

Watterson Well #2

Watterson Well #2 showing coordinates, 5000 ft radius and property boundaries

Legend

-  5000 ft radius
-  Property Boundary
-  Watterson Well #2

 L&L Performance Horses

207

212

210

 Watterson Cemetery

Watterson

211

 29.994137, -97.367376

207

 Watterson Dance Hall

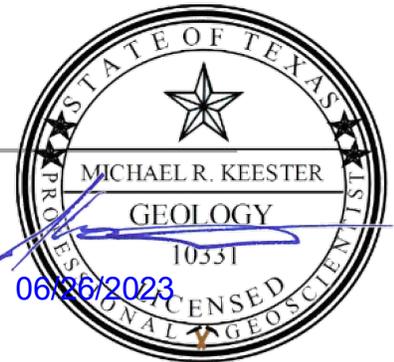
Google Earth



5000 ft

TECHNICAL MEMORANDUM

To: Emily Poston, P.E. – Manager of Engineering– Aqua WSC
CC: Dacy Cameron, P.E. – Assistant General Manager – Aqua WSC
From: Michael R. Keester, PG – R. W. Harden & Associates, Inc.
Date: June 26, 2023
Subject: Evaluation of the potential well capacity in the Watterson test hole area



The Waterson test hole was drilled and tested by Russell Drilling in late 2002. The location was tested by completing a temporary test well across two 21- to 22-foot intervals in the Middle Wilcox which is equivalent to the Simsboro Formation north of the Colorado River. Following testing, the hole was plugged.

Each zone was tested for 15 to 16 hours at a pumping rate of 62 gallons per minute (“gpm”). Reported water levels show no change in pumping water level once pumping begins. While the reported water levels are not sufficient for assessing aquifer transmissivity, we can estimate the capacity of a production well based on the reported drawdown associated with the production rate. Table 1 summarizes the data obtained from the testing conducted at the Watterson site.

Table 1. Watterson temporary test well testing results.

Depth Interval (ft BGL)	Static Water Level (ft BGL)	Pumping Water Level (ft BGL)	Drawdown (ft)	Pumping Rate (gpm)	Specific Capacity (gpm/ft)
730 to 752	167	183	16	64	4
841 to 862	171	195	24	62	2.6

Generally, the specific capacity of a well is proportional to the aquifer transmissivity and may be estimated by dividing the aquifer transmissivity (in gallons per day per foot [“gpd/ft”]) by 2,000. Based this relationship and that transmissivity of an aquifer is an additive property, the data suggest the Middle Wilcox transmissivity in the Watterson area is at least 13,000 gpd/ft for the combine 43-foot interval (not including temporary test well inefficiency). According to the geophysical log for the well (BRACS Well Id: 13502), the Middle Wilcox is present from approximately 680 to 870 feet below ground level (“BGL”) with 80 to 100 feet of net sand. Assuming similar hydraulic properties for the additional net sand of the Middle Wilcox in the area suggests an aquifer transmissivity of at least 20,000 gpd/ft for a well specific capacity of 10 gpm/ft similar to the conditions in Aqua WSC’s “S” well field.

While it is likely the static water level is now lower than when tested in 2002, water levels are likely at least 400 feet above the top of the Middle Wilcox. With available testing data indicating aquifer conditions similar to the “S” well field area, capacity for a properly drilled, constructed, and developed production well should be at least 1,000 gpm with 100 feet of drawdown. If larger amounts of drawdown are acceptable, the production capacity of the well will correspondingly increase.

If you have any questions regarding our assessment of the potential well capacity for the Watterson test well area, please let me know.