

## Challenges

Massey Energy, one of the largest coal mining companies in the U.S., continuously works to achieve operations that perform at the highest level of efficiency and safety in their longwall operations. Massey has recently found that selection of Quaker's longwall hydraulic fluid QUINTOLUBRIC® 814-02 has not only improved the safety of their operations, but has also paid for itself with the amount of money saved.

A major part of achieving an efficient and safe operation is selecting a hydraulic fluid that provides the following characteristics:

- Provide lubrication of the hydraulic components including pumps, cylinders and valves
- Maintain a consistency that allows effective filtering to remove contaminant particles and dirt
- Prohibit the growth of bacteria and fungi in the working fluid

In addition, Massey requires the hydraulic fluid to provide exceptionally high performance characteristics by exhibiting the following.

- Low toxicity
- Biodegradability to avoid negative health
- Product stability to allow numerous cycles

Quaker's QUINTOLUBRIC® 814-02 has not only met these stringent requirements but has also reduced costs by increasing productivity and by reducing downtime and maintenance requirements.

## Providing Solutions

Since selecting QUINTOLUBRIC® 814-02 Massey has seen dramatic improvements in the following areas:

- Reduction in fluid maintenance
- Increase in longwall operation
- Increase in the mine's profitability

### Safety

Before using QUINTOLUBRIC® 814-02 Massey experienced bacteria levels as high as 10<sup>9</sup>. Since switching to QUINTOLUBRIC® 814-02 they have achieved the following results:

- Elimination of bacteria, fungi, scum build up, and deposits in longwall fluid systems
- Improved protection of workers health and safety
- Lower filter consumption

### Production

Before using QUINTOLUBRIC® 814-02 Massey's longwall operation experienced high levels of solenoid consumption and solenoid sticking.



Since switching to QUINTOLUBRIC® 814-02 they have achieved the following results:

- More than 80% reduction in solenoid consumption
- Improved operational efficiency
- Reduction in solenoid changes during a shift
- Increased savings from reductions in solenoid purchases

## Product and Process

QUINTOLUBRIC® is Quaker Chemical's family of specialty, fire-resistant hydraulic fluids. For more than 30 years, Quaker Chemical has been a leading supplier of specialty hydraulic fluids, and the QUINTOLUBRIC® brand is recognized around the world as the name for high-quality, high performance, fire-resistant and environmentally compatible fluids. Accomplishments in the longwall industry include no reported incidence of bacterial growth for over 15 years. In addition to these accomplishments, QUINTOLUBRIC® has an exemplary record of customer retention, among the highest for longwall hydraulic fluid suppliers.

## Product Information

HFA fluids are hydraulic fluids for use in equipment designed to operate with low-viscosity high water content fluids. QUINTOLUBRIC® 814-02 is a high water based (HFA) hydraulic fluid concentrate designed for use in longwall shields.

Quaker's QUINTOLUBRIC® "Clean Green" Longwall Fluids offer these seven major benefits:

- Biodegradable
- No bacteria scum
- No corrosion
- Non-toxic
- Non-hazardous
- Fire resistant
- Odor free

Quaker Chemical markets several HFA products for various applications including the brand names QUINTOLUBRIC® 807 for commercial applications, and QUINTOLUBRIC® 814 and QUINTOLUBRIC® 818 for longwall mining applications. These products outperform competitive products in stability, bio-resistance and corrosion prevention with low applied costs.

