2011 Project:

Title: Technical and Economic Viability of Downhole Water Loop (DWL) Wells

Objectives: The Environmental Control Technology (ECT) approach shall be used to identify productivity and environmental cost benefits for DWS and DWL in relation to conventional well. Simulation models shall be developed to compare economic performance of conventional, DWS, and DWL wells.

The comparison of three types of wells, conventional, DWS and DWL should address benefits of multi-functional wells in terms of improved productivity and reduced pollution since the DWL wells could keep water downhole, save energy for water lifting, and control water coning with minimum environmental impact. The best performance window shall be defined for DWL technique where considerable savings in the oil production cost could be achieved for oil reservoirs with high - injectivity bottom aquifers in the high water cost areas.

The comparison shall consider the range of conditions where DWS is economically superior to conventional wells including the high-water-cost areas, where DWL may show the best economic performance. On the other hand, injectivity decline shall be assessed as the cost-controlling factor for DWL wells.