



Monolec® R & O Compressor / Turbine Oil (6402)

Foothill Water Treatment Plant – Redding, Calif.

U.S. Motors Vertical Turbine Pumps

- Saved \$3,820 annually per pump in electrical consumption
- Reduced amperage draw from 112.26 to 107.46 per pump
- Prevented failures and ensured trouble-free operation

Customer Profile

Located in Northern California, the City of Redding operates two water treatment plants. One of these plants is the Foothill Water Treatment Plant, which operates pump station No. 1, erected in 1939. A 24-million-gallons-per-day plant, Foothill is considered a conventional treatment facility that includes such necessary steps as pre-treatment, coagulation and flocculation, sedimentation, filtration and chlorination. These are the steps that are necessary to remove impurities from the water and ensure potable water for the citizens of Redding.

Application

The Foothill Water Treatment Plant uses five U.S. Motors vertical turbine pumps to provide water from the Sacramento River, 5 miles away, to process drinking water for Redding. The plant's pumps operate year-round on an alternating basis of 8 to 10 hours each.

LE Solution

The local LE consultant presented LE's ZAP Energy Savings Program to Mike Robertson, chief plant superintendent, and Mike Conner, working foreman. He explained to them how LE's Monolec® R & O Compressor / Turbine Oil (6402) could save energy and lower operating costs. Monolec 6402 contains Monolec, LE's exclusive liquid wear-reducing additive. It offers excellent oxidation resistance, does not emulsify with water and protects against corrosive wear. It is long-lasting and nonfoaming.

Although they were experiencing no problems at that time with the commercial-grade lubricant they were using, Robertson and Conner were very interested in lowering

energy consumption and saving money. They agreed to test Monolec 6402 in one of the U.S. Motors vertical turbine pumps.

Results

The maintenance personnel and a city electrician took amperage readings on the pump while it was still using the commercial-grade lubricant. The amperage draw was 112.26. They drained the unit and refilled it with Monolec 6402. After the switch, the amperage draw dropped to 107.46 – a reduction of 4.8 amps.

The following formula is used to determine the cost of a unit's electrical consumption.

$$\begin{aligned} \text{Volts} \times \text{Amperes Saved} \times 1.73^* &= \text{kW Savings} \\ \text{kW Savings} \times \text{Hours of Operation Per Year} &= \text{Annual kWh Savings} \\ \text{Annual kWh Savings} \times \text{Electrical Rate} &= \text{Annual Electrical Savings} \end{aligned}$$

*Conversion Factor for a 3-Phase Power Source

The local utility company in Redding used the same formula, with actual numbers from the tested pump shown below.

$$\begin{aligned} 2.300 \times 4.8 \times 1.73 &= 19.1 \\ 19.1 \times 4,000 &= 76,400 \\ 76,400 \times \$0.05 &= \mathbf{\$3,820} \end{aligned}$$

The results were impressive. LE's Monolec® R & O Compressor / Turbine Oil saved \$3,820 in electrical energy consumption annually on a single pump. The Foothill Water Treatment Plant made the switch to Monolec 6402 and enjoyed five years of trouble-free operation.



However, due to pressure from its Purchasing Department, the Foothill Water Treatment Plant switched to a commercial-grade lubricant in 1997. In a very short period of time, two pump failures occurred. These failures were attributed to the use of the commercial-grade lubricant. The cost to repair each pump was in excess of \$5,000. After that, the plant switched back to LE's Monolec 6402 for a return to the trouble-free operation they had experienced from 1992 to 1997.

Other LE Products Used

- Almagard® Vari-Purpose Lubricant (3751-3752)
- Almaplex® Industrial Lubricant (1275)
- Monolec® Industrial Lubricant (4701)
- Monolec® Hydraulic Oil (6120)
- Monolec® R & O Compressor / Turbine Oil (6403-6405)
- Monolec Ultra® Engine Oil (8800)
- Pyroshield® (5100)
- Syntemp® Synthetic Lubricant (9102)

Thank you to Mike Robertson, chief plant superintendent, Mike Conners, working foreman, and the local LE consultant for providing the information used in this report.

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Based on actual user experience. Individual results may vary. Not intended to supersede manufacturer specifications.

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