



Incorporating Formation Re-Evaluations with Laboratory Rock and Fluid Testing to Achieve Long Lived and Cost-Effective Disposal, Injection and Producing wells.

P.F. DuBois¹, M. Noorzi¹, D. Drozd¹, T. Walker¹, and F. Yan¹ ¹Weatherford Laboratories

Summary

Management and evaluation of produced fluids for disposal, injection wells are critical to ensuring reliable, consistent performance and long-term injection. Even though this discussion will focus primarily on injected water for disposal or waterflood program, similar formation and fluid evaluations should be considered for frac water.

Theory and Method

Variations in the quality of produced water over the life of a well greatly impact variations in disposal-injection fluids and a water reuse program. Planning ahead and following a step-by-step evaluation method will help diffuse a crisis and determine if the well is at the end of life. This method provides a concise evaluation plan to determine the need for increasing injection pressures (when allowed) to maintain

Client experiences demonstrate injection water quality greatly influences economics. Indications of an injection well in trouble (such as increases in injection pressure required for lower injection rates) often lead to higher electric cost, a possible re-frac or even drilling a new well.

Today we will discuss basic evaluation and testing steps in detail. It should be noted, a failure at any point in the process should result in an economic review to determine if the injection well is at the fiscal end of life. A cursory geological and reservoir re-evaluation is the least costly and should be the first step taken to see if the well is near end of life. This re-evaluation is closely followed by a detailed water study, in conjunction with a formation and injectability evaluation, surface equipment reviews and finally a re-frac proposal if indicated.

Conclusions

Designing, implementing, and maintaining a consistent management program for disposal, injection wells, and fluid-formation interactions will ensure injection and production can be sustained long term.