

SHALLOW GAS FIELD SCREENING COMPLETED IN SELECTED COUNTIES IN NORTH DAKOTA

By Fred J. Anderson

The North Dakota Geological Survey recently completed an investigation of the shallow natural gas potential in central and eastern North Dakota (fig. 1). The project entailed checking for the presence of gas in water observation wells using a portable flame-ionization detector (FID). We began Phase I of the project by testing 331 wells in six counties late in the 2006 field season. We took the positive results of this Phase I study to the 2007 Legislative Session and received \$15,000 to expand the project into seven additional counties. During the 2007 and 2008 field seasons, we tested 1,395 wells in 12 counties, five more counties than in our proposal. In all, we tested 1,726 observation wells in 18 counties, including Steele, Bottineau, Renville, Emmons, Stutsman, Rolette, Towner, Burleigh, Ward, McHenry, Pierce, Kidder, Barnes, LaMoure, Morton, Sheridan, Benson, and Logan. We detected natural

gas in 19% (326 of 1,726) of the wells tested. Most of the FID shallow gas detections (66%) occurred between 10 and 1,000 parts per million (ppm as CH₄ in air). The ND Geological Survey has published 23 maps and reports that were derived from the information generated by this project. These reports have been used to spur industry interest in exploring for this resource and will continue to do so long into the future. Three shallow gas wells were drilled in Emmons and Burleigh counties after publication of a portion of our initial results. One of these reports, Geologic Investigation no. 73, is a detailed account of the field screening results for the 2006 – 2008 field seasons. We have also made an effort to obtain information on gas occurrences in water wells from farmers and ranchers in these areas.

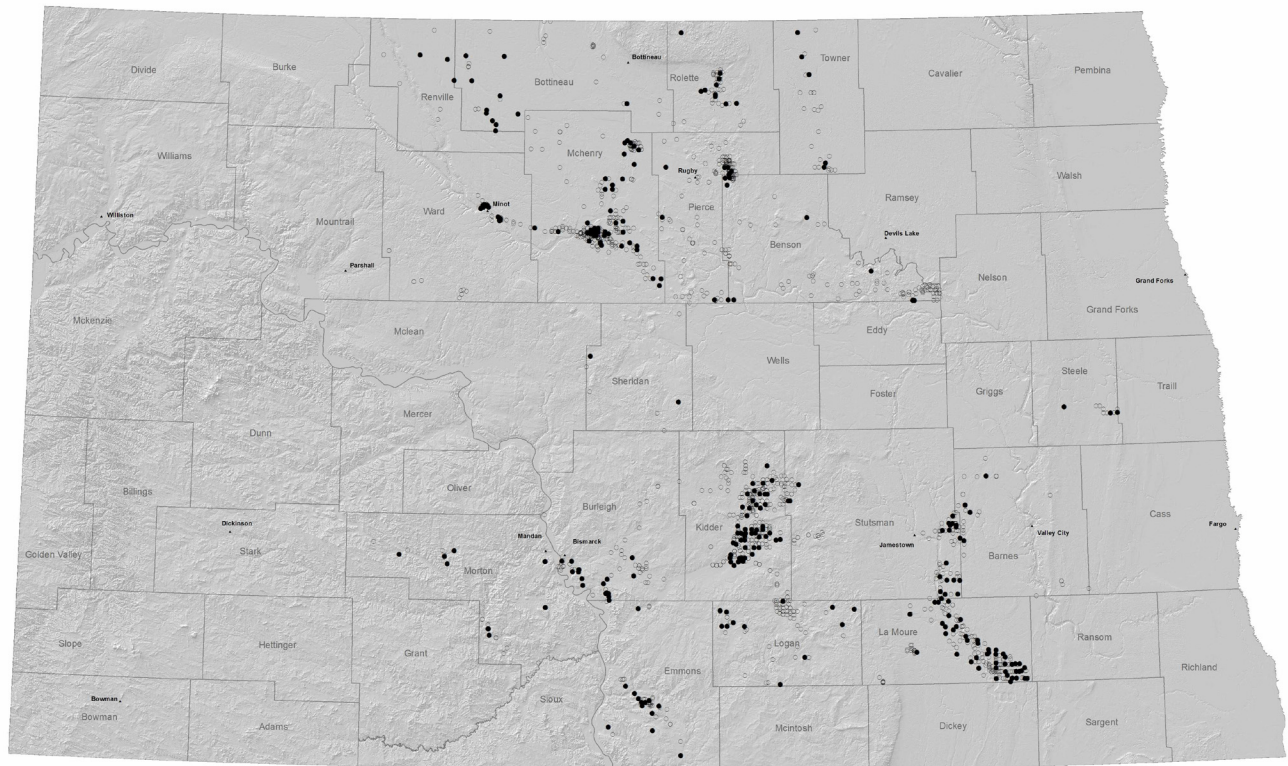


Figure 1. Locations of FID shallow gas occurrences in selected counties in North Dakota. This map modified from North Dakota Geological Survey Geological Investigation No. 73.