

Pressure Buildup Data Collection and Analysis during Carbon Dioxide Injection at the Frio Brine Pilot

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**S. M. Benson
K. Pruess
C. Doughty**



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* Benson, S M (smbenson@lbl.gov), Earth Sciences Division Lawrence Berkeley National Lab, 1 Cyclotron Road MS90R1116, Berkeley, CA 94720 United States

Pruess, K (K_Pruess@lbl.gov), Earth Sciences Division Lawrence Berkeley National Lab, 1 Cyclotron Road MS90R1116, Berkeley, CA 94720 United States

Doughty, C A (CADoughty@lbl.gov), Earth Sciences Division Lawrence Berkeley National Lab, 1 Cyclotron Road MS90R1116, Berkeley, CA 94720 United States

As part of the Frio Brine Pilot, downhole pressure measurements were obtained from both the injection well and observation well throughout the carbon dioxide injection and recovery phases of the test. In addition, a pre-injection interference test was used to obtain accurate information about the permeability and compressibility of the formation. By comparing the two data sets it is possible to obtain information on field-scale relative permeability during carbon dioxide injection. Both numerical and analytical techniques have been used to interpret the pressure transient data. Comparison between pressure transients at the injection well and observation well allow inference about changes in near-well permeability in the vicinity of the injection well. This is the first time a data set such as this has been collected during carbon dioxide injection into a saline formation. The results provide important insights into the multi-phase flow behavior of carbon dioxide. They also provide important information for predicting the injectivity of carbon dioxide in saline formations.