



Antelope Mine



D.G. Reardon,
Maintenance Coordinator



Caterpillar 789B

Conoco Hydroclear™ Power-D™ Engine Oil Extends Continuous Service Time for Giant Mine Haulers

The Antelope Mine, located 70 miles south of Gillette, Wyoming, in the Powder River Basin, is a surface mine that consists of two seams producing coal with a consistent quality of 8,800 Btu. Antelope's operation yields approximately 24 million tons of coal annually with a permitted capacity of 32 million tons per year.

Antelope has proven reserves of 397 million tons of low-sulfur, high-Btu coal that can be used to fire a wide variety of boilers used by both the nation's utility companies and other industries.

Mining operations at Antelope consist of typical dragline overburden stripping techniques. Conventional load and haul operations are used both to remove the overburden and to deliver the mined coal to pit crushers where it is processed and then sent by overland conveyors to silos for storage awaiting batch loading into rail cars.

Antelope runs a fleet of large haul vehicles 24 hours per day, seven days per week, to remove the overburden and transport coal to the pit crushers. In January of 2001, Antelope began an experiment designed to extend the in-service time for its fleet of eight giant Caterpillar 789B and 789A haulers. Each hauler is out of service for an eight-hour period each time the diesel engine oil is drained and refilled. With a change every 300 hours, D.G. Reardon, Antelope's Maintenance Coordinator, felt that if he could find a way to reduce that downtime, he could produce significant savings for the company.

Working with ConocoPhillips Lubrication Engineers, Reardon decided to test extending the drain interval for the Cat haulers using Conoco Hydroclear Power-D™ Heavy Duty Diesel Engine Oil. The plan was to add 50-hour extensions to the normal 300-hour drain interval over a period of time. After each drain, extensive oil analysis tests were performed on the drained Hydroclear Power-D™ oil. The analysis verified that the physical properties of the oil remained strong and that wear metal traces were well within acceptable limits through substantially increased drain intervals.

"With Conoco's Hydroclear Power-D™ Engine Oil we have been able to extend our drain intervals from our normal 300 hours of service to at least 400 and up to 500 hours of service before an oil change", stated Reardon. "We call this a 'value in use' project and we have certainly proven the value here."

Reardon adds, "We have also switched to Conoco's engine oil in other Caterpillar machines in our fleet; including blades, scrapers, rubber tire dozers and our D10 and D11 track dozers. We estimate that the increase in hauler and dozer availability and productivity combined with the reduced lubricants consumption will save us around \$369,000 over a three-year period."

Caterpillar 789B and 789A off-road trucks are equipped with a high-displacement, low-operating rpm engine designed for extended hours of service between scheduled overhauls. The hauling capacity of each machine is approximately 195 tons of material.

"We've been able to help Antelope reduce equipment downtime because of the excellent performance characteristics of our Hydroclear Power-D™ Heavy Duty Diesel Engine Oil", stated Steven Strollo, ConocoPhillips' Lubricants Engineer. "Our lubrication scientists have produced a product that meets all of the toughest OEM specs in the world. The stability of the Hydroclear Power-D™ brand has created a real step-change in the way heavy-duty diesel engine oils can be used to extend the productivity of equipment and save our customers thousands of dollars. Hydroclear Power-D™ oil is especially impressive in severe service applications like mining and other industries where engines are required to run at high torque and high temperatures for sustained periods.

"I also can't stress the importance of quality oil analysis in evaluating the performance of Hydroclear Power-D™ oil, or any engine oil, for that matter. This analysis allows you to know exactly how the physical properties of the oil are holding up and you get a very clear picture of how much internal wear the engine is experiencing with extended drains. This is information our customers can use to wrench every dollar of value out of our product."

The Antelope Mine is owned by Kennecott Energy Company, which provides management services to mining properties in five U.S. states. Kennecott Energy Company and its team of 1,500 employees are the nation's largest producers of western low-sulfur compliance coal. In addition to Antelope Mine, other properties in the Powder River Basin of Wyoming using Conoco lubricants include the Cordero Rojo and Jacobs Ranch mines. Kennecott Energy Company is affiliated with the Rio Tinto Group of companies who are leaders in finding, extracting and processing mineral resources around the world.

