

SURFACE LOAD AND HAUL - Dr James White



Dr James White is the founder of Modular Mining Systems. As the first commercially accepted computerised dispatching system for mine operations, Modular Mining's DISPATCH FMS revolutionised the way mines work in real time. A chemical engineer, White began his technical career in 1968 as a senior project engineer working for Rohm and Haas Co., a large chemicals and plastics manufacturer. He resigned as head of Rohm and Haas' research computing centre in 1971 to join the University of Arizona College of Mines, as an Associate Professor of Chemical Engineering. While at the university, White applied his computer and engineering knowledge to the mining industry.

He, along with graduate students Mark Baker and Michael Arnold,

formulated an idea for an automated, computer-based dispatching system for use in open-pit mining. With funding obtained from Phelps Dodge Corp (now Freeport-McMoRan) and other sources, the trio developed the prototype of the groundbreaking DISPATCH® Fleet Management system (FMS). The DISPATCH system, with custom hardware and software, optimised the assignment of trucks to loading and dumping points in a mine and produced operating reports during the shift. Encouraged by their success with the FMS prototype, the partners founded Modular Mining Systems in October 1979. The company officially opened its doors for business with five employees operating in 135 m² of office space in Tucson, Arizona. White left the university in 1981 to head up Modular's project engineering efforts. The first commercial installation of the DISPATCH system was at Phelps Dodge's open-pit copper mine in Tyrone, New Mexico. An engineering study later conducted by Phelps Dodge indicated that the DISPATCH system had improved productivity at the mine by 11%. The system that was created included components for automated real-time fleet tracking, production reporting and material flow optimisation which revolutionized the way mine production was managed in the industry. Ruggedised onboard computing platforms needed to be developed to collect, process and display information on each piece of equipment in the mobile fleet. Digital radios and networking technology that many take for granted today had to be developed to provide the means for bi-directional communications that allowed a multitude of vehicles to send remote telemetry data on demand to a central computer. This was required so that the system could perform the recording, reporting and optimisation functions, and to enable operators to get real-time destination assignments for material flow control. Standalone RF-beacons had to be developed to be placed strategically in the mine to provide automated location detection for the mobile fleet. And last but not least, their real-time optimisation and assignment algorithms were developed and still stand unsurpassed in the mining industry. As the system evolved, it was the first to incorporate many of the disruptive technologies that have been introduced since its inception. Among the many ground-breaking achievements including the

integration of equipment maintenance, safety, high precision mining technology and automation. Using the success of the DISPATCH system as a springboard, Modular has gone on to develop the IntelliMine suite of products, which address the big picture areas of: production, planning, maintenance, and safety. Modular's corporate headquarters and newly-opened Integrated R + D and Support Center are in Tucson, where White continues to serve as Chairman. Modular has more than 600 employees, with approximately 400 of those working in regional sales, support, and development offices located in Australia, Brazil, Canada, Chile, India, Indonesia, Peru, Russia and South Africa. Since Modular introduced the DISPATCH system almost 35 years ago, fleet management systems have become an indispensable tool for virtually all medium-to-large sized open-pit and underground mines. This technology has become so ingrained that very few green-field operations start up without implementing an FMS solution. No longer limited to optimising haulage and other operational functions, today's systems also address the areas of situational awareness, equipment health monitoring, real-time correction of operator behavior, and fatigue management and safety. As Modular celebrates 35 years of doing business in the mining industry, the product that started it all - the DISPATCH Fleet Management System - is installed at over 230 mines, spanning six continents, operating on more than 30,000 machines, at 18 of the 20 largest mines in the world. Over the last three decades, Modular has gone on to develop the IntelliMine® Mine Management suite, comprised of the DISPATCH FMS, ProVision® Machine Guidance solution, MineCare® Maintenance Management system, and MineAlert™ Safety Management Tools. As it has from the beginning, Modular continues to focus on innovation and new ideas, while simultaneously ensuring that customers receive the maximum value from their investment. "We take lessons from the past while keeping our eyes firmly set on a vision for the future," said Luiz Steinberg, Modular CEO. "As a company, our goal is to provide quality products that help our customers achieve higher levels of productivity, profitability, and operator safety."