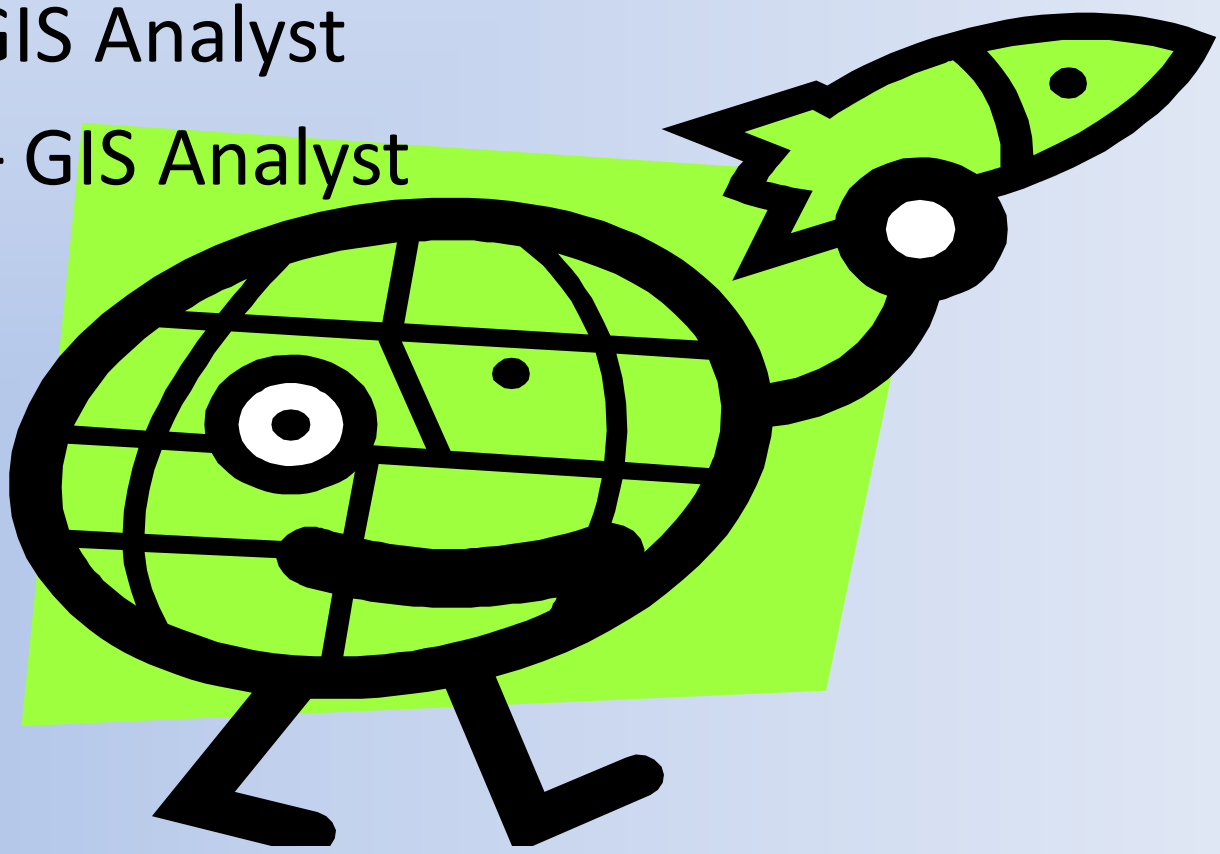
# BOBCAT

## GEOSPATIAL SOLUTIONS

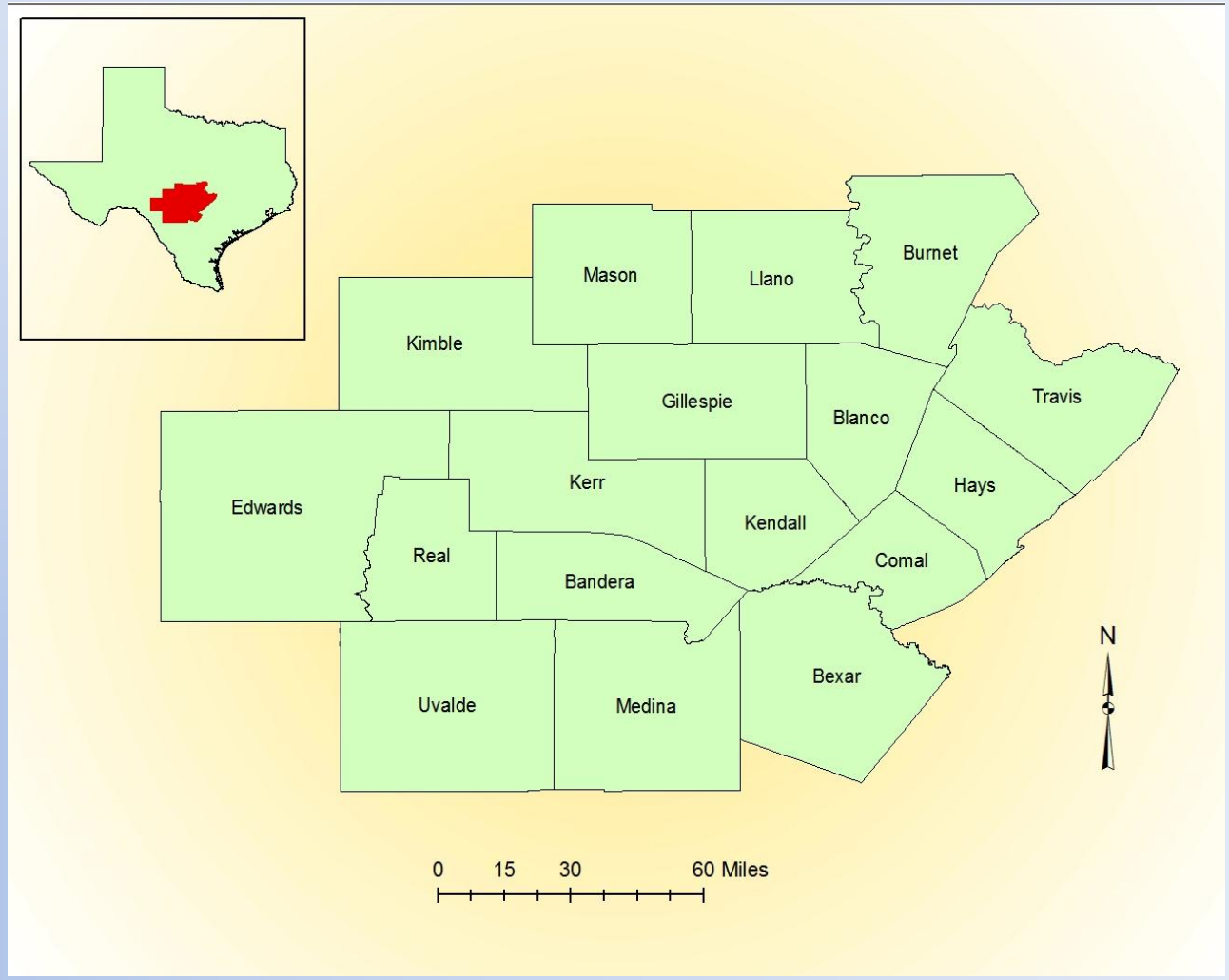
# Group Members

- Teresa Santerre Hobby – Manager
- Sarita Hedgepeth – Assistant Manager
- Charles Hill – GIS Analyst
- Scott Lindsay – GIS Analyst



# Purpose and Scope

- Color-coded representation of water wells
- Texas Hill Country's 17 counties.



# Data

- TNRIS
- USGS and TWDB

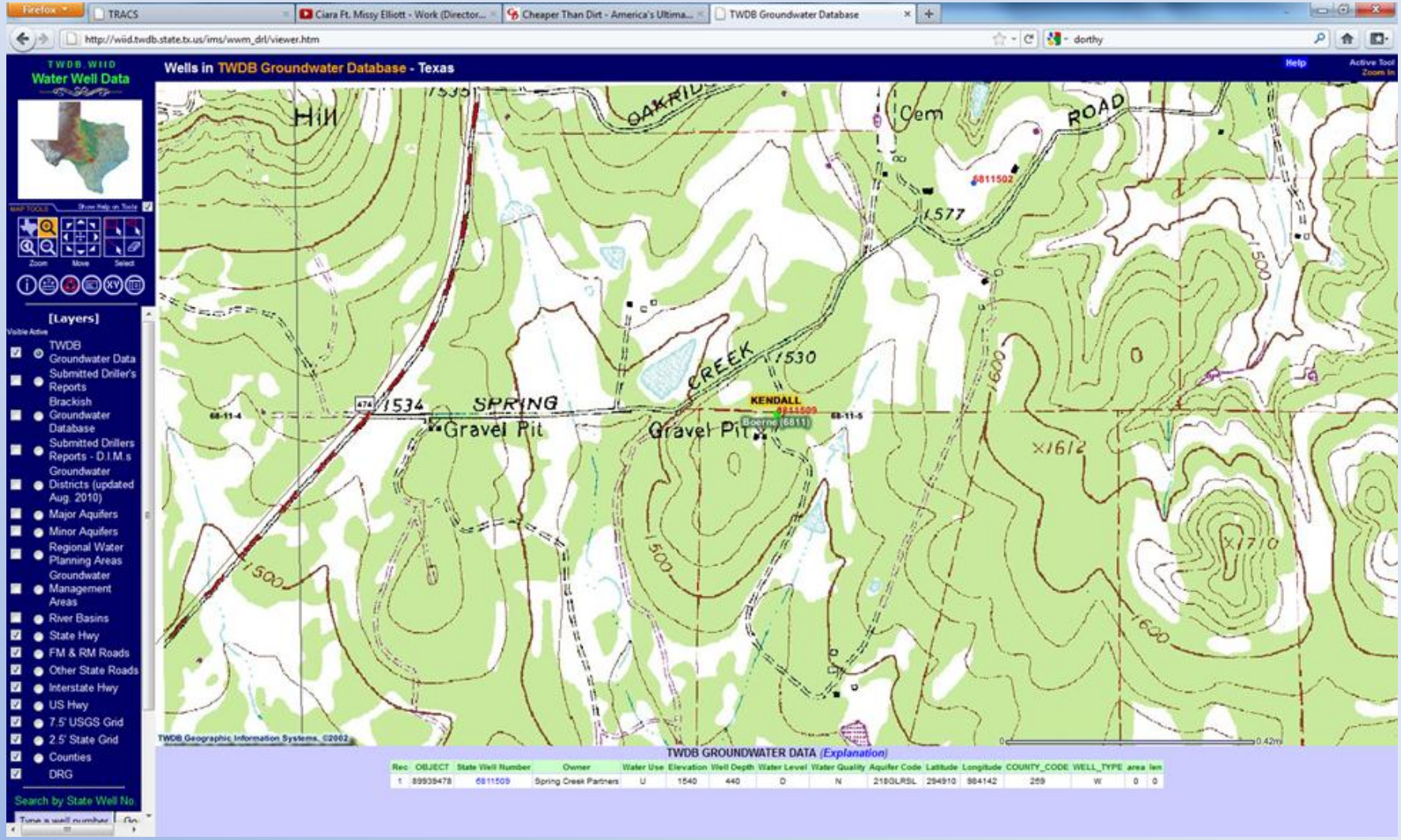
# Data

- Cow Creek Groundwater Conservation District
- Medina County GWD
- Headwaters Groundwater Conservation District (Kerr County)
- Central Texas GCD
- Hays Trinity Groundwater Conservation District
- Edwards Aquifer Authority,
- Ellenburger Group

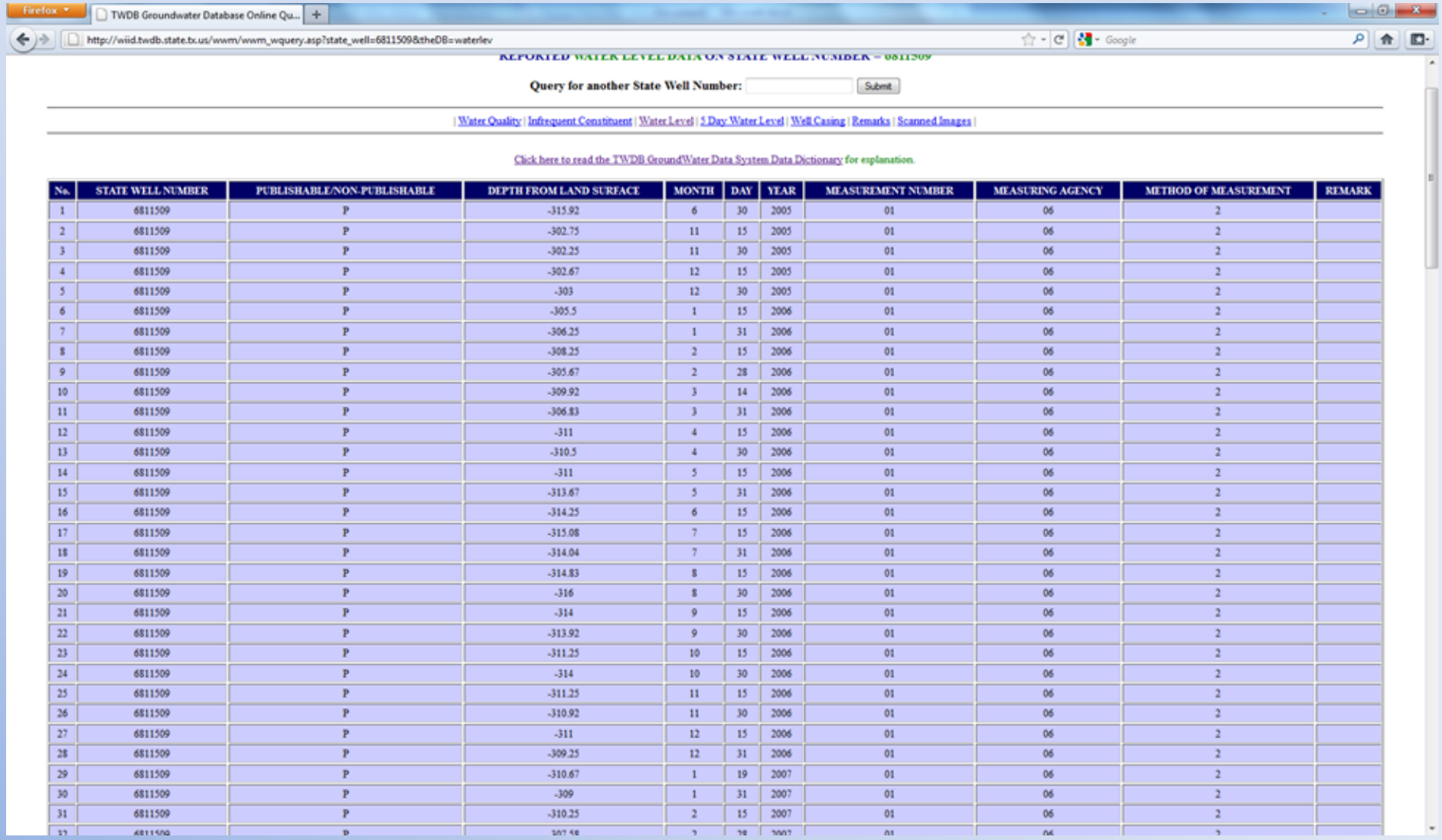
# Methodology

- Collection of well data
  - Well information was collected from both the United States Geological Survey, the Texas Water Development Board databases and participating ground water districts
  - All wells must have at least 10 years of data, have at least 40 independent measurements over those 10 years, currently be measured monthly and will likely be measured in the future
  - Well data was entered into an Excel spreadsheet and a percentile analysis was generated using an online statistical program

# Methodology



# Methodology



Firefox | TWDB Groundwater Database Online Qu... | http://wiid.twdb.state.tx.us/wwm/wwm_wquery.asp?state_well=6811509&theDB=waterlev

REPORTED WATER LEVEL DATA ON STATE WELL NUMBER = 6811509

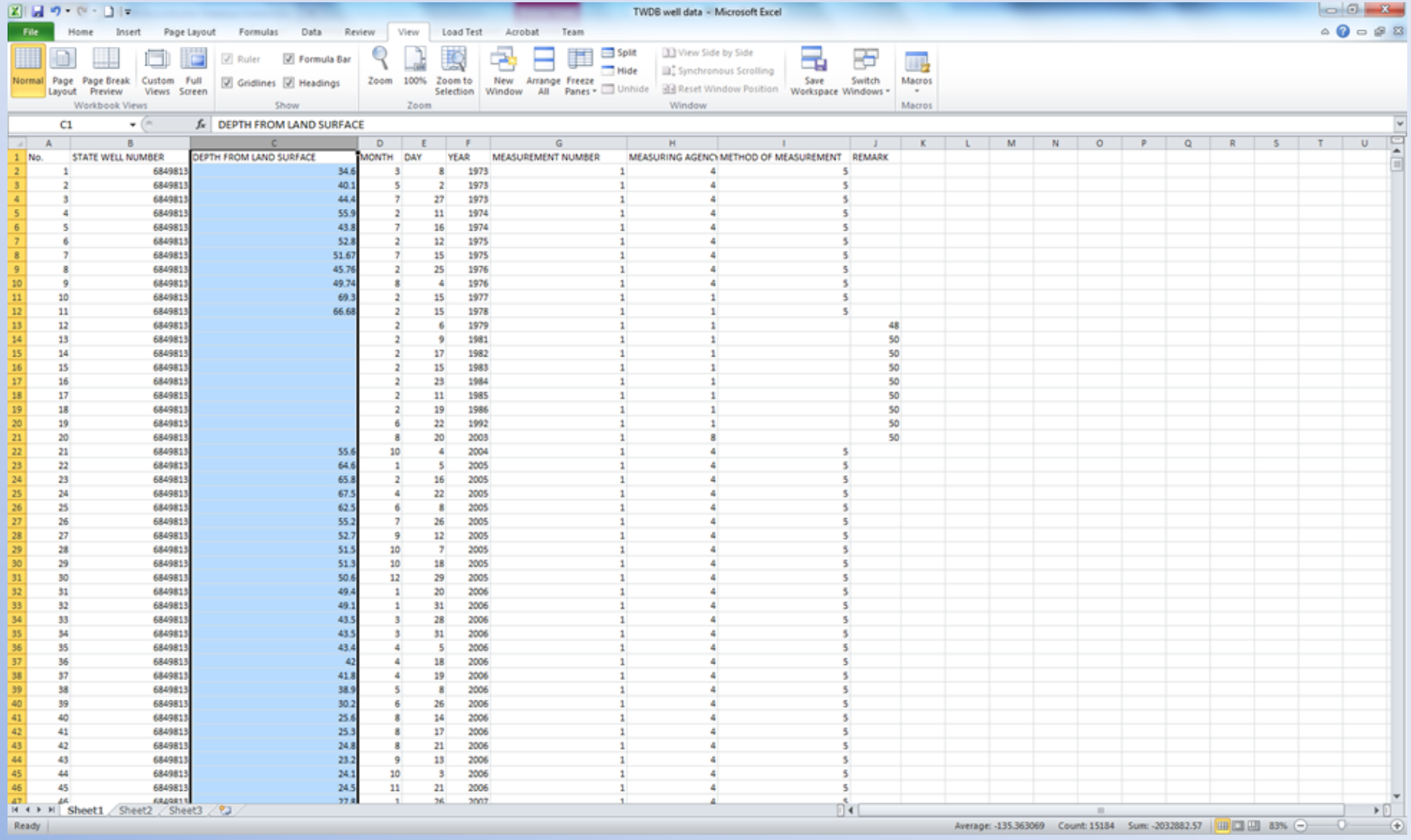
Query for another State Well Number: Submit

| Water Quality | Infrequent Constituent | Water Level | 5 Day Water Level | Well Casing | Remarks | Scanned Images |

Click here to read the TWDB GroundWater Data System Data Dictionary for explanation.

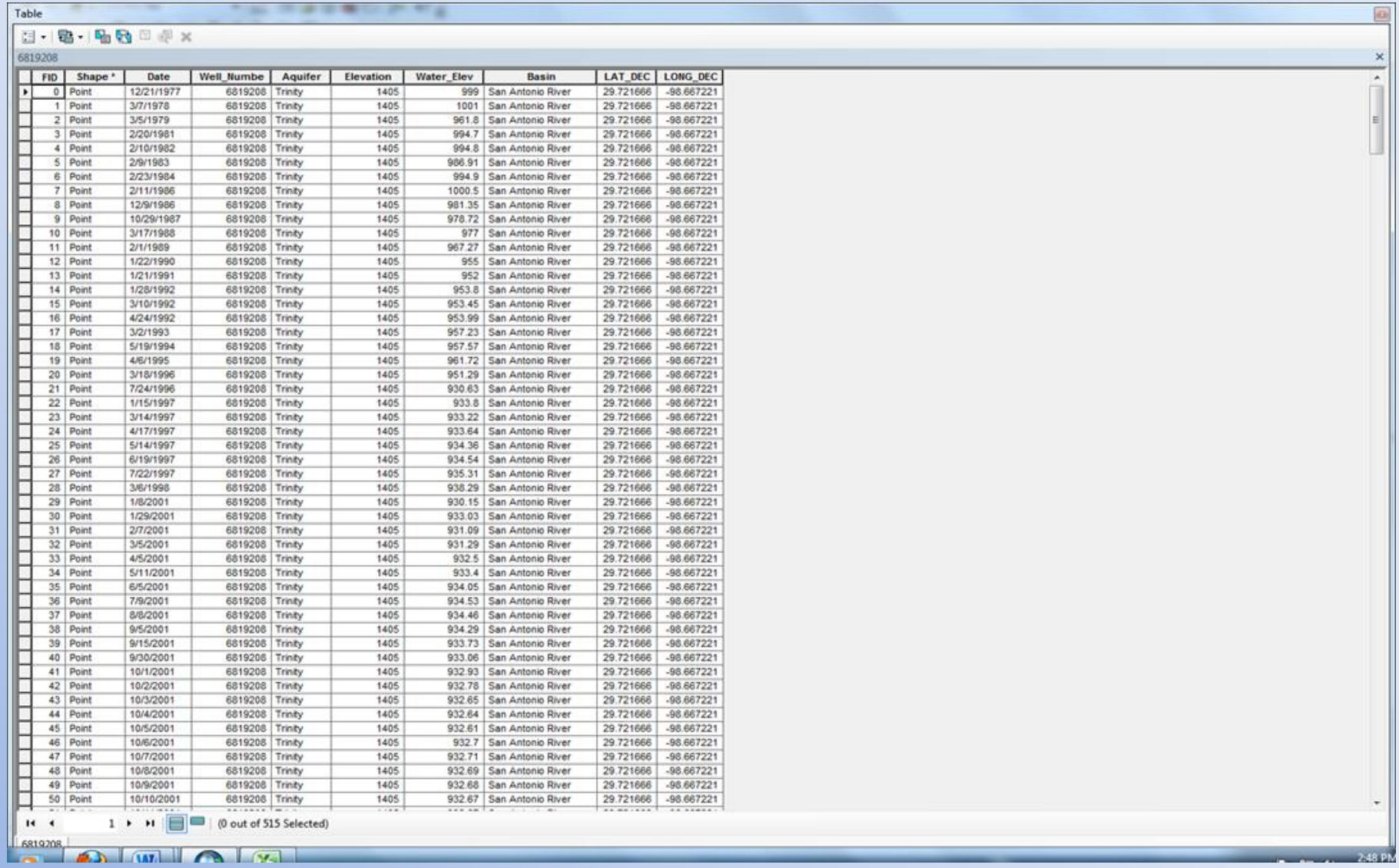
| No. | STATE WELL NUMBER | PUBLISHABLE/NON-PUBLISHABLE | DEPTH FROM LAND SURFACE | MONTH | DAY | YEAR | MEASUREMENT NUMBER | MEASURING AGENCY | METHOD OF MEASUREMENT | REMARK |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6811509 | P | -315.92 | 6 | 30 | 2005 | 01 | 06 | 2 | |
| 2 | 6811509 | P | -302.75 | 11 | 15 | 2005 | 01 | 06 | 2 | |
| 3 | 6811509 | P | -302.25 | 11 | 30 | 2005 | 01 | 06 | 2 | |
| 4 | 6811509 | P | -302.67 | 12 | 15 | 2005 | 01 | 06 | 2 | |
| 5 | 6811509 | P | -303 | 12 | 30 | 2005 | 01 | 06 | 2 | |
| 6 | 6811509 | P | -305.5 | 1 | 15 | 2006 | 01 | 06 | 2 | |
| 7 | 6811509 | P | -306.25 | 1 | 31 | 2006 | 01 | 06 | 2 | |
| 8 | 6811509 | P | -308.25 | 2 | 15 | 2006 | 01 | 06 | 2 | |
| 9 | 6811509 | P | -305.67 | 2 | 28 | 2006 | 01 | 06 | 2 | |
| 10 | 6811509 | P | -309.92 | 3 | 14 | 2006 | 01 | 06 | 2 | |
| 11 | 6811509 | P | -306.83 | 3 | 31 | 2006 | 01 | 06 | 2 | |
| 12 | 6811509 | P | -311 | 4 | 15 | 2006 | 01 | 06 | 2 | |
| 13 | 6811509 | P | -310.5 | 4 | 30 | 2006 | 01 | 06 | 2 | |
| 14 | 6811509 | P | -311 | 5 | 15 | 2006 | 01 | 06 | 2 | |
| 15 | 6811509 | P | -313.67 | 5 | 31 | 2006 | 01 | 06 | 2 | |
| 16 | 6811509 | P | -314.25 | 6 | 15 | 2006 | 01 | 06 | 2 | |
| 17 | 6811509 | P | -315.08 | 7 | 15 | 2006 | 01 | 06 | 2 | |
| 18 | 6811509 | P | -314.04 | 7 | 31 | 2006 | 01 | 06 | 2 | |
| 19 | 6811509 | P | -314.83 | 8 | 15 | 2006 | 01 | 06 | 2 | |
| 20 | 6811509 | P | -316 | 8 | 30 | 2006 | 01 | 06 | 2 | |
| 21 | 6811509 | P | -314 | 9 | 15 | 2006 | 01 | 06 | 2 | |
| 22 | 6811509 | P | -313.92 | 9 | 30 | 2006 | 01 | 06 | 2 | |
| 23 | 6811509 | P | -311.25 | 10 | 15 | 2006 | 01 | 06 | 2 | |
| 24 | 6811509 | P | -314 | 10 | 30 | 2006 | 01 | 06 | 2 | |
| 25 | 6811509 | P | -311.25 | 11 | 15 | 2006 | 01 | 06 | 2 | |
| 26 | 6811509 | P | -310.92 | 11 | 30 | 2006 | 01 | 06 | 2 | |
| 27 | 6811509 | P | -311 | 12 | 15 | 2006 | 01 | 06 | 2 | |
| 28 | 6811509 | P | -309.25 | 12 | 31 | 2006 | 01 | 06 | 2 | |
| 29 | 6811509 | P | -310.67 | 1 | 19 | 2007 | 01 | 06 | 2 | |
| 30 | 6811509 | P | -309 | 1 | 31 | 2007 | 01 | 06 | 2 | |
| 31 | 6811509 | P | -310.25 | 2 | 15 | 2007 | 01 | 06 | 2 | |

# Methodology




| No. | STATE WELL NUMBER | DEPTH FROM LAND SURFACE | MONTH | DAY | YEAR | MEASUREMENT NUMBER | MEASURING AGENCY | METHOD OF MEASUREMENT | REMARK |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6849813 | 34.6 | 3 | 8 | 1973 | 1 | 4 | 5 | |
| 2 | 6849813 | 40.1 | 5 | 2 | 1973 | 1 | 4 | 5 | |
| 3 | 6849813 | 44.4 | 7 | 27 | 1973 | 1 | 4 | 5 | |
| 4 | 6849813 | 55.9 | 2 | 11 | 1974 | 1 | 4 | 5 | |
| 5 | 6849813 | 43.8 | 7 | 16 | 1974 | 1 | 4 | 5 | |
| 6 | 6849813 | 52.8 | 2 | 12 | 1975 | 1 | 4 | 5 | |
| 7 | 6849813 | 51.67 | 7 | 15 | 1975 | 1 | 4 | 5 | |
| 8 | 6849813 | 45.76 | 2 | 25 | 1976 | 1 | 4 | 5 | |
| 9 | 6849813 | 49.74 | 8 | 4 | 1976 | 1 | 4 | 5 | |
| 10 | 6849813 | 69.3 | 2 | 15 | 1977 | 1 | 1 | 5 | |
| 11 | 6849813 | 66.68 | 2 | 15 | 1978 | 1 | 1 | 5 | |
| 12 | 6849813 | | 2 | 6 | 1979 | 1 | 1 | | 48 |
| 13 | 6849813 | | 2 | 9 | 1981 | 1 | 1 | | 50 |
| 14 | 6849813 | | 2 | 17 | 1982 | 1 | 1 | | 50 |
| 15 | 6849813 | | 2 | 15 | 1983 | 1 | 1 | | 50 |
| 16 | 6849813 | | 2 | 23 | 1984 | 1 | 1 | | 50 |
| 17 | 6849813 | | 2 | 11 | 1985 | 1 | 1 | | 50 |
| 18 | 6849813 | | 2 | 19 | 1986 | 1 | 1 | | 50 |
| 19 | 6849813 | | 6 | 22 | 1992 | 1 | 1 | | 50 |
| 20 | 6849813 | | 8 | 20 | 2003 | 1 | 8 | | 50 |
| 21 | 6849813 | 55.6 | 10 | 4 | 2004 | 1 | 4 | 5 | |
| 22 | 6849813 | 64.6 | 1 | 5 | 2005 | 1 | 4 | 5 | |
| 23 | 6849813 | 65.8 | 2 | 16 | 2005 | 1 | 4 | 5 | |
| 24 | 6849813 | 67.5 | 4 | 22 | 2005 | 1 | 4 | 5 | |
| 25 | 6849813 | 62.5 | 6 | 8 | 2005 | 1 | 4 | 5 | |
| 26 | 6849813 | 55.2 | 7 | 26 | 2005 | 1 | 4 | 5 | |
| 27 | 6849813 | 52.7 | 9 | 12 | 2005 | 1 | 4 | 5 | |
| 28 | 6849813 | 51.5 | 10 | 7 | 2005 | 1 | 4 | 5 | |
| 29 | 6849813 | 51.3 | 10 | 18 | 2005 | 1 | 4 | 5 | |
| 30 | 6849813 | 50.6 | 12 | 29 | 2005 | 1 | 4 | 5 | |
| 31 | 6849813 | 49.4 | 1 | 20 | 2006 | 1 | 4 | 5 | |
| 32 | 6849813 | 49.1 | 1 | 31 | 2006 | 1 | 4 | 5 | |
| 33 | 6849813 | 43.5 | 3 | 28 | 2006 | 1 | 4 | 5 | |
| 34 | 6849813 | 43.5 | 3 | 31 | 2006 | 1 | 4 | 5 | |
| 35 | 6849813 | 43.4 | 4 | 5 | 2006 | 1 | 4 | 5 | |
| 36 | 6849813 | 42 | 4 | 18 | 2006 | 1 | 4 | 5 | |
| 37 | 6849813 | 41.8 | 4 | 19 | 2006 | 1 | 4 | 5 | |
| 38 | 6849813 | 38.9 | 5 | 8 | 2006 | 1 | 4 | 5 | |
| 39 | 6849813 | 30.2 | 6 | 26 | 2006 | 1 | 4 | 5 | |
| 40 | 6849813 | 25.6 | 8 | 14 | 2006 | 1 | 4 | 5 | |
| 41 | 6849813 | 25.3 | 8 | 17 | 2006 | 1 | 4 | 5 | |
| 42 | 6849813 | 24.8 | 8 | 21 | 2006 | 1 | 4 | 5 | |
| 43 | 6849813 | 23.2 | 9 | 13 | 2006 | 1 | 4 | 5 | |
| 44 | 6849813 | 24.1 | 10 | 3 | 2006 | 1 | 4 | 5 | |
| 45 | 6849813 | 24.5 | 11 | 21 | 2006 | 1 | 4 | 5 | |
| 46 | 6849813 | 22.8 | 1 | 26 | 2007 | 1 | 4 | 5 | |

# Methodology



Table

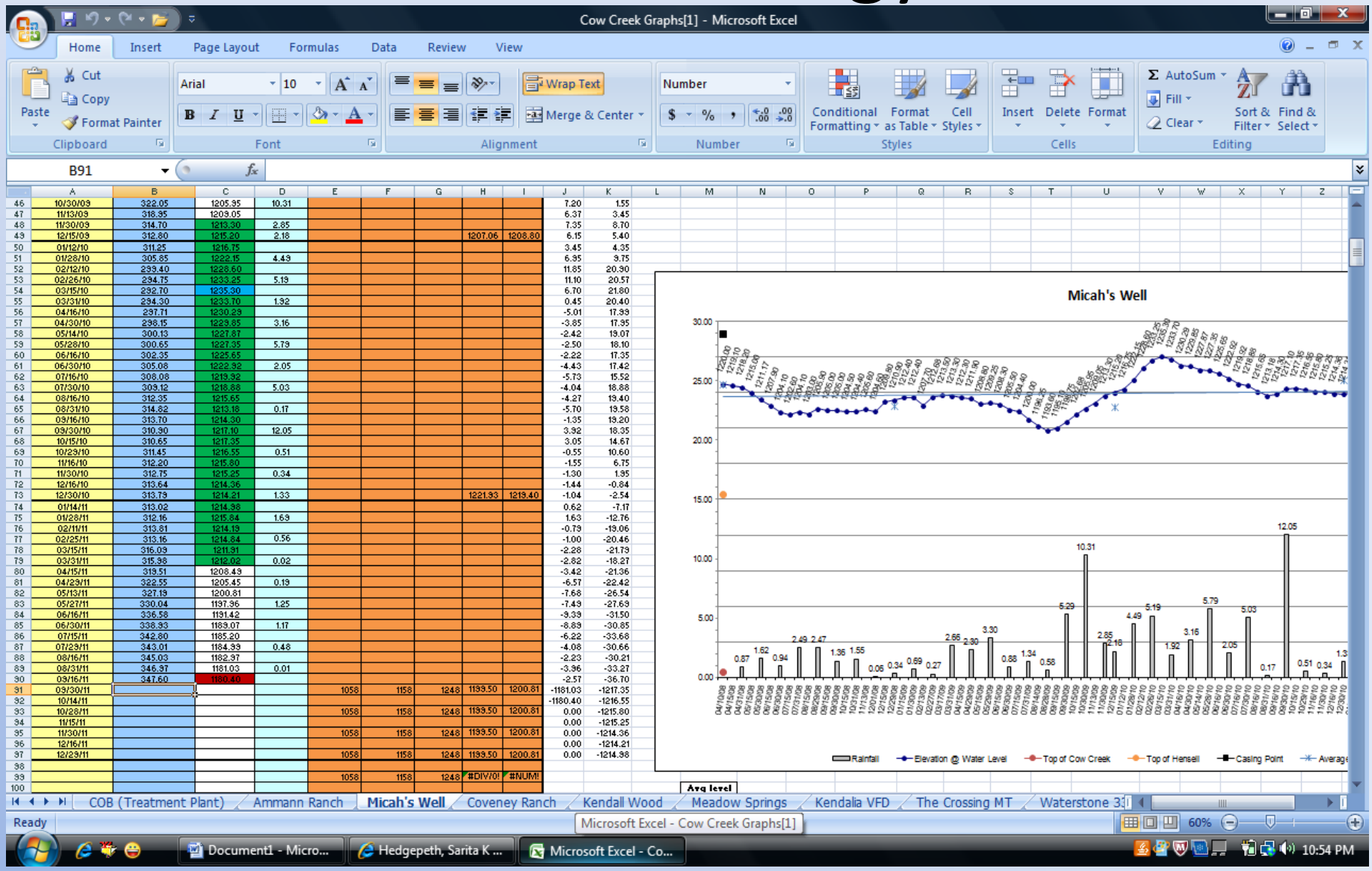
6819208

| FID | Shape * | Date | Well_Numbe | Aquifer | Elevation | Water_Elev | Basin | LAT_DEC | LONG_DEC |
|---|---|---|---|---|---|---|---|---|---|
| 0 | Point | 12/21/1977 | 6819208 | Trinity | 1405 | 999 | San Antonio River | 29.721666 | -98.667221 |
| 1 | Point | 3/7/1978 | 6819208 | Trinity | 1405 | 1001 | San Antonio River | 29.721666 | -98.667221 |
| 2 | Point | 3/5/1979 | 6819208 | Trinity | 1405 | 961.8 | San Antonio River | 29.721666 | -98.667221 |
| 3 | Point | 2/20/1981 | 6819208 | Trinity | 1405 | 994.7 | San Antonio River | 29.721666 | -98.667221 |
| 4 | Point | 2/10/1982 | 6819208 | Trinity | 1405 | 994.8 | San Antonio River | 29.721666 | -98.667221 |
| 5 | Point | 2/9/1983 | 6819208 | Trinity | 1405 | 986.91 | San Antonio River | 29.721666 | -98.667221 |
| 6 | Point | 2/23/1984 | 6819208 | Trinity | 1405 | 994.9 | San Antonio River | 29.721666 | -98.667221 |
| 7 | Point | 2/11/1986 | 6819208 | Trinity | 1405 | 1000.5 | San Antonio River | 29.721666 | -98.667221 |
| 8 | Point | 12/9/1986 | 6819208 | Trinity | 1405 | 981.35 | San Antonio River | 29.721666 | -98.667221 |
| 9 | Point | 10/29/1987 | 6819208 | Trinity | 1405 | 978.72 | San Antonio River | 29.721666 | -98.667221 |
| 10 | Point | 3/17/1988 | 6819208 | Trinity | 1405 | 977 | San Antonio River | 29.721666 | -98.667221 |
| 11 | Point | 2/1/1989 | 6819208 | Trinity | 1405 | 967.27 | San Antonio River | 29.721666 | -98.667221 |
| 12 | Point | 1/22/1990 | 6819208 | Trinity | 1405 | 955 | San Antonio River | 29.721666 | -98.667221 |
| 13 | Point | 1/21/1991 | 6819208 | Trinity | 1405 | 952 | San Antonio River | 29.721666 | -98.667221 |
| 14 | Point | 1/28/1992 | 6819208 | Trinity | 1405 | 953.8 | San Antonio River | 29.721666 | -98.667221 |
| 15 | Point | 3/10/1992 | 6819208 | Trinity | 1405 | 953.45 | San Antonio River | 29.721666 | -98.667221 |
| 16 | Point | 4/24/1992 | 6819208 | Trinity | 1405 | 953.99 | San Antonio River | 29.721666 | -98.667221 |
| 17 | Point | 3/2/1993 | 6819208 | Trinity | 1405 | 957.23 | San Antonio River | 29.721666 | -98.667221 |
| 18 | Point | 5/19/1994 | 6819208 | Trinity | 1405 | 957.57 | San Antonio River | 29.721666 | -98.667221 |
| 19 | Point | 4/6/1995 | 6819208 | Trinity | 1405 | 961.72 | San Antonio River | 29.721666 | -98.667221 |
| 20 | Point | 3/18/1996 | 6819208 | Trinity | 1405 | 951.29 | San Antonio River | 29.721666 | -98.667221 |
| 21 | Point | 7/24/1996 | 6819208 | Trinity | 1405 | 930.63 | San Antonio River | 29.721666 | -98.667221 |
| 22 | Point | 1/15/1997 | 6819208 | Trinity | 1405 | 933.8 | San Antonio River | 29.721666 | -98.667221 |
| 23 | Point | 3/14/1997 | 6819208 | Trinity | 1405 | 933.22 | San Antonio River | 29.721666 | -98.667221 |
| 24 | Point | 4/17/1997 | 6819208 | Trinity | 1405 | 933.64 | San Antonio River | 29.721666 | -98.667221 |
| 25 | Point | 5/14/1997 | 6819208 | Trinity | 1405 | 934.36 | San Antonio River | 29.721666 | -98.667221 |
| 26 | Point | 6/19/1997 | 6819208 | Trinity | 1405 | 934.54 | San Antonio River | 29.721666 | -98.667221 |
| 27 | Point | 7/22/1997 | 6819208 | Trinity | 1405 | 935.31 | San Antonio River | 29.721666 | -98.667221 |
| 28 | Point | 3/6/1998 | 6819208 | Trinity | 1405 | 938.29 | San Antonio River | 29.721666 | -98.667221 |
| 29 | Point | 1/8/2001 | 6819208 | Trinity | 1405 | 930.15 | San Antonio River | 29.721666 | -98.667221 |
| 30 | Point | 1/29/2001 | 6819208 | Trinity | 1405 | 933.03 | San Antonio River | 29.721666 | -98.667221 |
| 31 | Point | 2/7/2001 | 6819208 | Trinity | 1405 | 931.09 | San Antonio River | 29.721666 | -98.667221 |
| 32 | Point | 3/5/2001 | 6819208 | Trinity | 1405 | 931.29 | San Antonio River | 29.721666 | -98.667221 |
| 33 | Point | 4/5/2001 | 6819208 | Trinity | 1405 | 932.5 | San Antonio River | 29.721666 | -98.667221 |
| 34 | Point | 5/11/2001 | 6819208 | Trinity | 1405 | 933.4 | San Antonio River | 29.721666 | -98.667221 |
| 35 | Point | 6/5/2001 | 6819208 | Trinity | 1405 | 934.05 | San Antonio River | 29.721666 | -98.667221 |
| 36 | Point | 7/9/2001 | 6819208 | Trinity | 1405 | 934.53 | San Antonio River | 29.721666 | -98.667221 |
| 37 | Point | 8/8/2001 | 6819208 | Trinity | 1405 | 934.46 | San Antonio River | 29.721666 | -98.667221 |
| 38 | Point | 9/5/2001 | 6819208 | Trinity | 1405 | 934.29 | San Antonio River | 29.721666 | -98.667221 |
| 39 | Point | 9/15/2001 | 6819208 | Trinity | 1405 | 933.73 | San Antonio River | 29.721666 | -98.667221 |
| 40 | Point | 9/30/2001 | 6819208 | Trinity | 1405 | 933.06 | San Antonio River | 29.721666 | -98.667221 |
| 41 | Point | 10/1/2001 | 6819208 | Trinity | 1405 | 932.93 | San Antonio River | 29.721666 | -98.667221 |
| 42 | Point | 10/2/2001 | 6819208 | Trinity | 1405 | 932.78 | San Antonio River | 29.721666 | -98.667221 |
| 43 | Point | 10/3/2001 | 6819208 | Trinity | 1405 | 932.65 | San Antonio River | 29.721666 | -98.667221 |
| 44 | Point | 10/4/2001 | 6819208 | Trinity | 1405 | 932.64 | San Antonio River | 29.721666 | -98.667221 |
| 45 | Point | 10/5/2001 | 6819208 | Trinity | 1405 | 932.61 | San Antonio River | 29.721666 | -98.667221 |
| 46 | Point | 10/6/2001 | 6819208 | Trinity | 1405 | 932.7 | San Antonio River | 29.721666 | -98.667221 |
| 47 | Point | 10/7/2001 | 6819208 | Trinity | 1405 | 932.71 | San Antonio River | 29.721666 | -98.667221 |
| 48 | Point | 10/8/2001 | 6819208 | Trinity | 1405 | 932.69 | San Antonio River | 29.721666 | -98.667221 |
| 49 | Point | 10/9/2001 | 6819208 | Trinity | 1405 | 932.68 | San Antonio River | 29.721666 | -98.667221 |
| 50 | Point | 10/10/2001 | 6819208 | Trinity | 1405 | 932.67 | San Antonio River | 29.721666 | -98.667221 |

1 (0 out of 515 Selected)

6819208

# Methodology



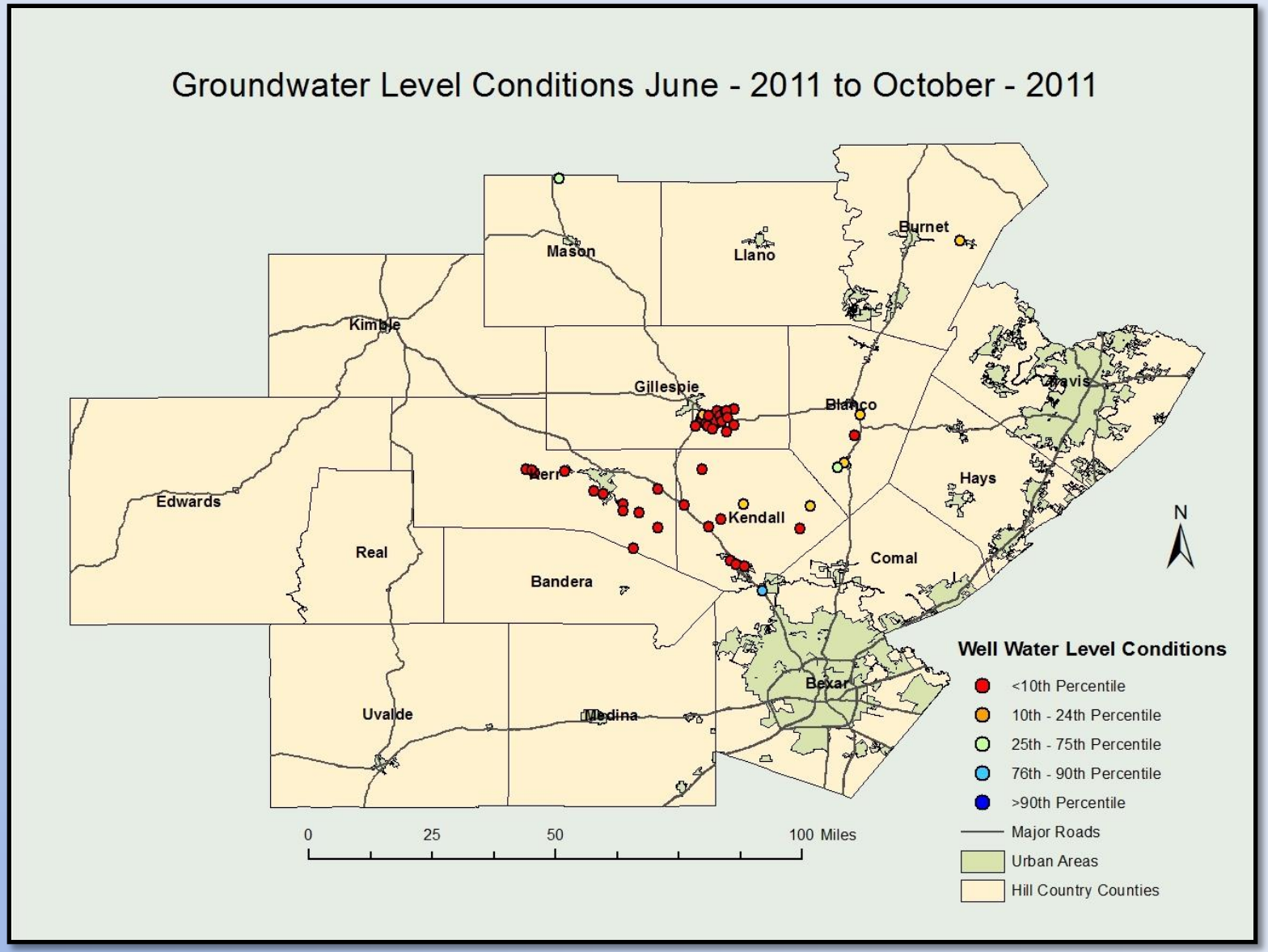
# Methodology

- Map product
  - Data was imported into ArcGIS 10 and geocoded based on decimal latitude and longitude coordinates
  - Counties, major roads, and city boundaries were clipped to contain just the area of the Texas Hill Country
  - Percentiles were split into ranges of less than the $10^{th}$ percentile, $10^{th}$ percentile to $24^{th}$ percentile, $25^{th}$ to $75^{th}$ percentile, $76^{th}$ percentile to $90^{th}$ percentile, and greater than $90^{th}$ percentile.
  - Hyperlinks were created from Excel files for each well

# Results

- Most qualifying wells are located in just four of the 17 Hill Country Counties.
- All but a few of the latest well measurements are extremely low compared to their historical elevations.
- There are no discernible patterns in the location of the four wells with the highest water elevation (> 50 percentile value).
- Qualifying wells are not distributed evenly throughout the geographic area.

# Results


Groundwater Level Conditions June - 2011 to October - 2011
Mason
Llano
Burnet
Kimble
Gillespie
Blanco
Travis
Hays
Edwards
Kerr
Kendall
Real
Bandera
Comal
Bexar
Uvalde
Medina
N
0
25
50
100 Miles
Well Water Level Conditions
<10th Percentile
10th - 24th Percentile
25th - 75th Percentile
76th - 90th Percentile
>90th Percentile
Major Roads
Urban Areas
Hill Country Counties

# Results

| Date | Well_Number | Measurement_Value | Elevation | Water_Elevation | Percentile | Percent | Lat | Long | County | Aquifer |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/15/2011 | 6819208 | -464.74 | 1405 | 940.26 | 0.83 | 83 | 29.721666 | -98.667221 | Bexar | Trinity |
| 8/15/2011 | 5753305 | -217.80 | 1388 | 1170.20 | 0.11 | 11 | 30.238333 | -98.379443 | Blanco | Trinity |
| 8/15/2011 | 5753614 | -335.75 | 1510 | 1174.25 | 0.05 | 5 | 30.177499 | -98.394999 | Blanco | Trinity |
| 8/24/2011 | 5761223 | -72.65 | 1340 | 1267.35 | 0.17 | 17 | 30.097221 | -98.425554 | Blanco | Trinity |
| 8/24/2011 | 5761507 | -92.40 | 1423 | 1330.60 | 0.25 | 25 | 30.083054 | -98.444999 | Blanco | Trinity |
| 7/5/2011 | 5742901 | -97.28 | 1600 | 1502.72 | 0.04 | 4 | 30.253888 | -98.750555 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750102 | -92.00 | 1582 | 1490.00 | 0.14 | 14 | 30.225554 | -98.846110 | Gillespie | Ellenburger-San Saba |
| 6/8/2011 | 5750106 | -102.30 | 1581 | 1478.70 | 0.06 | 6 | 30.225832 | -98.846110 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750107 | -91.80 | 1585 | 1493.20 | 0.02 | 2 | 30.220277 | -98.837221 | Gillespie | Ellenburger-San Saba |
| 8/15/2011 | 5750108 | -89.77 | 1590 | 1500.23 | 0.01 | 1 | 30.215555 | -98.841944 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750110 | -51.40 | 1585 | 1533.60 | 0.05 | 5 | 30.211666 | -98.835277 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750114 | -91.20 | 1581 | 1489.80 | 0.06 | 6 | 30.222777 | -98.844166 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750115 | -116.00 | 1620 | 1504.00 | 0.20 | 20 | 30.238610 | -98.841666 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750209 | -70.60 | 1575 | 1504.40 | 0.10 | 10 | 30.212500 | -98.831388 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750227 | -83.50 | 1585 | 1501.50 | 0.02 | 2 | 30.225554 | -98.801944 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750232 | -76.80 | 1582 | 1505.20 | 0.02 | 2 | 30.248055 | -98.799721 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750233 | -80.43 | 1610 | 1529.57 | 0.05 | 5 | 30.211666 | -98.803055 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750234 | -90.10 | 1590 | 1499.90 | 0.05 | 5 | 30.217221 | -98.803333 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750235 | -97.40 | 1568 | 1470.60 | 0.05 | 5 | 30.234999 | -98.822777 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750317 | -73.10 | 1563 | 1489.90 | 0.02 | 2 | 30.240555 | -98.779721 | Gillespie | Ellenburger-San Saba |
| 8/15/2011 | 5750324 | -92.77 | 1550 | 1457.23 | 0.01 | 1 | 30.230832 | -98.790833 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750325 | -94.00 | 1547 | 1453.00 | 0.05 | 5 | 30.231388 | -98.790833 | Gillespie | Ellenburger-San Saba |
| 6/8/2011 | 5750326 | -91.00 | 1548 | 1457.00 | 0.05 | 5 | 30.232221 | -98.791110 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750327 | -91.90 | 1546 | 1454.10 | 0.05 | 5 | 30.234166 | -98.791110 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750328 | -92.60 | 1545 | 1452.40 | 0.05 | 5 | 30.235555 | -98.790833 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750330 | -48.20 | 1550 | 1501.80 | 0.10 | 10 | 30.243610 | -98.774721 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750331 | -21.20 | 1540 | 1518.80 | 0.05 | 5 | 30.248888 | -98.770554 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750332 | -105.30 | 1618 | 1512.70 | 0.02 | 2 | 30.218332 | -98.784999 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750333 | -52.60 | 1538 | 1485.40 | 0.04 | 4 | 30.228332 | -98.769999 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750404 | -140.30 | 1685 | 1544.70 | 0.04 | 4 | 30.205000 | -98.861666 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750514 | -151.70 | 1705 | 1553.30 | 0.04 | 4 | 30.205000 | -98.825554 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750515 | -228.40 | 1779 | 1550.60 | 0.02 | 2 | 30.196944 | -98.813888 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5750603 | -206.80 | 1616 | 1409.20 | 0.07 | 7 | 30.188888 | -98.771943 | Gillespie | Ellenburger-San Saba |
| 7/5/2011 | 5751404 | -103.40 | 1550 | 1446.60 | 0.04 | 4 | 30.208333 | -98.749444 | Gillespie | Ellenburger-San Saba |
| 8/15/2011 | 5606613 | -73.47 | 1675 | 1601.53 | 0.34 | 34 | 30.929166 | -99.263333 | Mason | Hickory |
| 7/29/2011 | 5662412 | -247.80 | 1761 | 1513.20 | 0.02 | 2 | 30.067499 | -99.334444 | Kerr | Trinity |
| 7/29/2011 | 5662414 | -298.20 | 1798 | 1499.80 | 0.01 | 1 | 30.076666 | -99.358611 | Kerr | Trinity |
| 7/29/2011 | 5662415 | -372.50 | 1841 | 1468.50 | 0.02 | 2 | 30.073610 | -99.342499 | Kerr | Trinity |
| 7/29/2011 | 5663415 | -250.30 | 1682 | 1431.70 | 0.01 | 1 | 30.072499 | -99.247499 | Kerr | Trinity |
| 7/29/2011 | 5663916 | -383.20 | 1751 | 1367.80 | 0.01 | 1 | 30.013055 | -99.160000 | Kerr | Trinity |
| 8/15/2011 | 5663922 | -337.87 | 1687 | 1349.13 | 0.01 | 1 | 30.005555 | -99.132777 | Kerr | Trinity |
| 7/28/2011 | 5757703 | -137.70 | 1566 | 1428.30 | 0.02 | 2 | 30.019721 | -98.973054 | Kerr | Trinity |
| 8/15/2011 | 6801703 | -234.94 | 1524 | 1289.06 | 0.01 | 1 | 29.906944 | -98.972777 | Kerr | Trinity |
| 8/15/2011 | 6801704 | -263.17 | 1524 | 1260.83 | 0.01 | 1 | 29.906944 | -98.972777 | Kerr | Trinity |
| 7/28/2011 | 6908201 | -309.60 | 1633 | 1323.40 | 0.02 | 2 | 29.974721 | -99.076110 | Kerr | Trinity |
| 7/28/2011 | 6908511 | -247.80 | 1539 | 1291.20 | 0.03 | 3 | 29.955555 | -99.076666 | Kerr | Trinity |
| 7/28/2011 | 6908611 | -215.70 | 1512 | 1296.30 | 0.01 | 1 | 29.950277 | -99.028610 | Kerr | Trinity |
| 7/28/2011 | 6916201 | -278.40 | 1555 | 1276.60 | 0.01 | 1 | 29.846110 | -99.043888 | Kerr | Trinity |
| 8/15/2011 | 6801314 | -149.76 | 1405 | 1255.24 | 0.01 | 1 | 29.972221 | -98.894721 | Kendall | Trinity |
| 7/29/2011 | 6803109 | -71.12 | 1293 | 1221.88 | 0.12 | 12 | 29.975554 | -98.721110 | Kendall | Trinity |
| 7/29/2011 | 6810616 | -481.11 | 1522 | 1040.89 | 0.02 | 2 | 29.810000 | -98.760000 | Kendall | Trinity |
| 8/15/2011 | 6811417 | -289.50 | 1422 | 1132.50 | 0.04 | 4 | 29.798333 | -98.744721 | Kendall | Trinity |
| 7/29/2011 | 6811708 | -260.77 | 1385 | 1124.23 | 0.02 | 2 | 29.791388 | -98.718332 | Kendall | Trinity |
| 10/1/2011 | 5724101 | -216.70 | 1296 | 1079.30 | 0.18 | 18 | 30.747777 | -98.085833 | Burnet | Trinity |
| 9/16/11 | 5758402 | -175.10 | 1585 | 1409.90 | 0.01 | 1 | 30.076943 | -98.842499 | Kendall | Trinity |
| 9/16/11 | 6802609 | -157.69 | 1355 | 1197.31 | 0.01 | 1 | 29.929999 | -98.788610 | Kendall | Trinity |
| 9/16/11 | 6804312 | -133.82 | 1373 | 1239.18 | 0.12 | 12 | 29.970277 | -98.525277 | Kendall | Trinity |
| 9/16/11 | 6804806 | -193.30 | 1140 | 946.70 | 0.05 | 5 | 29.904444 | -98.556944 | Kendall | Trinity |
| 9/16/11 | 6802807 | -190.68 | 1430 | 1239.32 | 0.01 | 1 | 29.909722 | -98.823332 | Kendall | Trinity |

# Discussion

- Limited Data for much of Hill Country

- Large majority of wells under the 10$^{th}$ percentile
- Criteria

# Implications

- This project is intended as springboard for the HCA's research on groundwater levels and more specifically the well depths in the Hill Country region.
- This mapping system provides useful information about groundwater levels for use by the HCA to assist in the future publications provided to residents located in the Hill Country region of Texas.

# Conclusions

- Future efforts
  - Real-time water level data
  - Website
  - Monitor groundwater levels for the Texas Hill Country

# Final Deliverables

- Final report
- Poster for display in the Geography Department
- Website
- Two CDs containing the following:
  - All data
  - Metadata
  - Proposal, Progress, & Final Reports
  - Poster
  - PowerPoint Presentations
  - Instructions on how to use CD (readme file)

Any questions?