

G-008-017
Polymer Gel Treatment: A Remediation for Produced Waters
Aeon Energy

PROJECT SUMMARY

The project was designed to reduce water production in the Lillie Farms #3 well (SWNW Section 10-Township 161 North-Range 81 west) located in the North Maxbass Madison Unit, Bottineau County, through the use of a polymer gel treatment. The well was completed openhole and originally produced 5 BOPD (10 BOPD: NDIC) with 470 BWPD in June of 1988. By late in 2006, oil production had decreased to 2 BOPD and water production has increased to 625 BWPD, the maximum pumping capacity of well design. A productivity index of 6,100 BFPD was calculated for the wellbore. It was concluded that the high water production was due to the presence of significant vertical fracturing, connecting the reservoir to underlying water.

In November 2006, the Lillie Farms #3 was treated with a polymer gel designed to selectively reduce produced water by closing water bearing fractures. Similar treatments have been very successful in reducing water production in similar reservoirs in the Arbuckle formation on the Central Kansas Uplift.

After treatment the well was returned to production with no net change in fluid production. The ratio of produced oil to water also remained constant. It was determined that the flow capacity of the well was significantly reduced from 6,100 BFPD to the range of 1,750 – 3,200 BFPD.

Remediation of produced water is a significant concern to producers. It is recommended that additional projects be undertaken to test the effectiveness of polymer gel treatments. Subject wells chosen for treatment should have lower productivity ratios than that noted in the Lillie Farms well.