

Differential Temperature Survey – May 8, 2007

A Differential Temperature Survey was performed on the morning of May 8, 2007. Gulf Coast Well Analysis (GCWA), located in Pearland, Texas, provided wireline, logging tools, and pressure control services for the Differential Temperature Survey. The well had been shut-in for 38 hours prior to commencing the Differential Temperature Survey. The downward velocity of the temperature tool was approximately 35 feet per minute from the surface to 6,790 feet. A copy of the survey and interpretation letter are attached.

The Differential Temperature Survey depicts a natural temperature gradient from the surface to a depth of 6,790 feet. A cooling effect on the survey identifies the majority of the long-term injection to have exited the wellbore in the upper perforations in the Pawhuska Formation from 4,566 feet to 4,950 feet. Lesser injection intervals within the Pawhuska Formation are identified from 6,120 feet to 6,230 feet, 6,278 feet to 6,320 feet, 6,402 feet to 6,512 and below 6,785 feet to the top of the fill in the wellbore. Figure 1 is a plot of the 2007 and 2001 Differential Temperature Surveys. The Differential Temperature Survey confirms there is no evidence of vertical fluid movement out of the permitted injection interval into an underground source of drinking water through vertical channels adjacent to the wellbore.

