Case Study / Energy

Crawler Tractor

An engine oil sample was submitted from a crawler tractor for routine laboratory analysis which revealed excessive engine wear.

Before there was further damage or it became necessary to stop the equipment without further information, ALS was hired to perform oil analysis for predictive maintenance. Possible risks without predictive maintenance:

- Catastrophic failure
- Loss of production
- Reduced resale value

Analysis

ALS has decades of experience delivering equipment reliability services that keep businesses on the right path. ALS Tribology provides valuable information to save you our customer time and money. The oil analysis presented:

- High levels of iron (Fe), copper (Cu), and diesel fuel contamination
- Low oil viscosity

Diagnosis

These findings indicated that the high level of fuel dilution was creating excessive engine wear due to loss of viscosity and lubrication by the oil.

Solution

During the recommended inspection, it was found that there was leakage from the fuel injectors. The sealing rings of the injectors units were replaced and the equipment was returned to operation. After 160 hours of operation, a new sample was submitted for analysis. The laboratory test results showed normal conditions, proving the effectiveness of the maintenance work performed.

Result

By using ALS oil analysis and diagnosis as a proactive maintenance tool, the customer replaced the injector sealing rings for $443 USD, which prevented further damage and a possible total loss of the engine. In this case, cost avoidance is estimated to be $44,000 since the customer was able to make the repair and avoid having to replace the entire engine.

$44,000
EST COST SAVINGS

Based on the maintenance/downtime cost to mitigate the causal factor vs the cost of not performing the oil analysis and potential catastrophic failure of the engine.