

Challenge

Issue

A large surface copper mine experienced pre-mature seal failure on the suspension cylinders of heavy-duty, off-road haul trucks.

The suspension system was exposed to severe operating conditions including a heavy payload, shock load, and high frequency.

Cylinders with an OEM seal repair kit lasted only 6,000 to 8,000 hours.

The challenge was to extend the operating hours between maintenance intervals of the shock absorbers. Another goal was to use existing metallic components for repair/upgrade of the cylinders.



Reliable haul truck suspension systems are crucial to reliability in a mining operation.

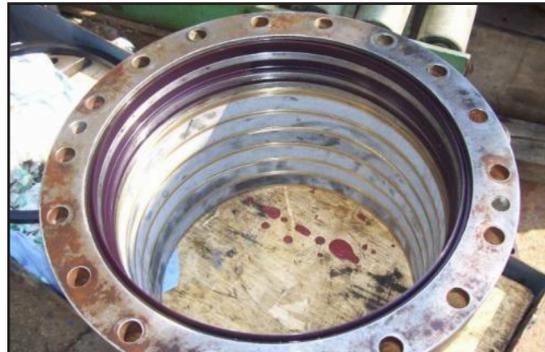
Solution

Recommendation

The local Chesterton specialist recommended a cylinder upgrade solution—a complete system with high-performance components.

Seal Materials: Proprietary thermoset polymer (**AWC800**) provided outstanding wear, abrasion and extrusion resistance. **AWC640** is a high-load capacity, non-metallic, bearing composite material.

Seal Kit: Included wiper, primary rod seal (cap seal), secondary rod seal (u-cup), and rod bearing bands.



New Chesterton rod sealing system: Using 21K wiper, 22K rod seal, and 16K cut-to-size bearing bands.

Results

Improved Performance and Reliability

- Rebuild cycle: Extended from 6,000 to 8,000 working hours up to 12,000 hours.

MTBR Improvements: 1.5-2X

- Immediate cost saving by using existing metallic components for upgrade of the cylinders.



Upgraded shock absorber in operation.