13. Studio ScaleChem Overview

Why Use Studio ScaleChem?

Scale problems arise in high rate gas wells for the same basic reason that they occur in water flood operations: produced brines become supersaturated with mineral scales as a result of changing conditions between the reservoir and the point of deposition.

A complicating factor in the assessment of these scale problems is that significant changes in the brine composition may occur between the reservoir and the surface conditions, due to the exchange of water between the liquid and vapor phases.

Thus, scaling tendencies that are important at downhole conditions may not be evident based on the produced brine composition.

The Studio ScaleChem program estimates scale formation under CO_2 and water flood conditions. Studio ScaleChem can be used to evaluate stimulation compatibility amongst formation waters.

Studio ScaleChem's Development

Shell Oil originally developed the technology for the high temperature and pressure effects used in Studio ScaleChem's calculations and linked this technology to the OLI's unique, predictive aqueous model. A consortium of companies which co-funded and steered Studio ScaleChem's development include

BP

Conoco-Phillips in its entirety

Shell.

Initial development phase for Studio ScaleChem started in 2007. One of the reasons to formulate this product was to unify the code base. Prior to Studio ScaleChem, there were two separate products viz. OLI Stream Analyzer and ScaleChem Standard. Each program with different source codes, two different numerical engines and two data banks. To eliminate that, OLI needed a new feature added to existing Stream Analyzer.

A second reason was that at that time new best practices were emerging for performing scaling calculations. ScaleChem Standard had multistep procedures for such calculations. OLI wanted to target the new approach for optimized calculations. To mention a few of the fixes offered by Studio ScaleChem product:

Unit handling

Report writing

Graphical reports

Cumbersome calculations

Studio ScaleChem has a completely new calculation type in addition to other improvements. It is called contour plot.

Flexibility of the analyzer code enabled OLI to add features and calculations which were impossible in ScaleChem Standard.