

# Coal Pit Dozers Operate with GNSS Dual Constellation



Teck Coal, a major Canadian coal producer, has recently upgraded the computer navigation system on its fleet of 30 Caterpillar D-10 and D-11 dozers with Ashtech MB 500 GNSS boards for more efficient performance. The new MB 500 boards improve dozer efficiency and uptime, at the company's four mining operations in the Elkford valley, by delivering more comprehensive satellite coverage, despite the adverse site conditions, including high walls, reduced sky and multi-path, typical of open pit coal mines. The new boards also have the virtue of being small enough to be housed entirely within the on-board Octagon computer thereby freeing up valuable cab space.

The Ashtech MB 500 boards are configured to acquire and track L1/L2 GPS, GLONASS and SBAS satellite signals and provide a 20Hz update rate to the Gemini GPS Control software on the Octagon Systems RMB-C1 computer running Carlson Grade Control software. For the highest operational accuracy at each of the four mining operations, an Ashtech ProFlex 500 reference station transmits UHF real-time RTK centimeter accurate correction signals to the on-board MB 500 units. The ProFlex 500 has embedded UHF, GSM/GPRS and Ethernet connectivity, and like the MB 500 board tracks dual-frequency GPS and GLONASS signals as well as SBAS ranging signals, all of which are optimally processed by the patented BLADE technology. Gemini Positioning Systems Ltd. is the system integrator.

The new boards replaced externally mounted, dual-frequency, single constellation receivers that at times lost satellite coverage forcing the dozers to stop and switch to survey mode slowing the entire mining operation. Multi-constellation positioning, GPS+Glonass+SBAS, grants more robust and complete coverage in adverse site conditions.