Geology and Hydrology of Chadron Well Field

The thickness of the aquifer is approximately 700' with the saturated thickness at approximately 600'. The depth of the aquifer as well as the saturated thickness was determined from [figure 9 and figure 10] of the Upper Niobrara White Resources District Master Plan "1989" done by Hoskins-Western-Sonderegger, Inc. The depth to water is as follows; Well #2 is 101', Well #3 is 73', Well #4 is 107', Well #5 is 123'. All the information pertaining to the aerial extent of the aquifer comes from a report done by Vernon L. Souders "Geology and ground water supplies of Southern Dawes and Northern Sheridan Counties, Nebraska" for the Upper Niobrara White Resources District. I have been unable to ascertain exactly which formation the city wells are pulling from therefore I will give the aerial extent for both the Ogallala and the Aarikea formations. East to West the general area of extent covers from "G" prime to "G" prime as well as "H" prime to "H" prime, north to south it covers "A,B,C,D,E,F" primes to "A,B,C,D,E,F" primes [figure 2]. The northern extent of the Ogallala extends approximately a couple miles north of the well field and becomes absent approximately 12 miles south west of the wells, and as you go east the aquifer becomes thicker. The Aarikea formation extends approximately 12 miles north and then becomes absent and east and west extends through the whole area. The aquifer is unconfined and the transmissivity of the principal aquifer in the area of the City's wells should be between 20,000 to 100,000 gallons per day per foot. In terms of ft squared per day, it would fall between 2,670 to 13,370 ft squared per day. This information comes from a map [figure 11] of the transmissivity of the principal aquifer found in a publication of "The Groundwater Atlas of Nebraska".