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Caterpillar to Supply Two Complete Longwall Top Coal Caving Systems to Mine in Turkey

In July 2014 Caterpillar will deliver the first of two complete Cat[®] longwall mining systems to the Soma Eynez East mine of Demir Export A.S. – Fernas Insaat A.S. Joint Venture. Both longwall systems are designed for longwall top coal caving (LTCC) in a coal seam with an average thickness of 25 meters (82 feet). Caterpillar is the leading supplier for the coal producing industry in Turkey with four out of five longwall underground mining systems in operation.

The greenfield underground coal mining project is in the Turkish Soma-Manisa area and is planned for a 15-year mine life. The project includes 36.5 million tonnes (40 million tons) of coal production with the LTCC mining method.

The first longwall mining system will start production at the Eynez East mine in the third quarter of 2014 and will have a production capacity of 2.7 million tonnes per year (3.0 million tons per year). The coal face has a length of 180 meters (590 feet). The second longwall will be in operation six months later.

“Caterpillar strengthens its position as the premier partner of the Turkish coal mining industry with the installation of the new longwall systems at Soma Eynez East,” said Martin Wetter, Caterpillar product line manager, longwall mining. “We are pleased that our longwall equipment will be the workhorse recovering this very thick seam.”

Each of the two identical sets of longwall mining equipment includes a Cat EL1000 Shearer, two Cat AFC PF4 Face Conveyors, and a Cat BSLPF4 Beam Stage Loader including an SK111 Crusher. Caterpillar will also supply the complete electrical and hydraulic power supply

systems as well as the cooling and spraying water supply system and the complete automation system for the longwall face.

The roof supports for the longwall systems will be provided by Caterpillar (Zhengzhou) Ltd., a Chinese company acquired by Caterpillar in 2012. Each longwall system includes 95 Zhengzhou roof supports with a shield center of 1.75 meters (5.7 feet) and an extended height of 3.20 meters (10.5 feet), transition and gate end shields, as well as roadway shields for tail and maingate. The roof supports will be equipped with state-of-the-art Cat PMC-R roof support controls.

The longwall systems supply agreement also includes extended service provided by Caterpillar. Two six-month contracts for supervision and support for installation, commissioning and operation are part of the package. Borusan Makina Kazakhstan, the Caterpillar dealership for Turkey, Kazakhstan, Azerbaijan, Georgia and Kyrgyzstan, will provide customer support.

Longwall Top Coal Caving

The longwall top coal caving (LTCC) mining method to be employed at the Eynez East underground coal mine is a special type of longwall mining applicable to seams thicker than 6 meters (20 feet). Conventional longwall equipment has not yet been designed to operate successfully in seams thicker than approximately 6 meters (20 feet) mining height.

LTCC enables increased recovery for only an incremental additional cost. The lower section of the seam is cut by a conventional longwall set-up except that each longwall roof support has a longer rear canopy extending past the base into the goaf (also known as gob). The extended rear canopy has a sliding rear canopy fitted into each one. An additional AFC is attached to the rear of the shields and runs directly below the canopy openings. As the face moves forward, the coal left above the section cut by the machine falls onto the extended canopies, providing the goaf is caving normally. The sliding rear canopies are sequentially opened, and the coal falls through onto the rear mounted AFC. The maingate stage loader is extended beyond the face conveyor to enable the rear mounted AFC to discharge coal directly onto it and carry coal to the maingate conveyor belt system.

Caterpillar (Zhengzhou) Ltd. designs, manufactures, sells and supports mining equipment used in underground coal longwall mining and has become one of China's market leaders in roof support systems, which are the major component of the longwall mining system by size, weight and value. Caterpillar (Zhengzhou) Ltd. offers a complete range of tailor-made roof supports under the Zhengzhou brand for operations ranging up to 7.3 meters (24 feet). In addition to the conventional roof supports, Caterpillar (Zhengzhou) Ltd. also offers different longwall top coal caving systems.

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