Interference analysis in Vaca Muerta (Shale reservoir),
Loma Campana Field, Argentina

Resumen:

After the success achieved with the exploratory wells drilled during 2010 in Loma Campana field, a development plan is being executed. As of today more than 220 wells are on production.

In order to reduce costs and improve logistics, during the first stages of the development, drilling was performed in four well pads. The pads had different locations in relation to the stresses and well spacing, in an attempt to understand the behavior of the reservoir.

As information is being collected and analyzed, the pad design is updated in order to optimize the well spacing and orientation.

The objective of this presentation is to show and discuss the different cases of interference between wells, the impact of the interference on well productivity, and the impact of the interference on the field development plan.

Several forms of interference have been observed between the affected wells:
Case 1) Interference between producing wells
Case 2) Interference during well stimulation, observed in:
   a) Producing wells
   b) Wells being drilled
   c) And in stimulations of neighboring wells

The severity of the interference ranges from a pressure disturbance up to wells being drowned.

To analyze the interference between wells, all available information was used, including: microseismic data, open hole logs, wellhead and bottom hole pressures, stimulation charts, production data and production logs.

The conclusions of this study are:
- Interference could affect the EUR of the wells.
- It helps to strike a balance between maximizing the recovery factor and field development.
- Avoid alignment of the grid (well pads) with direction of maximum stress.
- Optimizing the development of the field requires further evaluation of optimum well spacing.
- Implementation of a front of drilling wells, avoiding nearby producing wells.
- Close producing wells during the stimulation of nearby wells.
- Be aware of fracking wells near wells on production with sucker rod pumping.