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**Conformance Improvement with Low Concentration Polymer Gels in a Heterogeneous Multilayer Reservoir**

The Tordillo Formation in western Argentina is composed of sandstone and conglomerate units interbedded with siltstone layers deposited under braided fluvial and eolian environments. Average gross thickness is approximately 150 meters with two large anticlinal structures known as Charco Bayo (CB) and Piedras Blancas (PB).

In 1975, secondary recovery operations began in a small portion of the Charco Bayo structure. In several stages, the initial project was extended to reach almost 80 inverted seven spot patterns. In 1994, the operator, Petrolera Perez Companc S.A. (PPCSA), began converting certain patterns to a staggered line drive configuration, with excellent oil response.

Due to reservoir heterogeneity, overall recovery efficiency in the field is low. Cumulative production is approximately 13% OOIP, and is projected to be approximately 19% at the economic limit of the waterflood. PPCSA estimates that an additional 4-5% OOIP can be recovered using a combination of gel treatments, drilling, workovers, and IOR technologies.

In 1995, a pilot project of crosslinked polymer gel injection was initiated in an attempt to improve volumetric sweep efficiency and increase oil recovery. Based on positive results in the first gel pilot, the chemical conformance program has been significantly expanded during 1999-2002.

As of November 30, 2001 PPCSA has quantified 585,000 barrels of incremental oil associated with the gel treatments, at an average cost of $2.22 per incremental barrel. Incremental costs have declined to approximately $1.00 per barrel as of September 2002 due to increased oil production and decreased water production.

A basic description of crosslinked polymer gel technology is provided. Also discussed are results of field gel pilots, including gel treatment designs, well preparation and post-treatment evaluation. Finally, recommendations to optimize future gel treatments in the CB/PB field are presented.