes.

**"We are definitely pushing the envelope of long-term planning, so we need a trusted partner, and we have that with Dassault Systèmes. The combination of robust software, support, and attentive, informed, expert services from the GEOVIA team has been phenomenal."**

— Jason Vos (Vossie), Senior Manager of Mine Planning Hub  
AngloGold Ashanti

## COMPLEX MATERIAL HANDLING MADE EASY

The application also creates schedules that meet grade and material ratio targets while applying practical constraints. Variables can be changed on the fly, without any hiccups. Vossie is impressed with MineSched's ability to handle schedule changes and complex material handling workflows with multiple process flows straight out of the box, without any of the customization or scripting required with competitive products.

"With MineSched, we can now create several well-thought-out mining operation scenarios each day. These can take from 45 minutes (10Gb of resource models) down to 8 minutes to run," says Vossie. "The application is a huge asset."

## INTUITIVE SOFTWARE BENEFITS OPERATIONS

Vossie sees many benefits using MineSched, and considers it to be more than just a simple scheduling tool. With MineSched, AngloGold Ashanti generates both reserves as a direct output from schedules, and pit inventories as a direct output from the location validation. Furthermore, MineSched is used to create locations using different models and design for reconciliations, while they use outputs for spatial reconciliations.

AngloGold Ashanti is now planning on rolling out MineSched to all of its sites. Three mines are already live on the software.

With everyone on the same intuitive software platform, Vossie believes the company can benefit in many ways. For instance, AngloGold Ashanti can speed up or slow down operations and throughput in specific areas, or target different mines than originally planned to help maximize the benefits of future work either with immediate cashflow or future NPV.

## SMART APPLICATION + SMART SERVICES AND SUPPORT = WINNING COMBINATION

Vossie notes that the GEOVIA Support expertise is excellent, an especially important factor because the MPH is pushing the software to its limits. One recent project included 25 geological models, 45 mining locations, and 75 proposed stockpile sites to create a long-term plan for a new operation. In another instance, one mine schedule included 272 different material classes. Despite these complexities, the MineSched application is so robust and reliable that the MPH has rarely made calls to the GEOVIA Support help desk, but can rest assured that the in-depth expertise is there if needed.

"Services from the GEOVIA team have been excellent as well. Our monthly meetings provide collaboration, answer questions, and deliver informed product updates," said Vossie. "Dassault Systèmes genuinely understands the mining business and provides invaluable input as to how to make the most of MineSched to understand base schedules and projection targets for a year."

The GEOVIA Services team helped the MPH in dealing with everything from changes in the taxation code to understanding the upside and downside of different scenarios. "The GEOVIA team genuinely listens to AngloGold Ashanti's input on the product and as soon as resources permit, added them to the product roadmap," adds Vossie. The MPH also uses GEOVIA Whittle™ for strategic mine planning to help optimize mine profits.

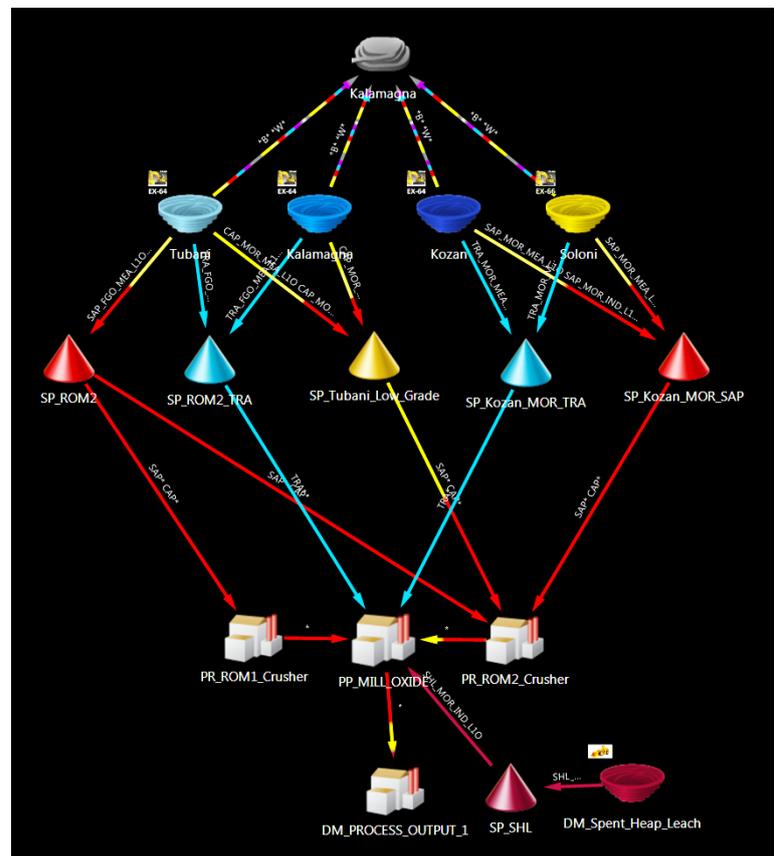
"Using MineSched, our schedules and budgets are more robust, transparent, accurate, accountable, and reliable. I hear it every day from my team: they would never want to use anything other than MineSched."

— Jason Vos (Vossie), Senior Manager of Mine Planning Hub  
AngloGold Ashanti

"We are definitely pushing the envelope of long-term planning, so we need a trusted partner, and we have that with Dassault Systèmes," Vossie says. "They are always up front about when new features are coming so we can make better decisions. The combination of robust software, smart support, and attentive, informed, expert services from the GEOVIA team has been phenomenal."

## UNLEASHING LONG-TERM VALUE

For AngloGold Ashanti and the team at the MPH, MineSched lets mining engineers do their jobs better by thinking about scheduling, versus worrying about technical complexities.



Life of Mine (LOM) Plan for Siguiri gold mine in Guinea.

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Vossie notes that simpler budgets and schedules can be created in three to ten minutes at the push of a button. Budgets and schedules for even the largest sites take only about 45 minutes to run. All of this can be accomplished without customization, scripts, or macros, and with the benefit of auditability and transparency.

The ability to run multiple detailed scenarios quickly and analyze them to select the best ones generates tremendous value for the company. Executives can make more intelligent business decisions and know with confidence the company overall is being wiser about its use and extraction of natural resources.

“Using MineSched, our schedules and budgets are more robust, transparent, accurate, accountable, and reliable,” Vossie says. “I hear it every day from my team: they would never want to use anything other than MineSched.”

### **Focus on AngloGold Ashanti**

AngloGold Ashanti Ltd is the world’s third largest gold producer with 20 operations in 10 countries, and a highly successful exploration programme. It produces approximately 4 million ounces of gold annually and is listed on the JSE, NYSE and ASX.

**Applications Used:** GEOVIA MineSched, GEOVIA Whittle

**Employees:** 60,000

**Stock Exchange Listings:** JSE - ANG; NYSE – AU; ASX – AGG

**Headquarters:** Johannesburg, South Africa

**For more information:** [www.anglogoldashanti.com](http://www.anglogoldashanti.com)

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