ADVANCED TECHNOLOGIES FOR STRIPPER GAS WELL ENHANCEMENT

QUARTERLY REPORT

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DISCLAIMER

ABSTRACT

As part of Task 1 in the Advanced Technologies for Stripper Gas Well Enhancement, Holditch-Reservoir Technologies has partnered with two Appalachian Basin producers, Great Lakes Energy (formerly Range Resources) and Belden & Blake Corporation, to develop methodologies for the identification and enhancement of stripper wells with economic upside potential. The industry partners have provided data for over 700 wells in northwest Pennsylvania.

The Task 1 goals of this project are to develop and validate methodologies that can quickly and cost effectively identify wells with enhancement potential. We are currently working with the well data supplied by the industry partners to develop and validate these methodologies.

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INTRODUCTION

During this report period we have work with two industry partners, Great Lakes Energy (formerly Range Resources)(GLE) and Belden & Blake Corp (BBC). We have received production data, well locations, and base map information from both partners. GLE supplied data for approximately 205 wells located in Warren, Venango and Crawford counties, Pennsylvania. BBC supplied data for approximately 501 wells in Venango and Warren counties, Pennsylvania. We are currently in the process of analyzing the production data and identifying stripper wells with enhancement potential.

EXPERIMENTAL

We are using tools from our MovingDomain™ software to process the production data and conduct a quick first pass look for wells with enhancement potential. Using MovingDomain, we generate a single Production Indicator (PI) that is representative of the entire production life of a well. We then compare the PI of a given well to the surrounding wells (domain) and look for wells within that domain that perform significantly below the domain's statistical reference. This gives us a quick, automated method to identify wells that are under-performers in an area and that may have potential for production enhancement. We also plan to develop a software routine that will find dramatic changes in the production decline of a well. Identifying these abrupt changes could help identify wells that have incurred a mechanical wellbore problem over time.

Once this first pass is completed and we have a list of wells that may have potential for enhance, we will work with the industry partners to review completion, geologic, and production data in more detail. This should narrow down the list and proved a good foundation for the Phase II field demonstration.

RESULTS AND DISCUSSION

The well data has been downloaded into ACCESS™ databases and has been checked for internal errors or omissions.

CONCLUSION

We have receive data for approximately 706 wells and are in the process of querying out wells that may have production enhancement potential. From our experience in the Appalachian Basin, we are confident that a good sample of stripper wells with enhancement potential can be found in this data set. We are also confident that through this process, methodologies can be developed to quickly and economically select stripper wells with economic upside potential. By accomplishing this, we will provide producers throughout the U.S. a means of increasing existing gas production and increase the U.S. natural gas reserve base.