

LONGWALL MINING SUCCESS STORY

AIDED BY CAT® LONGWALL EQUIPMENT RUSSIAN MINE SETS MONTHLY COAL PRODUCTION RECORD

The Russian Yalvskogo mine operated by the Siberian Coal Energy Company (SUEK) recently surpassed the national monthly coal production record. The mine produced 1,407.30 metric tons of raw coal from one single longwall face (seam No. 50) in May 2017 to set an all-time record, exceeding the national record of 1,050,452 tons that it set in August 2016.



Celebration of the record production.

The mine is located in the Kuzbass region, the source of much of Russia's coal exports. In 2016 the Yalvskogo mine had an annual production of more than 4.5 million metric tons of steam coal. The record performance was obtained without any lost time injuries on the face with full compliance to the national safety laws.

RECORD-BREAKING LONGWALL EQUIPMENT

The longwall face at Yalvskogo mine is equipped with customized two-leg Cat roof supports, each with a width of 1.75 meters and support capacity of 725 tonnes. With an operating range of 2.2 to 4.8 meters, the supports are used in a seam that is typically about 4 meters 13 ft. thick. The plating of the hydraulic legs is applied to meet the corrosive environment at the mine.

The longwall system includes a Cat AFCPF6 armored face conveyor (pan width 1142 mm) as well as a Cat BSLPF6 beam stage loader – both armed with Cat controlled start transmission CST drives, featuring no-load motor startup, AFC soft start, synchronized heavy-load startup, and accurate load sharing between up to three drive motors with excellent, extremely fast overload protection. The beam stage loader includes a SK114 crusher with 400 kW installed power. Pan width is 1.342 mm.

MINE FACT SHEET

V. D. Yalvskogo Mine
(former Kotinskaya mine)



Location

Kemerovo region, Siberia, Russia

Owner

SUEK (Sibirskaja Ugolnaja Energetitscheskaja Kompanija)

Average Annual Production

3,5 – 3,8 Mio. metric tons/year

Average Monthly Production

500.000 metric tons/month

Number of Employees

800

Production Days

up to 250 days/year

Production Target 2017

4,5 – 5 Mio. Metric tons

Seam Name

Seam No. 50

Seam Height

3,8 m

Face Length

410 m (after face extension)

Coal Type

Thermal (steam) coal

Roof and Floor Conditions

Sand shale, fine-grained

Gas content

3 m³/t, category III, explosive

The longwall is fully automated with Cat face automation including Cat programmable mining controls and condition monitoring software, facilitating full automation, monitoring and remote diagnostics for all face equipment. All information can be transferred to the surface in real time to allow maximization of longwall performance.

In April 2016, SUEK ordered Cat equipment for a face extension from 300 to 410 meters. For this extension the installed power of the face conveyor was upgraded to 3 x 1.000 kW with new Cat CST65 drives which were commissioned in April 2017.



CAT LONGWALL MINING EQUIPMENT AT YALEVSKOGO MINE

- **ROOF SUPPORT**

Cat roof supports 2200/4800 mm, 2400/5000 mm, and 2550/5500 mm (closed/extended height); customized design

- **FACE CONVEYOR**

Cat AFCPF6/1142 with 3 x Cat CST65 gearboxes and 3 x 1.000 kW conventional motor; 410 m conveyor length

- **ENTRY CONVEYOR**

Cat BSLPF6/1342 beam stage loader with Cat KP25 gearbox and 200/400 kW motor; belt tail piece 1600/3500, SK114 crusher with K8-B gearbox and 400 kW motor

- **SHEARER**

Eickhoff SL900

- **FACE AUTOMATION**

Cat PMC-R roof support control, PMC-D drive control, PMC-V visualization & control unit, MCU2 master control unit (explosion-proof underground PC); V-software package for condition monitoring

- **SPECIAL FEATURES**

- The electrohydraulic roof support control system for the Yalevskogo mine offers special operating modes to boost both productivity and safety. The system can reactivate some regions of the face and resume production even though the face has been put into a safe condition in response to detection of an electrical fault, sometimes caused by a broken cable between two PMC-R controls. Before reactivation, strictly defined conditions must be observed.
- For the longwall system at the Yalevskogo mine, SUEK combined Cat roof supports from other longwall faces. Three different types of Cat roof supports with different heights were combined. For matching the armored face conveyor to these different roof support types, Caterpillar manufactured custom-specific clevis mountings (connection between AFC line pan and roof support base) ensuring all face roof supports have the same tip to face distance of less than 412 mm, according to Russian regulations. The tip to face distance is a very critical measurement in order to maximize roof integrity and limit dilation.