Selection and Treatment of Stripper Gas Wells for Production Enhancement in the Mid-Continent

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Abstract

Stripper gas wells are an important source of domestic energy supply and under constant threat of permanent loss (shut-in) due to marginal economics. In 1998, 192 thousand stripper gas wells produced over a Tcf of gas, at an average rate of less than 16 Mcfd. This represents about 57% of all producing gas wells in the onshore lower-48 states, yet only 8% of production. Reserves of stripper gas wells are estimated to be only 1.6 Tcf, or slightly over 1% of the onshore lower-48 total (end of year 1996 data). Obviously, stripper gas wells are at the very margin of economic sustenance. As the demand for natural gas in the U.S. grows to the forecasted estimate of over 30 Tcf annually by the year 2010, supply from current conventional sources is expected to decline. Therefore, an important need exists to fully exploit known domestic resources of natural gas, including those represented by stripper gas wells.

The overall objectives of this project are to develop an efficient and low-cost methodology to broadly categorize the well performance characteristics for a stripper gas field, identify the high-potential candidate wells for remediation, and diagnose the specific causes for well underperformance. With this capability, stripper gas well operators can more efficiently and economically produce these resources and maximize these gas reserves. A further objective is to identify/develop, evaluate and test "new and novel," economically viable remediation options. Finally, it is the objective of this project that all the methods and technologies developed in this project, while being tested in the Mid-Continent, be widely applicable to stripper gas wells of all types across the country.

The project activities during the reporting period were:

- Continued to solicit industry research partners to provide test sites. A Cooperative Research Agreement has been signed with Oneok, for a test site in the Mocane-Laverne field in the Anadarko basin (Oklahoma). The site consists of about 150 wells producing primarily from the Morrow, but also the Chester, Hoover, and Tonkawa. The Morrow is the second largest gas play in the Anadarko basin (next to Hugoton), and the Mocane-Laverne field in the largest Morrow field, so any new methods developed at this site will have broad application throughout the Mid-Continent Morrow play (which has tens of thousands of wells).

- Discussions are also ongoing with EOG Resources and Patina Oil and Gas to obtain test sites. In these cases, however, the sites are in the Rocky Mountains. The difficulty being encountered in securing Mid-Continent test sites has forced us to expand the geographic scope of our search.

- Data collection for the Mocane-Laverne site has recently begun, and will be completed soon. At that time the various analyses will be performed to identify enhancement potential.

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Experimental

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Results and Discussion

While Oneok has agreed to participate in the project, difficulty remains in obtaining a second partner. Stripper gas wells represent a low priority for most operators with the number of wells required for this study, and this type of project is viewed as “labor-intensive” by them, hence the reluctance.

Conclusions

There are no technical conclusions for the reporting period.

References

None.