Power Facility Reduces Temps & Power Usage with LE Gear Oil

Customer Profile
Major coal-fired power facility in Pennsylvania with two 850-MW units, each with eight coal pulverizers.

Application
The CE Raymond 843 RPS coal pulverizers are among this facility’s critical pieces of equipment.

Challenge
While using commercial grade ISO 320 gear oil in its pulverizer gear drives, the facility was experiencing sludging and overheating.

LE Solution
John Hayes, LE lubrication consultant, recommended LE’s Almasol® Vari-Purpose Gear Lubricant (605), which has since been updated to Duolec® Vari-Purpose Gear Lubricant (1606). Designed for use in any industrial gear and bearing applications requiring a thermally stable, extreme pressure lubricant, Duolec 1606 maintains performance after years of service. This long-lasting, high-performance ISO 320 EP gear oil is designed to protect against aggressive wear, protect yellow metals and reduce operating temperatures. It separates readily from water, and is nonfoaming and very adhesive.

Results
After converting six of 16 CE Raymond pulverizers to LE’s gear lubricant, the facility noted impressive benefits, including complete elimination of sludge deposits on coolers, reduced amperage draw and corresponding increase in pulverizer production. (Plant personnel documented the results of LE’s gear oil versus the commercial grade lubricant; see charts on next page.)

With LE’s gear oil in the gear drives, Unit #1 pulverizers processed an average of 4,500 lb more coal per hour and used 2.25 fewer amps than pulverizers running on the commercial grade EP lubricant. The gear drives also ran cooler by 6 degrees Celsius (11 degrees Fahrenheit) – an 8.8 percent improvement in efficiency. Unit #2 pulverizers processed 2,400 lb more coal per hour using 6.2 fewer amps than the pulverizers running on the commercial grade EP lubricant. The Unit 2 gear drives ran cooler by 10 degrees Celsius (18 degrees Fahrenheit) – a 9.3 percent improvement in efficiency.

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Based on this success, the facility went on to convert all 16 of its pulverizers to LE gear oil. As a result of the energy savings at this particular plant, two other power generating facilities in this system also converted their mills to the LE gear oil.

2017 Update
This customer has used LE gear oil in its pulverizer fleet for more than 20 years, with continued outstanding results, including:

- Initial temperature reduction continues
- No sludge deposits on coolers
- Amperage reduction continues
- Lubricant drain intervals increased from every three years to conditioned-based, with most pulverizers exceeding 10 years on the current lubricant charge.
- Since converting to LE gear oil, no pulverizer bull gears have been flipped or replaced, no pinions have been replaced due to wear, and bearing replacement has been minimal.

In addition, the plant is using Duolec 1608 (ISO 680 EP) on its pulverizer journal bearings and Duolec 1604 (ISO 150 EP) on its exhauster fan bearings. Both applications also benefit with outstanding results using these LE gear oils.

Thank you to John Hayes, LE consultant (pictured), and the personnel at the coal-fired power facility, for providing the information used in this report.