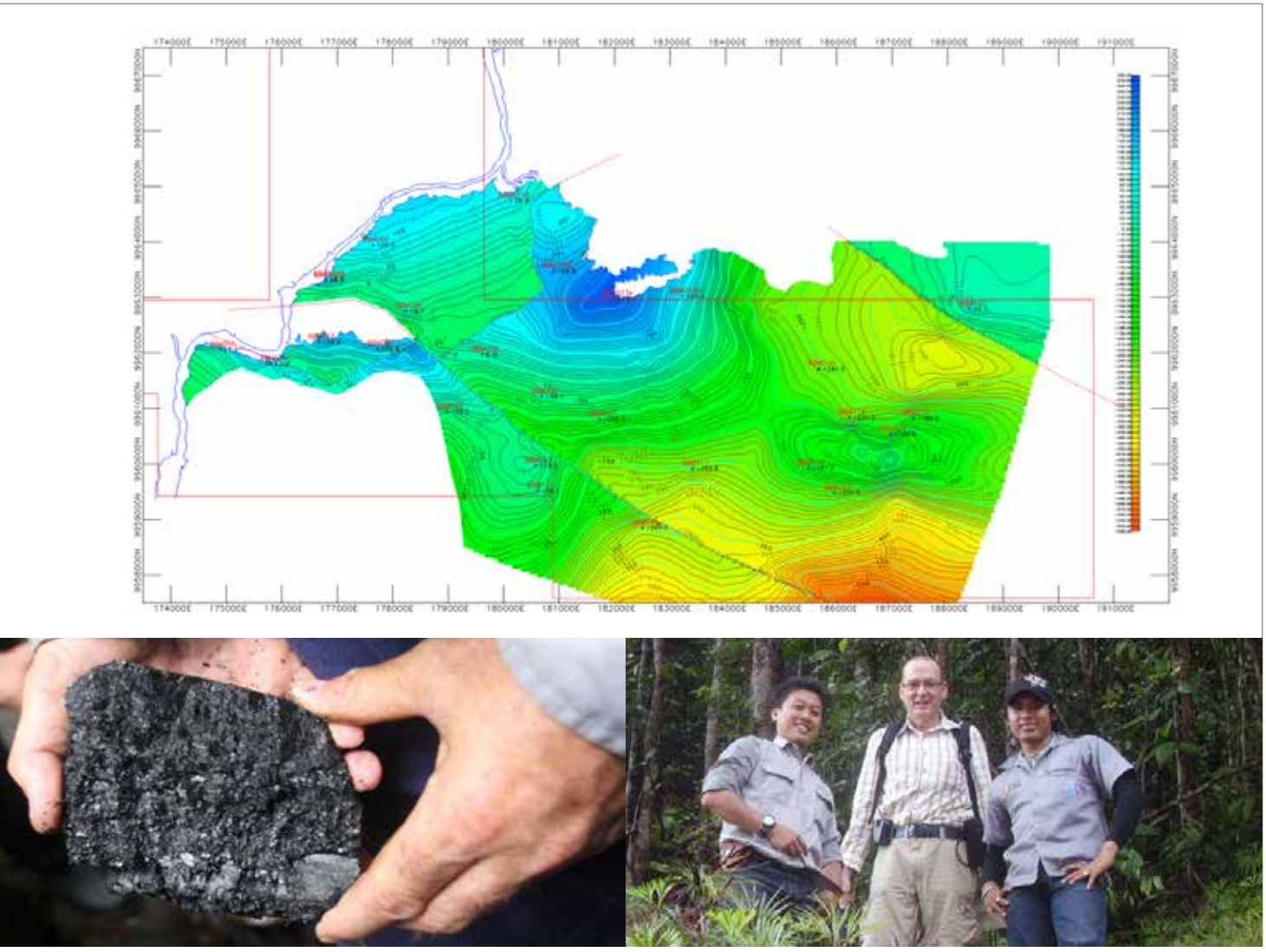
DASSAULT SYSTEMES

GEOVIA

COKAL ADVANCES EXPLORATION OF INDONESIAN PROJECTS WITH GEOVIA MINEX™

AN ACCURATE TOOL SAVES $200,000 AND INCREASES STAFF CONFIDENCE PROGRESSING FROM EXPLORATION TO OPEN PIT COAL MINING



Top: Minex surface elevation map of the BBM deposit.

Bottom left: Pure coking coal at Cokal's BBM project.

Bottom right: Chris Turvey, Exploration and Resource Manager (center) with Mahesa Kristiawan, Senior Geologist (left) and Randy Cavalera, Junior Geologist (right) at Cokal's BBM project.

COKAL

Challenge:
Looking to develop coal assets in Indonesia, Cokal needed a tool for their exploration phase that would identify the assets and enable them to proceed through to production.

Solution:
GEOVIA Minex™ is a single integrated solution that enables Cokal geologists and engineers to plan from geology exploration all the way through to pit design and scheduling.

Benefits:
With Minex, Cokal has gained confidence in the accuracy of their geological model by creating a drillhole database that enables them to interpret geology, identify targets and determine drilling plans.

COMPANY PROFILE

Cokal Limited (Cokal) is an Australian listed (ASX:CKA) coal company, with interests in coal exploration in Kalimantan, Indonesia and Tanzania. Cokal's premier project in Indonesia, Bumi Barito Mineral (BBM), covers 19,920 hectares (Ha) and straddles the Barito River. Proving up Coal Resources to the Australian Joint Ore Reserves Committee (JORC) Code standard for early production is their priority. Initially, it saw 77 million tonnes (Mt) Total Resource comprised of 70Mt Inferred Resources and 7Mt Indicated Resources with 70% coking coal and 30% PCI (Pulverized Coal Injection). Recently this was upgraded to 261Mt using Minex. Using Minex, this estimate was recently upgraded to 261Mt, comprised of 10.5Mt of Measured, 13.5Mt of Indicated and 237Mt of Inferred Resources.

Coal will be transported along the Barito River.

THE RIGHT SOLUTION FOR THE JOB

Designed specifically for stratified deposits, Minex allows Cokal to upgrade their Resource, increasing value while reducing exploration costs.

Since the beginning of their exploration at BBM, Minex has been paramount to Cokal's success. Executive Director, Pat Hanna and Exploration and Resource Manager, Chris Turvey, who is also their Principal Geologist, are both long-time users of Minex having used the software successfully on previous projects. When it came time to start exploring the deposits at the greenfield sites in Indonesia, both Hanna and Turvey went straight to Minex for their geological needs. "I always recommend Minex for geological work," said Hanna. "I would never enter into a project without a solution like Minex – we put it in place and start using it right from day one."

Cokal began their exploration process through their database by looking at the borehole geophysics to understand the geology and initiate the seam correlations. One of the challenges with greenfield projects is the lack of drilling and mapping information; however, Minex allowed Cokal to look at the raw data and formulate a picture about the coal geology. Through the 2D and 3D views, geologists were able to understand the geology, which enabled them to continue the exploration and define the Coal Resources.

COMPREHENSIVE DRILLING DATABASE

Minex increases Cokal's productivity by identifying where to drill, saving valuable time and money. Incorporating the information from the initial outcrops, geologists create predictive holes in appropriate patterns, ultimately forming a drilling budget that provides drillers with the anticipated drillhole intersections.

"Minex is a robust, integrated package that gives you more precise results," said Turvey. "It helps to give you the confidence you need in your data to compile a reliable geological model." By identifying where and how deep to drill, Minex avoids costly and time consuming wildcat drilling, a significant cost savings for Cokal. Once geologists receive the borehole information, they can update their data and re-generate the geological model to confirm the intersection location and determine the quality of the coal. Minex can be used to quickly predict and gauge borehole results to determine the next steps for drilling.

ACCURATE DATA VERIFICATION AND SEAM INTERPOLATION

Coal geologists use Minex to validate the accuracy of the boreholes and other data before the modelling commences. They run the data through a series of validation checks to quickly identify any flawed data, such as the minimum and maximum of thickness, roof, floor or ash that would result in any problematic anomalies. By validating the data, Minex saves Cokal valuable time and money, and provides peace of mind that the models they generate are reliable and

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– Pat Hanna, Executive Director, Cokal Limited

credible. According to both Turvey and Hanna, validation is the most important step in the whole mining process. When working with a data set, nearly 80% of the time focuses on validation, but it is a necessary step to pull the whole drilling progam results together. Once the data is verified, Cokal uses the graphics capability of Minex to ensure everything matches up.

"Minex provides fast, accurate analysis of exploration data, minimizing redundant exploration boreholes and maximizing value for exploration budgets, highlighting target areas quickly during the early stages of exploration," said Turvey. Without Minex, geologists would spend countless hours of manual labor verifying data and building the model. The Minex driven coal analysis enables Cokal to gauge the quality of the coal. Minex offers Cokal the ability to check their data, whenever they want and quickly correct it, and the resulting model. As correlation is extremely important to the exploration process, Minex enables Cokal to examine the boreholes side-by-side with the geophysics to help unravel the geology and fully understand their deposit. The loading and viewing of the downhole geophysics with the borehole seam data allows Cokal to accurately and efficiently interpret coal seam correlation.

INCREASED SAVINGS AND CONFIDENCE

Incorporating Minex into their greenfield exploration program helped Cokal decide where and how deep to drill, saving approximately $200,000. Without Minex, they would have spent weeks, even months, drilling before they could gauge an accurate picture of the coal geology. Minex allows Cokal to plan their exploration drill targets better and eliminates wasted funds that would otherwise be spent on drilling boreholes unnecessarily in barren coal zones.

In addition, Minex reduces the time and manual labor for drawing guides, creating sections and building models, so one person can enter all of the information into the software and build the sections and models — a valuable personnel cost savings for Cokal. "I used to do the work manually, and it would take nine man months to work up a year's worth of drilling," said Hanna. "With Minex, it takes about two weeks, and three quarters of the two weeks is data validation. Once you've validated the data, everything else just falls into place."

The biggest savings to the company, however, is the confidence they receive knowing that their JORC report is correct. They can rest assured that the information is accurate, and that they have not misled the market. "Minex is easy to use with features that allow the integration of borehole data, seam correlations and resource modelling, while being easily audited by storing the datasets in a single database," said Turvey.

ACCOUNTABLE REGULATORY COMPLIANCE

In today's challenging economic environment, Cokal is very cognisant of the need for accurate reporting in accordance with regulatory compliance. Minex provides a fully auditable and accurate database. By having all of the data in one central repository, it is easy to create correct and thorough reporting models that enable Cokal to fulfil the requirements of a publicly listed company. Minex provides full access,

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BBM coal country.

Proposed Truck/Excavator open pit operation for Cokal's BBM coking coal mine.

allowing Cokal to report to the many different regulatory authorities easily with accurate data, showing what has been accomplished. To adhere to compliance regulations, Cokal has their annual reports checked independently. Minex provided the tools for these technical auditors to quickly review and check the data. In a matter of days, the reviewers were satisfied with the data, as it met JORC requirements.

NEXT STEPS

As Cokal progresses into detail in-fill drilling for the mine development stage of BBM, they will use Minex to upgrade the Resources to Measured and Indicated JORC categories for mine planning purposes. They plan to look at both open pit and underground mining and will use Minex to calculate the recoverable reserves throughout their drilling. As they move into the mining phase, engineers will use Minex to determine what is economically extractable with tools like Minex's Scheduling and Pit Optimization. They are also looking to engage the Dump Scheduling and Haulage Planning module to minimize waste removal costs. The all-in-one solution of Minex is a central business component for Cokal – they look forward to adding new modules to their existing software as they move from advanced exploration into the construction and mine planning phase.

Focus on Cokal
Cokal Limited has the objective of becoming a metallurgical coal producer with a global presence. Cokal has interests in four projects in Central Kalimantan and one project in West Kalimantan, Indonesia considered prospective for metallurgical coal. Cokal has also signed a joint venture with Tanzoz Resources to explore for coal in Tanzania, and a co-operation agreement with the Mozambique Government Mining Corporation, EMEM, to explore for coking coal in the emerging coal province of Mozambique.

Headquarters: Brisbane, Australia

Employees: 50

For more information
www.cokal.com.au

Applications Used: Minex