Modular Mining's DISPATCH Fleet Management System

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Modular Mining's DISPATCH® Fleet Management System (FMS), known industry-wide for its haulage optimization algorithm, has been helping mines maximize production since taking the market by storm in 1979. While haulage optimization is the FMS' most renowned feature, the system offers an extensive array of additional capabilities that enable mines to increase efficiency and productivity, and make the most of their equipment fleet.

Case in point, mines looking for new ways to reduce costs and maximize equipment utilization, while meeting or even exceeding stated production targets, have turned to the company's Payload Management module for help. The module, an optional add-on to the DISPATCH FMS, captures payload data via a truck's original equipment manufacturer (OEM) interface, and then transmits the data in real time to loading equipment operators.

Automated payload management in use

Two open-pit coal operations - one in South Africa, the other in Australia - realized substantial gains after implementing the DISPATCH Payload Management module.

Both sites initially relied on manual methods for tracking and recording payload information. The results were frequently inaccurate and inconsistent, making it next to impossible for either mine to obtain accurate payload data. In Australia, the manual process often caused extensive delays, sometimes taking 24 hours to get vital analysis and feedback to the operators.

In addition, loading operators lacked visibility into the amount of material being placed in the truck bed. Operators routinely underloaded the trucks, which in turn led to unrealized production opportunities, additional trips between loading and dumping locations, wasted time and fuel, and increased tire and component wear.

With assistance from Modular Mining's Performance Assurance group, both mines implemented the DISPATCH Payload

Management module. This gave the mines the ability to capture real-time payload information from the onboard payload monitoring systems on DISPATCH-equipped haul trucks. A key benefit of this functionality is the real-time collection and communication of the tonnage values being loaded into a truck with each pass. Immediate access to this data is crucial for tightly-correlated target-to-realized production values, and to ensure accurate cost analysis and production reporting.

Through the addition of the Payload Management module, both mines benefitted from improvements in production tonnage, loading efficiencies, and data reliability. For example, the South African site experienced a 10% increase in payload for its waste trucks, while the Australian site improved its loading accuracy, with under- and over loading values falling within a 10% variance from the target weight.

Not just for operations

Departments outside operations can also benefit by leveraging FMS-integrated payload data. For example, Mine Planning can utilize the gross quantity of material being loaded and the grade/quality of material per load in resource-allocation and scheduling activities. Mineral Processing can compare the amount of material being dumped into a crusher against production reports, enabling more accurate validation of the crusher feed rate and calibration of conveyor scales. Maintenance can use the data to help determine the impact of payload weight on tires and other equipment components, which can enable advance mitigation of potential damage.

Access to payload data can also help mine operations validate contractors' reports of tons moved and fuel utilized to ensure that the mines are realizing the tonnages being purchased. Conversely, production contractors can use the data to quantify their reported results and validate billed amounts.

Across the board, real-time calculation and recording of OEM payload information

Real-time, automated, FMS-integrated, payload management

paired with FMS integration leads to more efficient operations, increased productivity, and greater return on investment.

What else can the DISPATCH FMS do?

More than 50 core and optional modules are available to expand and enhance the system's functionality, flexibility, and configurability. The modules are categorized within five main solutions, encompassing the key areas of: Equipment Tracking, Equipment Control, Crew Management, Safety Management, and Materials Management.

Via the modules, mines can extend the capabilities of the FMS to address specific needs. For instance, the Auxiliary Equipment module could enable mines with extensive auxiliary fleets to engage in automated task, status, and time tracking, for those units. In another example, the Idle Monitor module could help mines lower fuel usage, while also reducing engine wear by notifying dispatchers when an engine is left running while equipment is stationary.

To learn how Modular Mining's industry-leading solutions can help solve challenges at your mine, visit: https://www. modularmining.com/solve-your-mining-challenges/.