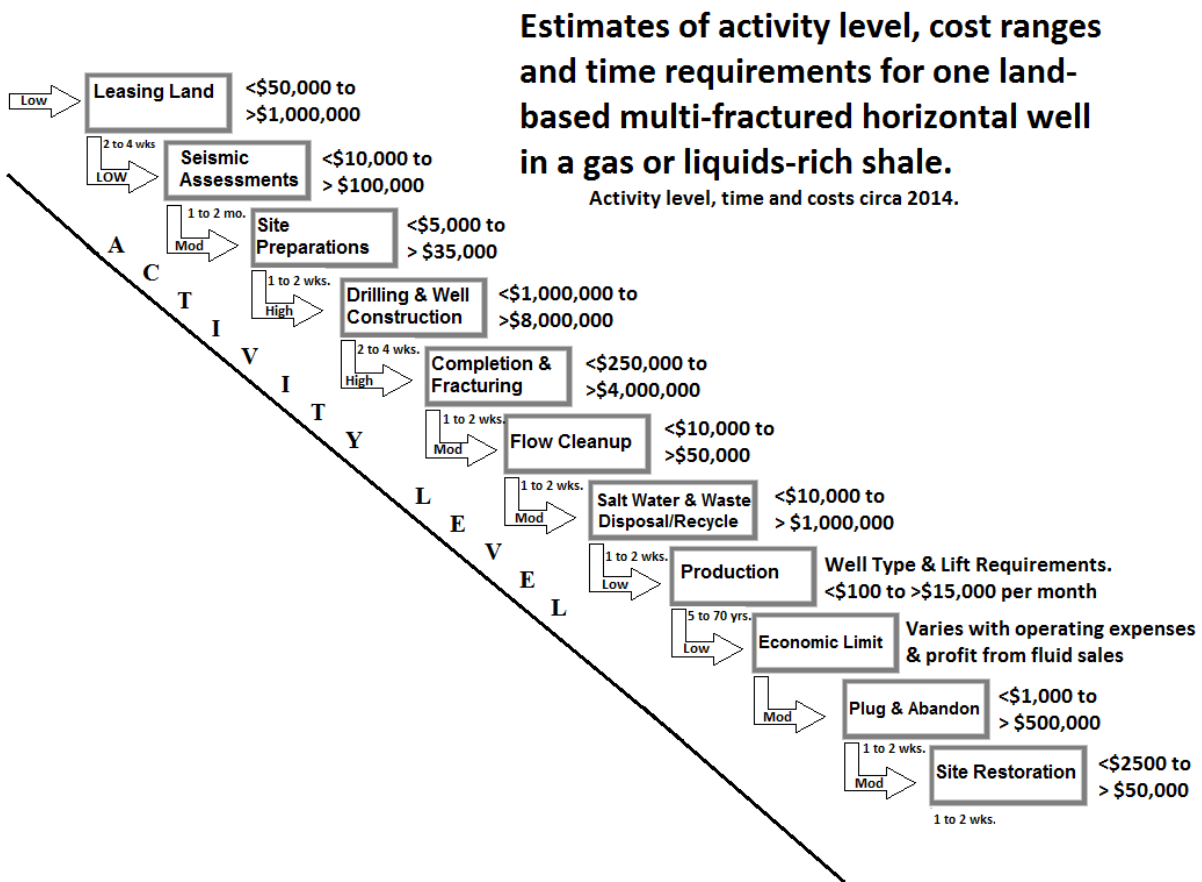


The Basics of Wells – Well Development – How Long Does It Take?

Development of a well takes a relative short time, perhaps a month, while full field development takes much longer. The activities are numerous but most individual activities occur over a short time period. Activity levels and location of activity also vary widely with the type of the development and although you may see a lot of local activity, much of the operations take place away from the actual well site.

The number of activities involved in developing a well and the time and money spent on each varies with well type, location, depth and type of development. The examples below are estimates of activities, time and money for US onshore wells. Time and cost in other areas of the world will be different depending on but not limited to location, government requirements, skill availability, accurate data on the geology and local industrial infrastructure.



Most wells are in rural areas, often on large ranches or farms, but a few areas are seeing wells drilled near urban areas. The first gas and oil wells (1821 and 1859 respectively) and the early field developments were largely based in the northeast US. Pennsylvania was the largest oil producing area of the world in the mid-to-late 1800's and Cleveland Ohio had over 80 refineries operating the city in 1884. In the early 1900's however, the oil production and well development edge went to Texas, Oklahoma and California. These western developments were mainly in large rural areas and accompanied by rapidly constructed purpose-built boom towns that saw continuous activities for decades. In recent

times, oil and gas developments and increased US population density have resulted in well locations nearer to homes and other buildings.

Setback distances (the minimum distance between wells and schools, homes and other buildings) have been a hotly debated issue, although the development of the horizontal well, with lateral reach distances of a mile or more (the record is over 8 miles), has enabled areas of hydrocarbons under suburban and urban areas to be accessed by surface well locations that are remote. Pad drilling groups wells together in remote work locations. These wells may be arranged to reach long distances in multiple directions.

One example of a remote pad for field access is an Apache Corporation development in the Horn River Basin in British Columbia, Canada that accesses over 6000 acres of gas shale, eight thousand feet below a forest from a single six acre pad site that holds 12 wells.



These pad type developments are more expensive than single location drilling and present more challenges for well operations like artificial lift, but they can coexist with wildlife migration routes, suburban locations, and other restricted areas. They typically reduce the total footprint by over 90% when compared to vertical well developments using single well pads.

Other factors in well developments include traffic increases, often severe wear on roads, housing needs and water requirements. A single well may require 1,000 to 2,000 semi-truck loads of water, sand and other equipment. Development of water recycling centers and use of temporary water supply pipelines to areas of dense drilling can sharply reduce truck traffic, road wear and personnel numbers. Planning with all parties is the key to reducing problems in well developments.

Disclosure: George E. King is a Texas Registered Professional Engineer with over 44 years oilfield experience. His technical background includes fracturing, workovers, chemicals, acidizing, well integrity and horizontal wells.

www.GEKengineering.com