

HVFR SUCCESS IN ARGENTINA'S VACA MUERTA BASIN



Advancing Sustainable Stimulation

PROJECT OVERVIEW

The **Vaca Muerta Basin**—recognized as the world's second-largest unconventional gas reserve—has driven significant innovation within Argentina's oil and gas sector. As operators seek to improve sustainability and reduce freshwater consumption, **flowback water reuse** has become a critical priority.

To maintain fracturing performance while reducing dependence on river water, SNF Argentina provided **customized High Viscosity Friction Reducer (HVFR) solutions** engineered for **high total dissolved solids (TDS)** environments.

CHALLENGE

In 2023, operators in Vaca Muerta recorded freshwater consumption, exceeding **15 million cubic meters** in fracturing operations. To address this, companies began implementing water reuse programs targeting a **30–40% reduction in river water usage**.

However, flowback water in this region presents high salinity and variable quality, with **TDS concentrations reaching up to 200,000 ppm**. These conditions compromise the performance of conventional HVFR chemistries, reducing friction reduction efficiency and polymer hydration.

SNF'S SOLUTION

Through a collaborative technical approach, **SNF Argentina** delivered a portfolio of **advanced HVFR products** designed to perform in high-salinity environments. The following products were identified as optimal for Vaca Muerta operations:

- **DRMAX™ P9115**
- **DRP 3652X**
- **DR 53225**

These HVFRs provided consistent viscosity, friction reduction, and sand-carrying capacity across a range of water qualities—from full flowback to mixed-water systems containing up to **70% river water**.

SNF's **local technical support team** provided on-site product validation, performance monitoring, and formulation adjustments to align with each operator's specific fracturing program.

OPERATIONAL RESULTS

Field implementation confirmed that SNF's HVFR solutions maintained operational efficiency equivalent to river-water systems. Key outcomes included:

- **Stable injection pressures** between **11,000 and 13,000 psi**
- **Flow rates** between **85 and 95 bbl./min**
- **Sand loading** up to **1.25 PPG (#100)**
- Successful stimulation with **100% flowback or mixed water**
- **Versatility in application**, delivering consistent performance in both river water and high-salinity environments.

These results validate the adaptability and robustness of SNF's polymer chemistries in challenging unconventional environments.

CONCLUSION

SNF's work in the Vaca Muerta Basin highlights its ability to provide efficient and sustainable stimulation solutions. Its versatile HVFR technology allows operators to use a single product adaptable to the wide range of conditions found across the basin, ensuring performance, simplicity and environmental responsibility.

NEXT GENERATION SOLUTIONS

SNF Argentina is producing a series of suspension products, tested in full stages in Vaca Muerta. These products have demonstrated performance comparable to solid products at equivalent concentrations. Additionally, it maintained strong stability, making it suitable as a reliable backup or even for continuous use. Furthermore, they maintained high stability, making them suitable as a reliable backup product or even for continuous use.

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