
Disposal/Injection Crisis—A Step by Step Evaluation Method to Determine if a Well is at the End of Life when it Stops Taking Fluid

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ABSTRACT

Proper evaluation and management of disposal and injection wells are critical to ensuring reliable, consistent performance and long-term injection. Variations in the quality of produced water over the life of a well greatly impact variations in disposal fluids. 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 injection rates.

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-frack or even drilling a new well. Today we will discuss five basic evaluation 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 an injectability evaluation, surface equipment review and finally a re-frack proposal if indicated.

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