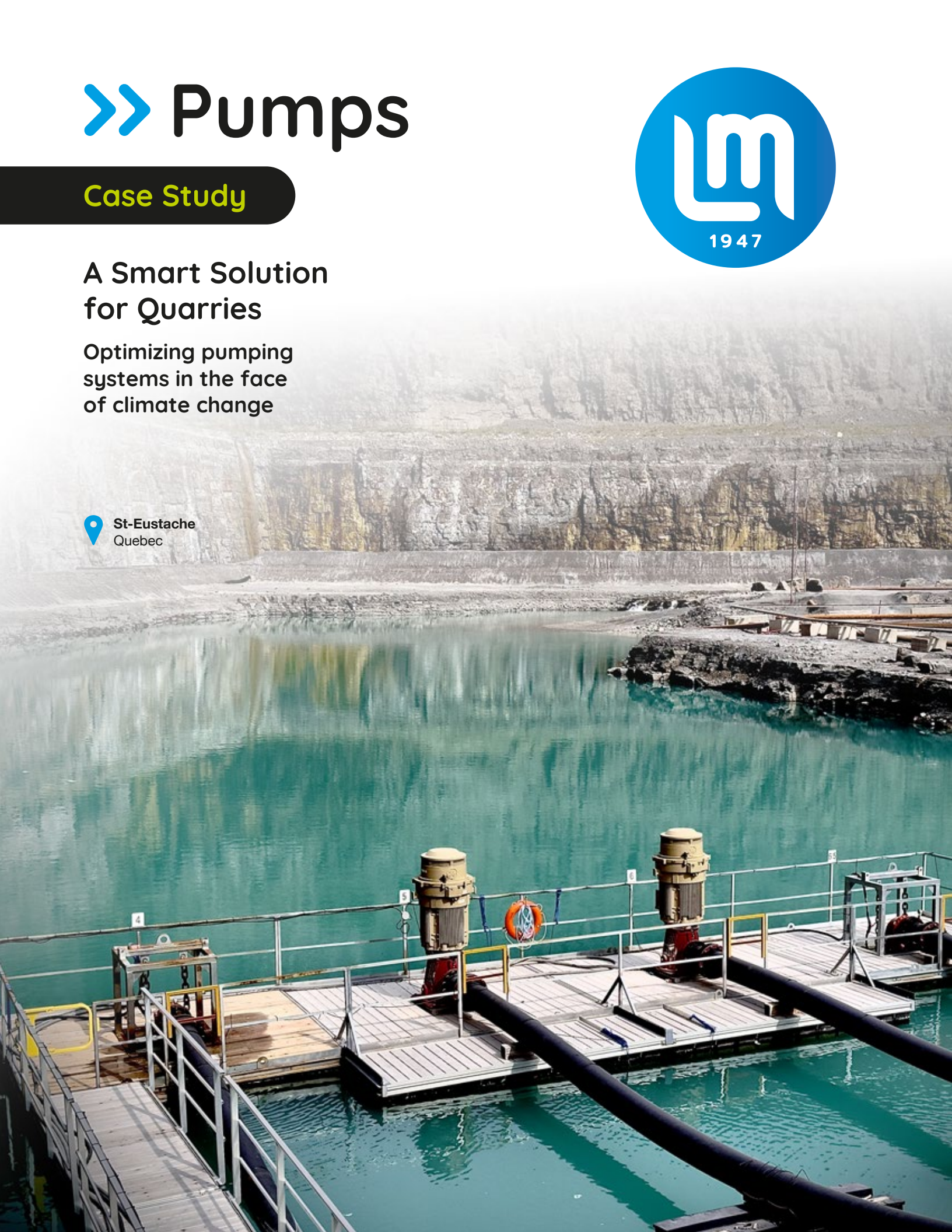
Pumps

Case Study

A Smart Solution for Quarries

Optimizing pumping systems in the face of climate change

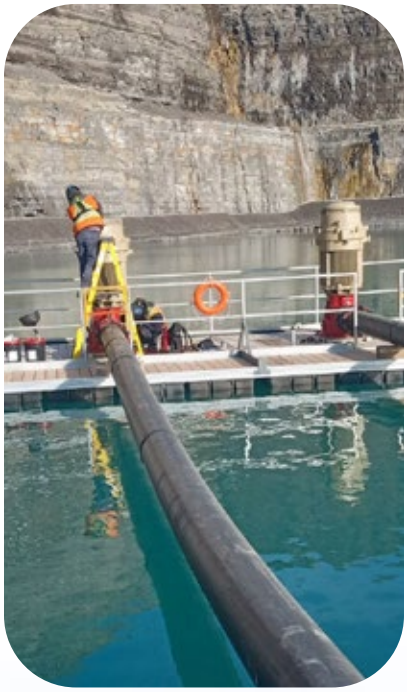
St-Eustache
Quebec



The Challenge

Quarries, which are essential to the mining and construction industries, are facing an increasingly complex climate phenomenon. Rainfall events are becoming less frequent but much more intense, generating significant volumes of water at work sites. This intense runoff carries with it fine, abrasive particles, which become concentrated in the lowest areas of the terrain, where submersible pumps are traditionally installed. These pumps, placed in wells to remove rainwater and seepage, are regularly subjected to premature wear due to direct contact with these abrasive sediments. As a result, maintenance becomes costly and service life is shortened, generating high operating costs for operators. These challenges require a tailored solution that not only reduces maintenance costs, but also improves the efficiency of the pumping system while meeting environmental requirements.

The LM Solution



To meet this growing challenge, LM's Pumps Division has developed an innovative solution: a floating vertical turbine pump specially designed for the extreme conditions of quarries. This unique solution is distinguished by several key features that make it particularly suitable for the harsh environment of quarries.

- **Waterborne stability:** The pump is equipped with a flotation system that allows it to remain on the surface of the water, thus avoiding direct contact with fine, abrasive sediments. This design significantly reduces the risk of premature wear, which improves the service life of the equipment and reduces the need for frequent maintenance.
- **Protection against fine particles:** Unlike traditional submersible pumps, which suck in fine particles suspended in the water, LM's floating vertical turbine pump is designed to prevent this. This minimizes wear on internal components and allows the pump to operate optimally over a longer period of time without requiring frequent intervention.
- **Energy efficiency:** Thanks to its innovative design, this pump offers better hydraulic efficiency than conventional pumps. This results in a significant reduction in energy consumption, enabling operators to achieve significant savings in operating costs over the long term.
- **Minimal maintenance:** One of the main features of this pump is that it requires very little maintenance compared to traditional systems. Reduced repairs and frequent inspections not only lower operating costs, but also ensure more reliable and continuous operation.

Customer Benefits

The installation of LM's floating vertical turbine pump has enabled our customers to effectively overcome the challenges posed by climate change and significantly improve their operational performance. The main benefits observed are:

- **Reduced maintenance costs:** By preventing premature wear of internal components and limiting contact with abrasive particles, the pump significantly reduces the frequency and extent of maintenance. Customers benefit from lower maintenance costs and fewer unplanned shutdowns, maximizing the productivity of their operations.
- **Extended equipment life:** The innovative design of the floating pump ensures long-lasting performance even in harsh environments. By limiting wear on essential parts and preventing premature failure, the pump offers a longer service life compared to conventional submersible pumps.
- **Increased operational efficiency:** The pump's improved hydraulic efficiency allows for faster and more efficient water removal, optimizing resource utilization. Improved energy efficiency not only reduces energy consumption but also associated costs, contributing to more cost-effective operation.
- **Adaptability to extreme conditions:** Thanks to its ability to float on the surface of the water and withstand increasingly extreme weather conditions, this pump is ideal for quarries subject to heavy runoff. It offers a reliable solution, even during heavy rainfall or in areas with particle-laden runoff.
- **Reduced environmental impact:** By reducing equipment wear and energy consumption, the pump contributes to more environmentally friendly operations and a reduction in the carbon footprint. Customers can thus improve their efficiency while complying with increasingly stringent environmental standards.
- **Increased reliability and safety:** By minimizing the risk of failure thanks to its robust design, this pump offers customers increased reliability and peace of mind. Low maintenance requirements also reduce the risk of incidents on site, ensuring optimal safety for field crews.

This project demonstrates LM's commitment to providing innovative and sustainable solutions.

Contact us today to discover how LM can transform your technical challenges into lasting success.

514.336.7867

- Pumps
- Energy
- Control
- Maritime
- Electromechanical
- Mechanical Service

Montreal • Quebec