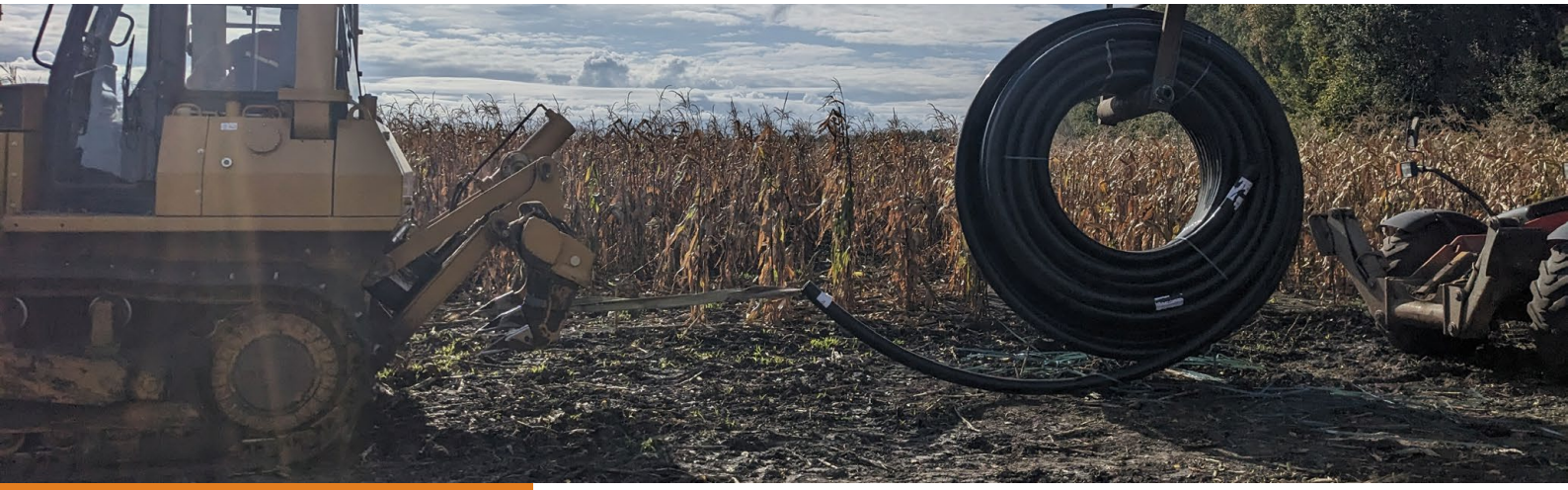
Case Study #152

Overcoming Piping Challenges in Hydrocarbon Transportation

Pexgol's Piping Solution for Regal Petroleum.



Regal Petroleum Corporation
Ukraine | 2023

- **Working Conditions**

  Temperature: 15°C / 59°F
  Flow: 4.2 - 8.4 m³/hour
  Pressure: 17 bar
  Fluid components: formation water with 20% methanol and hydrocarbons less than 1%
  Additional Factors: pH 4.4, high mineralization (13.8% NaCl+KCl, 3.2% $CaCl_2$)

- **Pexgol Pipe**

  Pexgol 110 mm, class 19

- **Application**

  Formation Water Transportation

- **Length**

  3,402 m / 11,159 ft

The Challenge

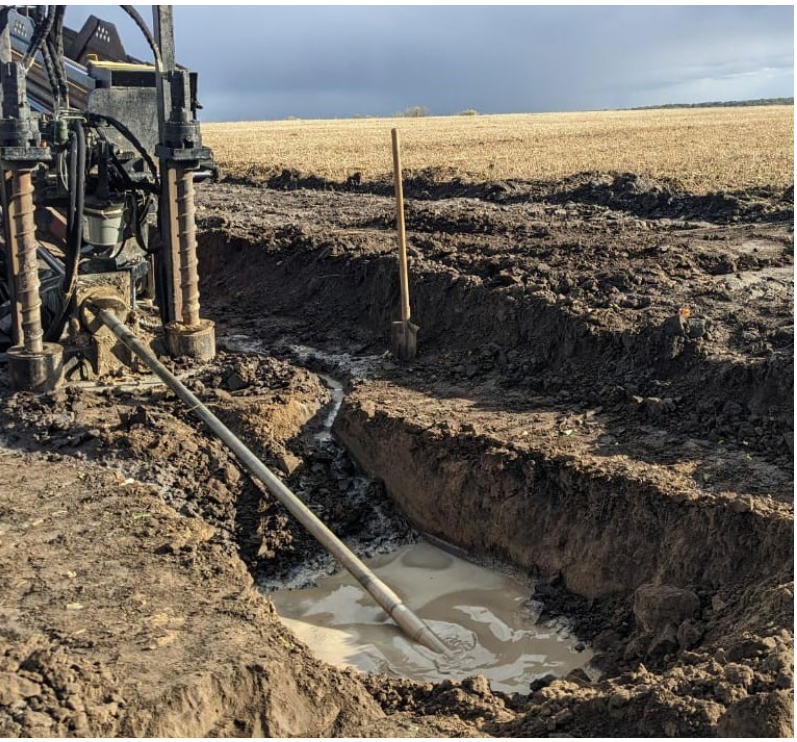
Regal Petroleum Corporation Limited, operating in Ukraine's Poltava region, faced a significant issue with their existing carbon steel pipeline. Tasked with transporting formation water containing methanol and traces of hydrocarbons, the pipeline suffered from severe corrosion. Additionally, the requirement for underground installation with horizontal directional drilling further complicated the scenario. The project, set in 2023, demanded a durable, corrosion-resistant solution for a pipeline of 110 mm in diameter, stretching over 3,402 meters (11,159 feet) through varied underground conditions. The transportation environment involved a maximum temperature of 15°C (59°F), a fluid flow rate between 4.2 and 8.4 m³/hour, and a pressure of 17 bar. The fluid's composition was challenging, comprising 20% methanol, less than 1% hydrocarbons and formation water with a pH of 4.4 and high mineralization.

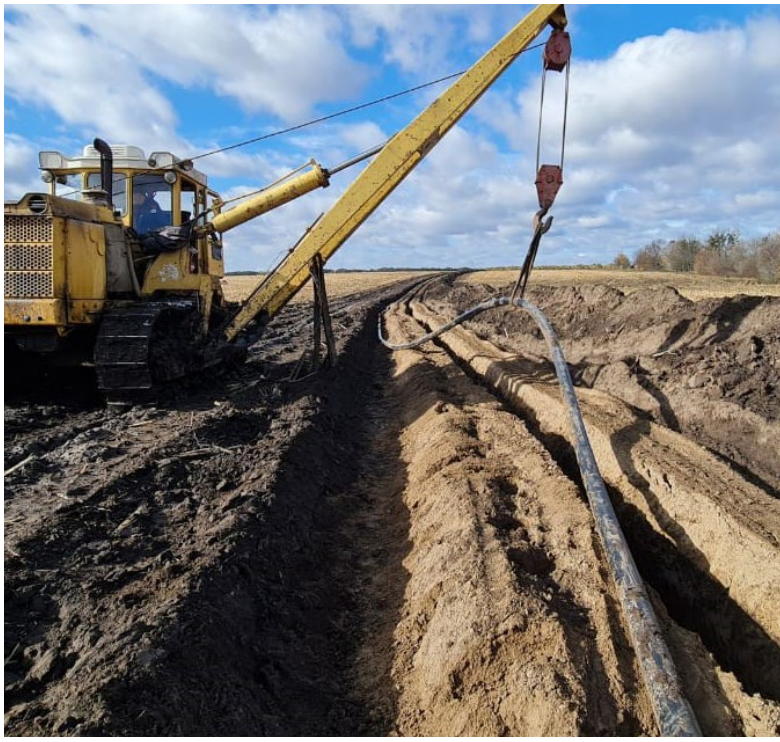
The Solution

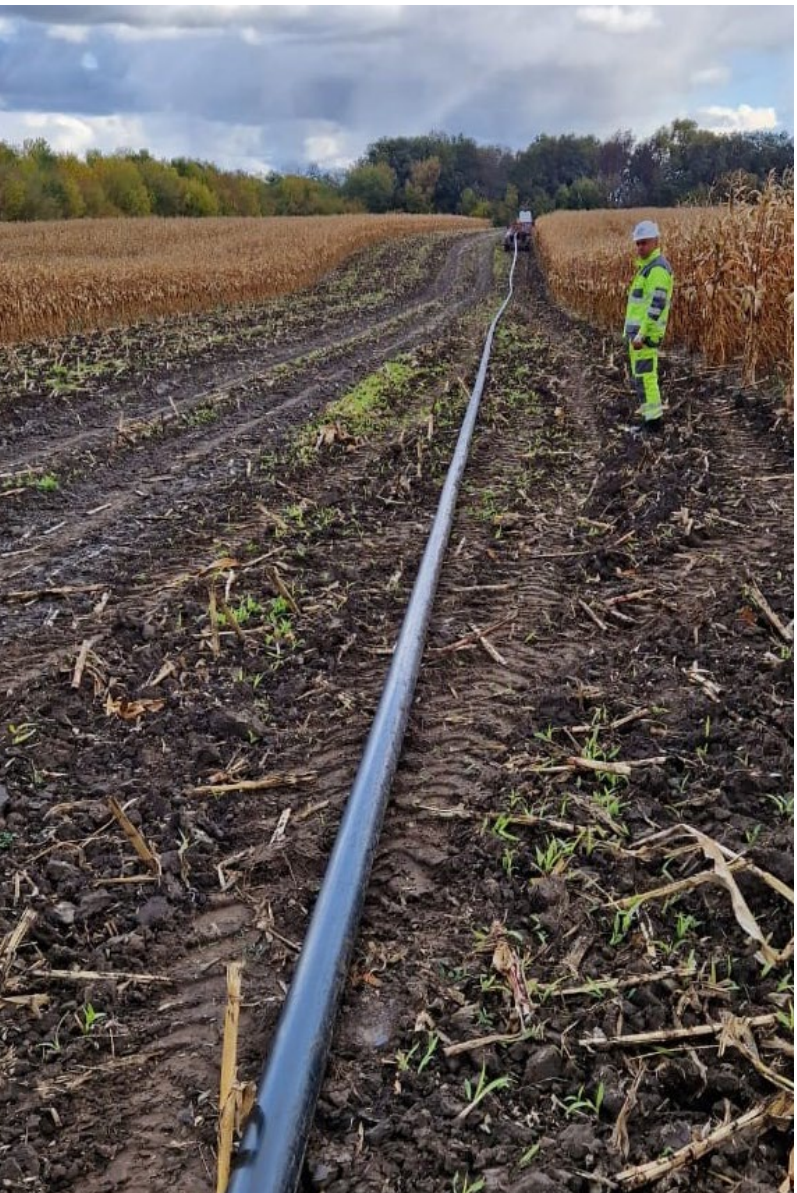
Pexgol presented a comprehensive solution with their PE-X pipes, designed to address the intricate needs of Regal Petroleum.
The installation utilized EF couplers and transition nipples for seamless integration with the existing steel pipeline. Pexgol's approach emphasized fast installation, lightweight handling, and the efficient transportation of pipes in coils. The initial decoiling process faced hurdles when using a bulldozer, leading to a revised strategy of horizontal uncoiling. A trencher and the Ditch Witch JT3020 drilling equipment facilitated the underground installation, achieving a pullback speed of 0.6 meters per minute.

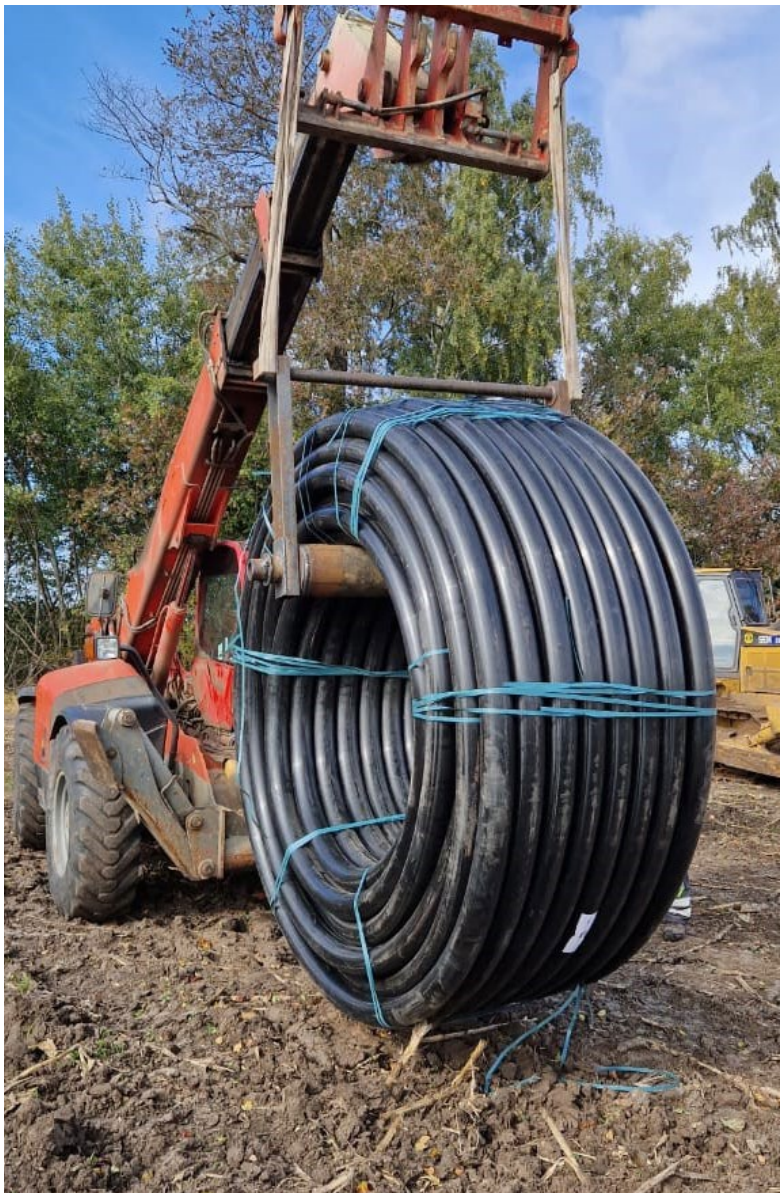
A key aspect of the project was the customer-specific request for pressure testing: one 300-meter coil underwent a rigorous test, sustaining a static pressure of 24 bar for 6 hours, validating its suitability for horizontal directional drilling. This demonstrated Pexgol's ability to meet specialized requirements and underscored their commitment to quality assurance. The successful implementation of Pexgol's piping system provided a robust, flexible, and corrosion-resistant solution, effectively meeting the complex demands of underground hydrocarbon transportation.

PEXGOL
X-LINKED PIPING SOLUTIONS

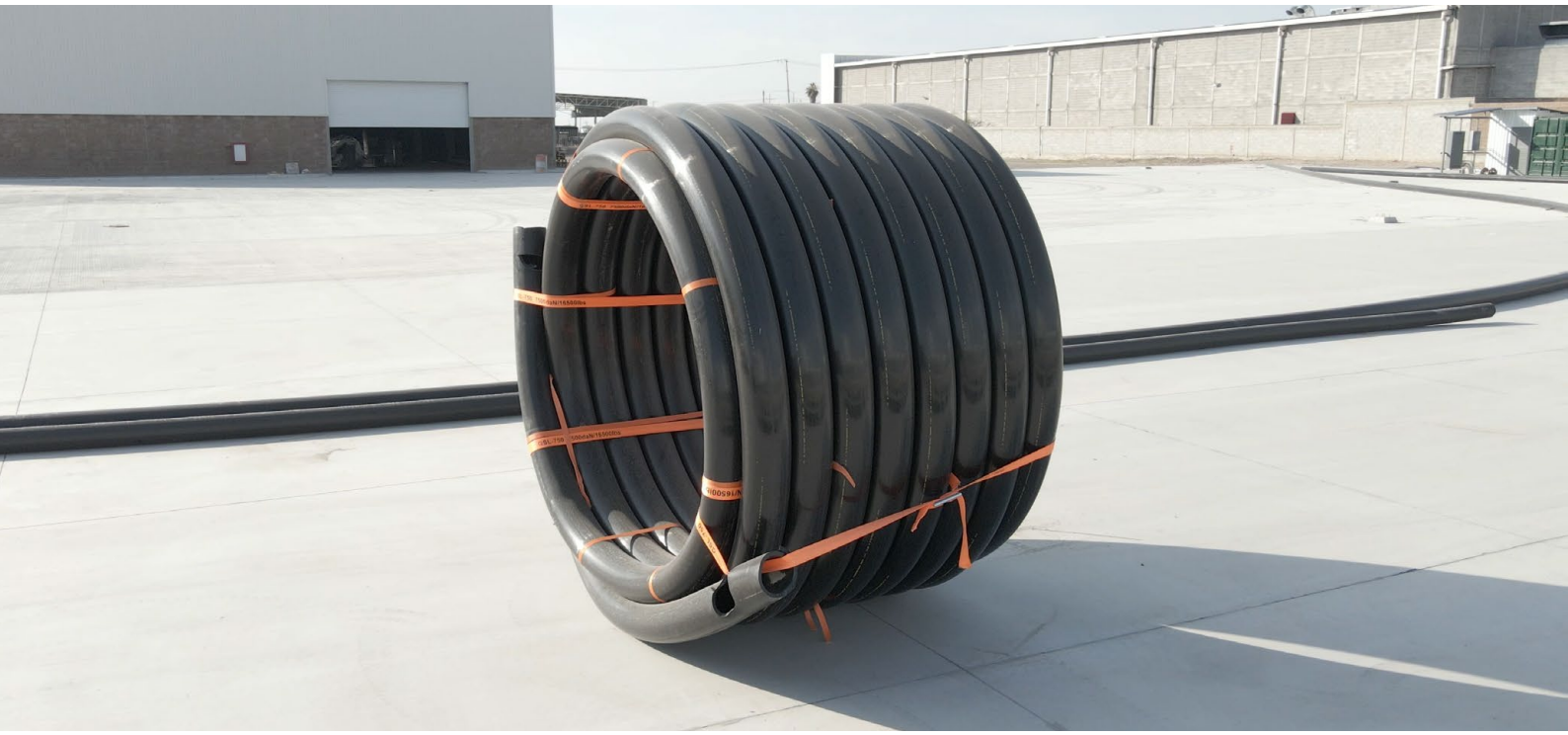








The Advantages of Pexgol Pipe Systems



High resistance to wear
Pexgol is the preferred solution for abrasive materials transportation. Typically resists three times more than HDPE and twice more than steel.

Excellent chemical and corrosion resistance
Pexgol pipes can resist a wide range of chemical agents, slurries, toxic and radioactive materials.

High temperature resistance
Working temperatures can range from -50°C/-58°F up to 110°C/230°F.

Superb internal and external corrosion resistance
Our pipes are proven to withstand decades of exposure to corrosive environments, with nonstop performance in some of the world's harshest environments.

Long pipe sections
Pexgol pipes can be supplied in long coil lengths, reducing number of joints, installation time and risks.

Creep and impact resistance
Pexgol pipes can withstand high amounts of axial and radial stresses and are highly resistant to impact, fracture and fatigue. Furthermore, Pexgol pipes are completely resistant to cracks even when dragged over sharp rocky terrain and coagulated salt crystals.

For more information please visit:
pexgol.com