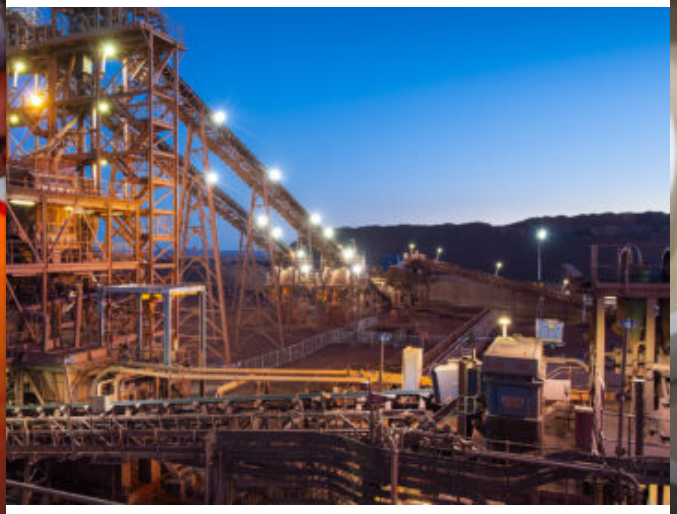

ans Sishen UHDM ore project kick off

23rd February 2021Comminution of minerals, Environmental, Mine operation news, Mineral processing, Mining equipment, Mining finance, Mining services, Steel and iron ore, Water managementAnglo American, dense media separation, Kolomela, Kumba Iron Ore, Sishen, South Africa, UHDMSDaniel Gleeson

Kumba Iron Ore, energised by a record annual EBITDA of R45.8 billion ($3.12 billion) for its 2020 financial year, has made plans to extend the life of its Sishen iron ore mine in South Africa out to 2039

The R3.6 billion ultra-high dense media separation (UHDMS) project was approved by the Kumba board late last week. It is expected to enhance the operation's product quality and extend the life-of-mine by four years to 2039.

Kumba's total iron ore production for 2020 came in at 37 Mt, down from 42.4 Mt in 2019 as both COVID-19-related events and weather-related headwinds impacted output. The company said reduced equipment reliability and availability also played a part to a lesser extent.

In line with this, total tonnes mined decreased by 14% to 256.3 Mt (2019: 297.9 Mt) and total waste stripping by 16% to 204.8 Mt (2019: 244.3 Mt) in 2020.

Owner fleet efficiency (OEE) reduced to 63% of benchmark for the year, compared with 68% for 2019.

"A number of interventions have been implemented to mitigate these impacts," the company said. "We have enhanced our high rainfall readiness and associated recovery plans to manage through such weather impacts going forward.

"Our focus on improving equipment uptime through the implementation of defect elimination and work management programs, as well as artisan and supervisor skills development programs, is also delivering results and we are seeing improvements in equipment reliability across the fleet."

The company is continuing to focus on improving operational efficiency through its P101 productivity improvements and various efficiency programs at both Sishen and Kolomela through the implementation of technology such as guided spotting, adaptive controls, truck speed digital twin and real-time condition-based monitoring.

Kumba's total shovel fleet OEEs came in at 55% during 2020, but the company has a plan to hit the 80% mark in 2022. At Sishen, Kumba has six rope shovels consisting of Komatsu P&H 4100XPCs and Komatsu P&H 2800XPCs, while, at Kolomela, it has two Liebherr R996 hydraulic shovels.

Its total truck fleet OEEs came in at 82% in 2020, with a 100% target for 2022. At Sishen, Kumba has 100 Komatsu 860E and 960E trucks, while Kolomela has 36 Komatsu 730E trucks.

Meanwhile, at the UHDMS project, Kumba expects to break ground in the second half of 2021. This is ahead of commissioning in the second half of 2023.

Kumba, majority-owned by Anglo American, says the project will lower the strip ratio at the operation, extend the life-of-mine, as well as reduce its carbon footprint due to the reduction of waste material at the end of the operation's life.

The total capital cost of the project of R3.6 billion is expected to be paid back with an after-tax internal rate of return of circa-30% and an EBITDA margin of around 40%.

Kumba already has a dense media separation plant that processes low-grade, non-DSO ore and separates it to higher grade iron ore at Kolomela (pictured).

Kumba's Kolomela, Sishen iron ore mines to deploy Rosond nex-gen exploration drill rigs

20th January 2021Automation, Environmental, Mineral exploration, Mining equipment, Mining services, Steel and iron oreAnglo American, automation, drill rigs, exploration drilling, Kolomela, Kumba Iron Ore, Northern Cape, Ricardo Ribeiro, Rosond, SishenDaniel Gleeson

Rosond of Midrand, South Africa, is combining automation, software, data analytics and machine learning to create a next-generation drill rig that will help transition the company from contractor to technology provider.

The company dispatched the final batch of 28 state-of-the-art drill rigs to Anglo American's majority owned Kumba Iron Ore operations in the Northern Cape in December, to be rolled out at Kumba's Kolomela and Sishen iron ore mines. This forms part of a R2 billion ($134 million), five-year tender clinched by Rosond to supply Anglo American with the latest drilling technology as it modernises its geoscience operations.

"We really believe that this is going to be a future game changer," Ricardo Ribeiro, Managing Director of Rosond, said.

In the face of COVID-19 lockdown restrictions, Rosond said it was able to compress a year's work into six months. It collaborated with a leading Italian manufacturer to develop the advanced drill rigs, which will be deployed for core, percussion and reverse circulation drilling.

"I am happy to report that the last two drill rigs were dispatched in December 2020," Ribeiro added. "We are excited to see the entire fleet operational early this year. These are some of the most highly-advanced exploration drill rigs in the world."

The drill rigs feature increased safety with the automation of most of the arduous and dangerous manual labour involved, Rosond says, taking away the need to handle the drill rods, and load and unload heavy equipment from the drill rigs.

The rig operators are housed in a climate-controlled, air-conditioned control room for an improved work environment that, in turn, assists with fatigue management and also boosts productivity and accuracy, Rosond says.

The opportunity to build such rigs also arose with several women being deployed as part of a team at Kumba. Recruiting and training this team formed part of Rosond's tender with Anglo American, Ribeiro explained.

Rosond took the strategic step in 2012 to begin developing new technology for the drilling and exploration sectors, with the drill rigs leveraging the latest developments in software, telemetry and automation.

"We brought in a lot of technology from the construction and oil and gas industries to develop specific functionalities such as dust suppression and automation, as well as software and telemetry systems," Ribeiro said.

The 28-strong fleet at Kumba will be deployed in an 80 km radius to optimise exploration drilling by providing critical geological data about the sites under investigation, Rosond says.

Having successfully developed the hardware of the new drill rigs themselves, the future plan is to launch a software division to focus on the application of data analytics and artificial intelligence in optimising the drilling process, as well as promoting machine learning.

"We are optimistic that in the future our drill rigs will be able to identify all the necessary parameters in order to be able to guide the operators seamlessly," Ribeiro said. "The end goal in our development process is to have a full autonomous drill rig."

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