



In the Field with Donaldson

# Clean Fuel & Lubricant Solutions



## RELIEVING THE PRESSURE FOR CANADIAN MINER

### THE SITUATION

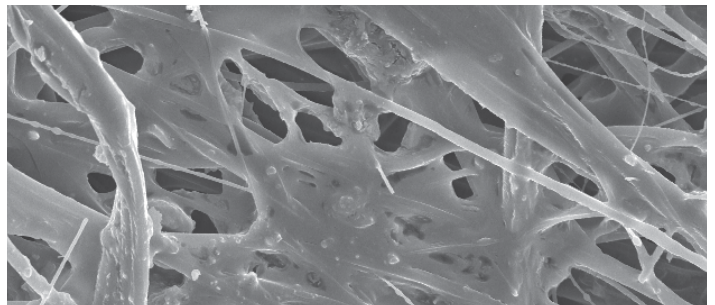
Walter Energy is strongly committed to using only the cleanest diesel as it transitions to Tier 4 equipment. They know that injector damage and on-board fuel filter clogging are real possibilities when contaminated diesel is used in modern engines. Mark Robillard, the purchasing manager for Walter's Canadian operations, didn't want to have to rely on the new equipment's onboard filtration for protection, so he made the decision to improve the company's diesel quality before it was pumped into equipment.

### THE INVESTIGATION

To investigate the back-pressure issues, Robillard talked to his diesel supplier, who said it wasn't a problem with the fuel. He talked to the fuel terminal, who also denied responsibility. Robillard then contacted Scott Pump Service, his Donaldson Clean Solutions distributor, who helped remove and analyze the filters installed on the Walter tanks.

Scott Pump enlisted other Donaldson experts, and together they discovered that the diesel traveled a long way from the refinery, via rail and multiple trucks before it was delivered to the mine. En route, the fuel had time to cool completely. Since warm diesel holds a higher ppm of water in saturation than cold diesel, free water formed during transit and dropped to the tank

To prepare for a more meticulous level of diesel filtration, Robillard had all Walter tanks drained and cleaned. Then, on Donaldson's recommendation, he installed inlet and outlet filtration on every tank and filled the tanks with fresh, clean fuel. The company did everything right, but within a couple of days, back-pressure issues started to occur when trying to pump fuel into the bulk tanks. This slowed diesel offloading and was problematic for the delivery driver. To make matters worse, there were no spare filters on hand.



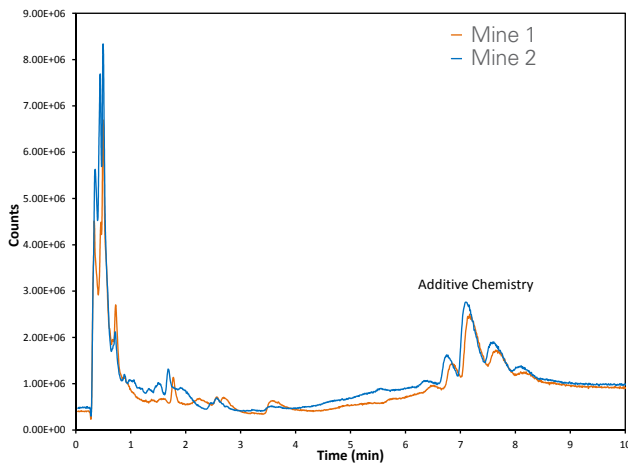
bottom. As it settled, the free water carried with it chemical components of one or more of the additives injected at the refinery. Together, they bonded into a soft, sticky substance. This is what was compromising the fuel filters and rapidly slowing the flow.

## THE CHALLENGE

Donaldson advised that the mine could improve fuel flow at delivery by using more “open” filters. This meant switching from the super efficient filters recommended for diesel used on HPCR equipment to filters that would allow some of the contaminant to flow through the media, thus increasing flow and extending filter life. There is a full range of Clean Solutions filter options available, so the level of efficiency is ultimately the end-user’s decision.

The mine did not chose this option, however, because they knew that any contaminant not caught by the bulk filters would be passed along into their new Tier 4 equipment, potentially clogging the onboard filters and damaging the expensive fuel systems. They decided it was much safer and less inconvenient to isolate the problem at the bulk tank, rather than spread it into their entire fleet and risk unplanned downtime. The priority was to keep the equipment running.

As it turned out, this was a one-time occurrence. While the specifics of what happened to this particular batch of fuel can never be known, it is likely that it was a confluence of circumstances and not the result of anyone in the fuel chain doing anything outside the norm.



LCMS test results indicate the chemistry of the soft contaminant. The same material was identified in the filters of a neighboring mine.

the root causes of the problems, with forensic analysis of the clogged input filters. This analysis allowed Walter to diagnose soft fuel contaminants as a primary cause of the problem. The follow-up actions (full filtration system installation) reduce the number of potential challenges Walter will face in the future, and narrow the range of causes when and if a problem does surface.

## THE RESULT

Robillard believes that the bulk filtration system will lead to better injector performance and longer times between onboard filter changeouts. He also believes that having a filtration system in place will help protect Walter Energy from the risk of a manufacturer attempting to deny a warranty due to the use of dirty fuel.

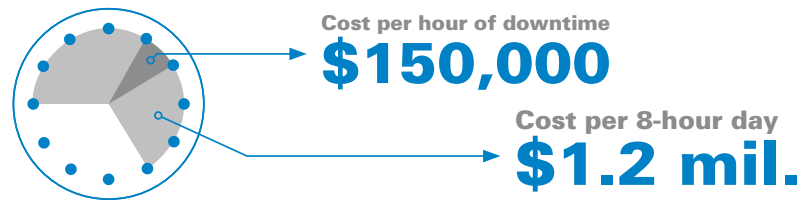
But the most important impact is the increase in uptime. Downtime can cost mining operations up to \$150,000 per hour, so the elimination of even a single incident covers the cost of filtration installation many times over.

## THE CLEAN SOLUTION

Under adverse circumstances, situations like this have become a relatively common cold-weather occurrence since the advent of ULSD, which requires the use of many additives in order to meet specification. The mine needed to have a solution in place to catch individual fuel batch problems before the diesel was pumped into its production equipment.

To meet the more long-term goal, Donaldson recommended that the company install proper filtration at the inlet and outlet sides of every bulk storage tank, as well as T.R.A.P. breathers on top of the tanks, for a complete Clean, Protect and Polish regimen.

Walter Energy’s policy when faced with a Tier 4 engine failure is to complete an extensive root-cause analysis of the failure. Part of the Donaldson Clean Solution in this case was to assist in identifying



**“If the shovels go down, everything else goes down.  
(Good) filtration is like an insurance policy.”**

*-Mark Robillard, Walter Energy Purchasing Manager*



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