A Quick study of recorder wells near Austin and Waller Counties is included here. While scanning the TWDB web site for data the author ran acroos the information on the following pages. The pages are screen shot captures used to enable an accumulation of these data quickly. The author includes the URL below to allow other parties to verify source of data.
http://www.twdb.state.tx.us/publications/reports/technical_notes/doc/GW_Recorder2011_Feb_2013_final.pdf

Blue dots indicate the location of recorder wells on circled page numbers on page 1 and 2. Page 4 displays a lot of red numbers which can be observed and interpreted with reference to the time periods indicated on the table. Pages 5, and 7 yield depths of some wells and alleged aquifer formations. The author only noticed one well in the Evangeline aquifer formation.

The data was found while searching for pertinent information on the 260 non exempt wells that is not readily available in digital form on the conservation district web site. Searches are being undertaken to get more information on both the non exempt and the recorder wells. This quick study will be placed on the cctrw.org web site in the In House library.

T. Sherman

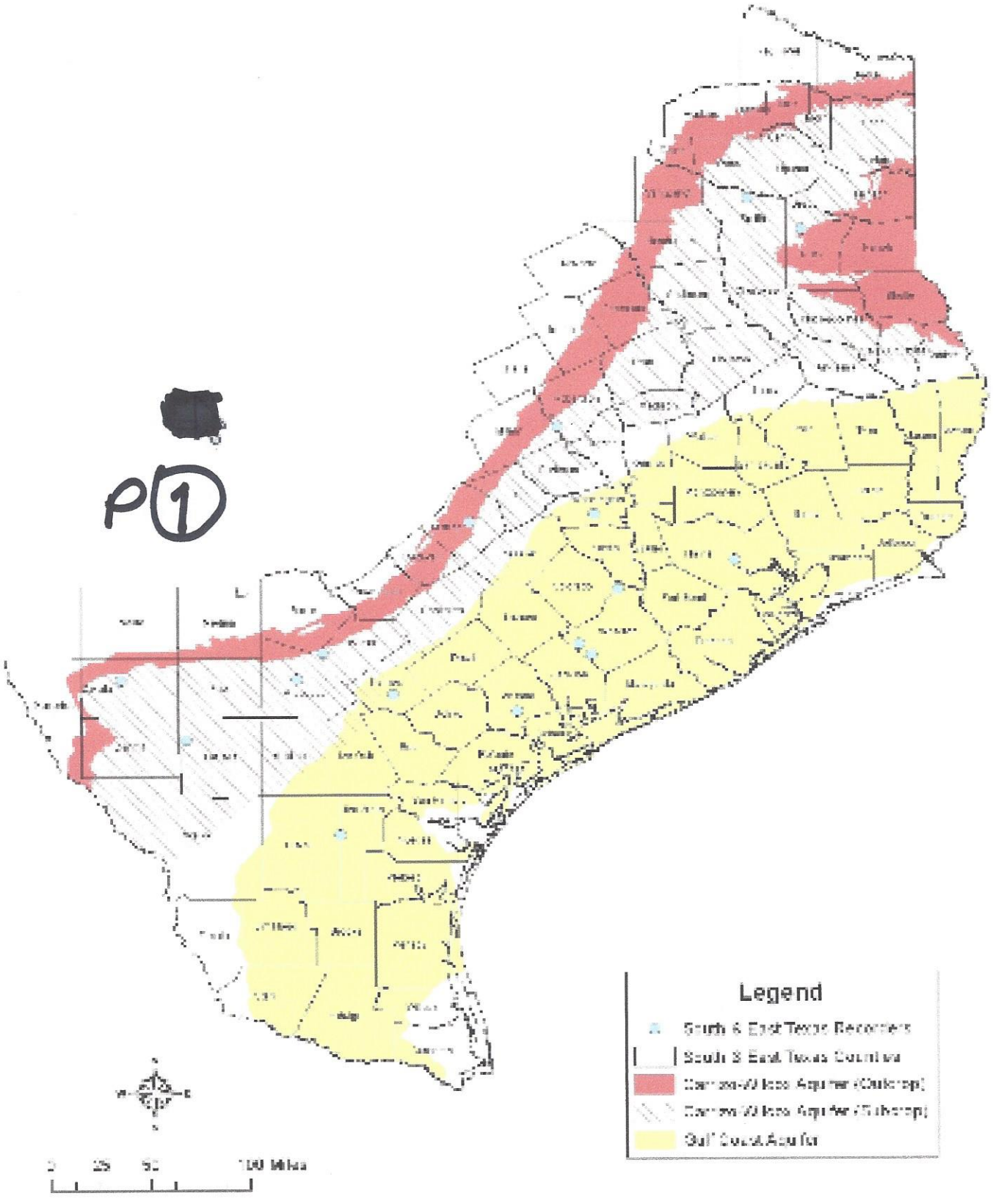
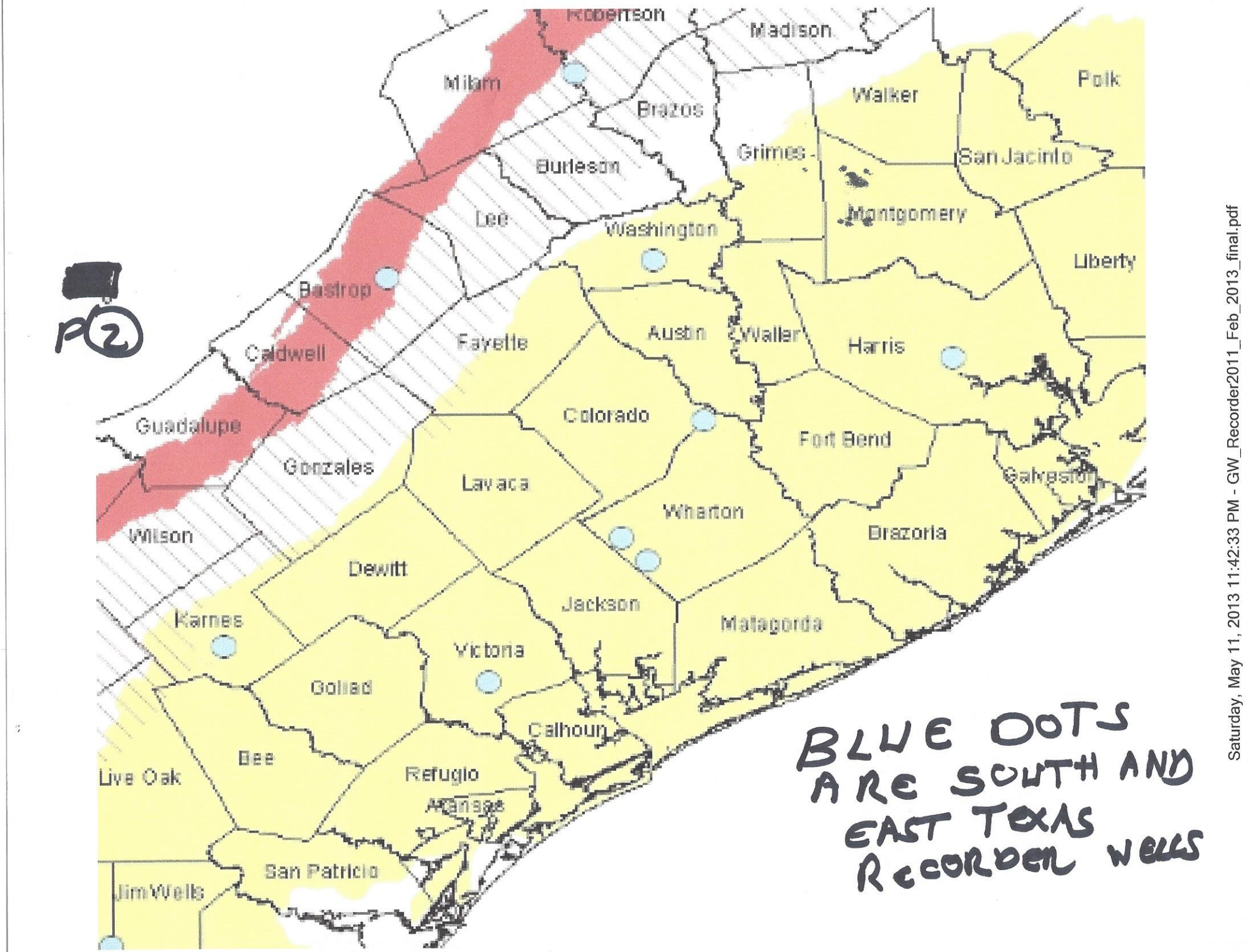


Figure 6-1. Location of wells with TWDB operated automatic water level recorders South and East Texas.



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BLUE DOTS
ARE SOUTH AND
EAST TEXAS
RECORDED NESTS

6.0 South and East Texas

The TWDB monitors 16 recorder wells in South and East Texas(figure 6-1) that are completed in either the Carrizo-Wilcox or Gulf Coast major aquifers. Most of the wells have short historical periods of record, with the exception of three recorders in Gulf Coast Aquifer wells in Harris, Victoria, and Duval counties, in which records begin in the late 1940s, late 1950s, and early 1960s, and in two Carrizo-Wilcox wells in Milam and Smith counties, in which records began in the 1980s. Some entities in Harris County have measured water levels for the past 60 years. Currently, the TWDB is operating eight recorders in wells completed in the Gulf Coast Aquifer and eight recorders in wells completed in the Carrizo-Wilcox Aquifer throughout the region.

6.1 Major Aquifers

Water level declines in the eight Carrizo-Wilcox Aquifer recorder wells ranged from 0.6 feet in the Bastrop County well to 76.5 feet in the La Salle County well during the 2010-2011 period (table 6-1 and figure 6-2). The median water-level decline was 4.4 feet and the average decline was 17.1 feet. From 2009 to 2010, the change in water levels ranged from +7.6 feet to -14.6 feet and the median change was -1.5 feet, with an average change of -2.2 feet.

Irrigation pumpage during the drought has increased substantially in the Wintergarden area of southwest Texas, particularly Zavala, Wilson, and Atascosa counties. Pumping of groundwater has also increased to support oil and gas exploration and production activities related to the Eagle Ford Shale. The greatest decline of water level has been in the La Salle County well, which, in comparison to water levels in all of the recorder wells in the Carrizo-Wilcox Aquifer, has shown the greatest historical change—nearly 136 feet of decline—since measurements began in 2003.

Between 2010 and 2011, water level changes in the eight Gulf Coast Aquifer wells ranged from +8.7 feet in northernmost Wharton County well to -13.8 feet in the Karnes County well with a median change of -6.3 feet and an average of -5.7 feet. Between 2009 and 2010, the change in the five wells with available measurements ranged from +7.4 feet to -0.9 feet with a median change of +0.9 feet and an average change of +2.2 feet.

The Wharton County (6661302) and the Duval County wells are located in areas that experience groundwater pumping for seasonal irrigation and municipal needs, respectively. Municipal groundwater pumping also occurs in the vicinity of the Karnes County well. This well, first measured in 1956, has experienced nearly 144 feet of water-level decline, the greatest decline historically of these recorder wells. Currently, the rate of water level decline is lower than that in the La Salle Carrizo(-Wilcox) Aquifer well, but a comparison is not quite appropriate due to the much longer period of record in the Karnes County well.

The Harris County well hydrograph illustrates a decline and rebound pattern typical in several monitored wells in southern Harris County and northern Fort Bend, Brazoria, and Gavleston counties. Municpal groundwater pumpage from the 1950s to the late 1970s/early 1980s was great enough to cause subsidence in much of these counties. With a switch from groundwater to surface water for municipal supply, groundwater levels began to rise, and in some areas to levels higher than originally recorded.

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Table 6-1. Water level changes, in feet, in TWDB recorder wells in South and East Texas counties for various time periods.

[redacted] P

County & well #	Aquifer	2011 Change (ft)	2010 Change (ft)	2007-2011 Change (ft)	2002-2011 Change (ft)	Historical Change (ft)	Historical Yearly Avg. (ft)
3430907 Smith	Wilcox	-2.94	-1.34	-4.84	-21.29	-70.18 (1977)	-2.81
3541604 Rusk	Wilcox	-4.66	N/A	N/A	N/A	-1.96 (2010)	-1.57
5862208 Bastrop	Wilcox	-0.56	-2.64	2.34	N/A	-6.90 (2003)	-0.84
5911621 Milam	Wilcox	-3.70	-1.48	-3.82	N/A	-5.14 (1981)	-0.17
5953915 Washington	Gulf Coast	-4.28	-0.88	-3.96	N/A	-5.73 (2002)	-0.59
6514409 Harris	Gulf Coast	-10.07	7.39	1.19	39.47	-71.93 (1947)	-1.16
6631107 Wharton	Gulf Coast	8.74	N/A	N/A	N/A	10.92 (2010)	8.74
6653406 Wharton	Gulf Coast	-4.50	0.94	N/A	N/A	-30.27 (1947)	-0.47
6661302 Wharton	Gulf Coast	-9.41	3.04	-9.72	N/A	11.78 (2005)	1.81
6862104 Wilson	Carrizo	-18.60	7.59	15.70	16.73	-2.12 (1994)	-0.12
7702509 Zavala	Carrizo	-4.15	-14.62	-14.74	N/A	-22.97 (2002)	-2.46
7738103 La Salle	Carrizo	-76.51	-5.36	-131.49	N/A	-135.96 (2003)	-17.00
7804508 Atascosa	Carrizo	-25.57	2.41	N/A	N/A	-16.46 (2008)	-4.70
7910406 Karnes	Gulf Coast	-13.76	N/A	N/A	N/A	-143.73 (1956)	-2.57
8017502 Victoria	Gulf Coast	-5.83	0.29	-10.78	10.47	-4.95 (1958)	-0.09
8415702 Duval	Gulf Coast	-6.72	N/A	31.08	23.33	-21.71 (1964)	-0.45

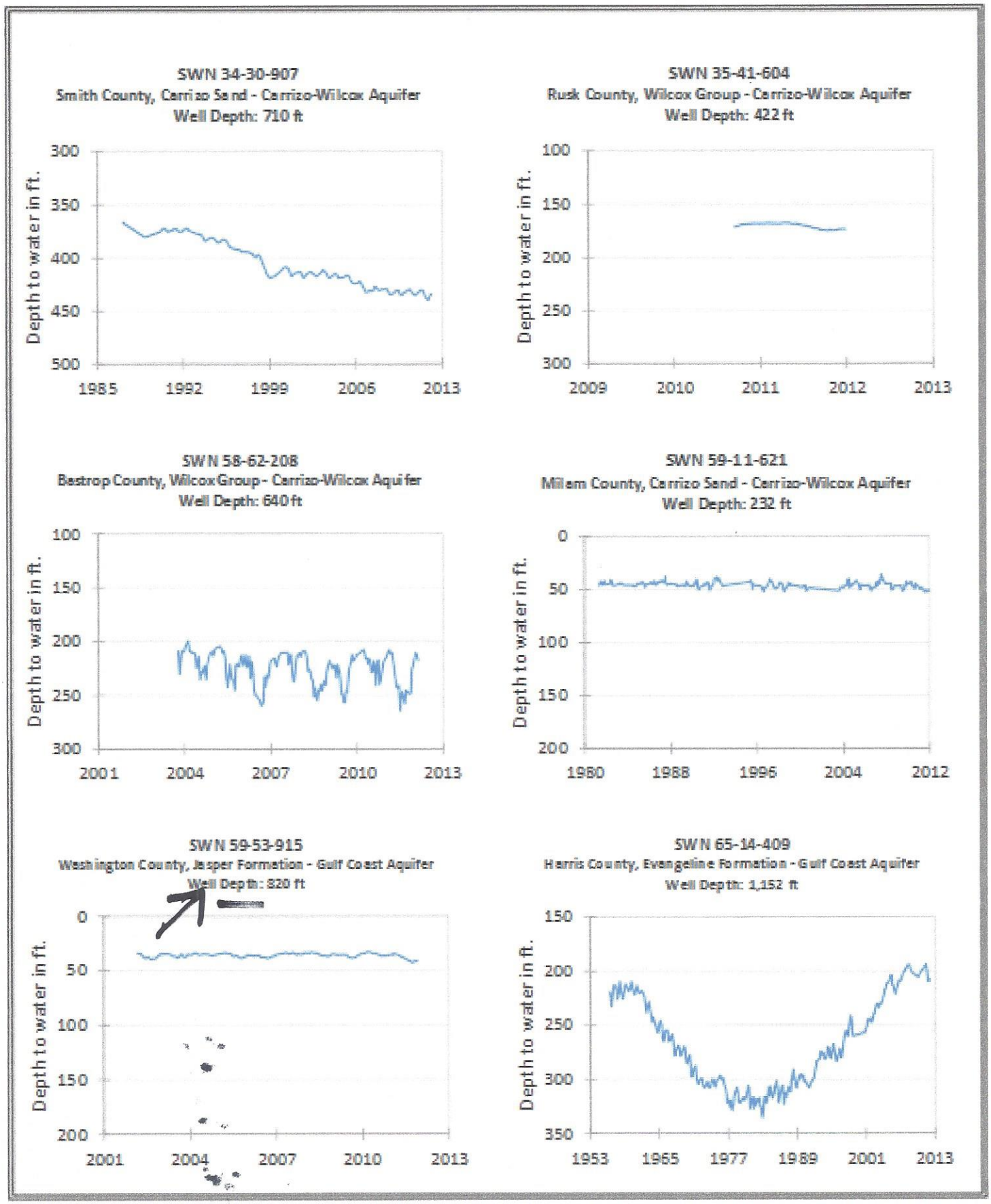
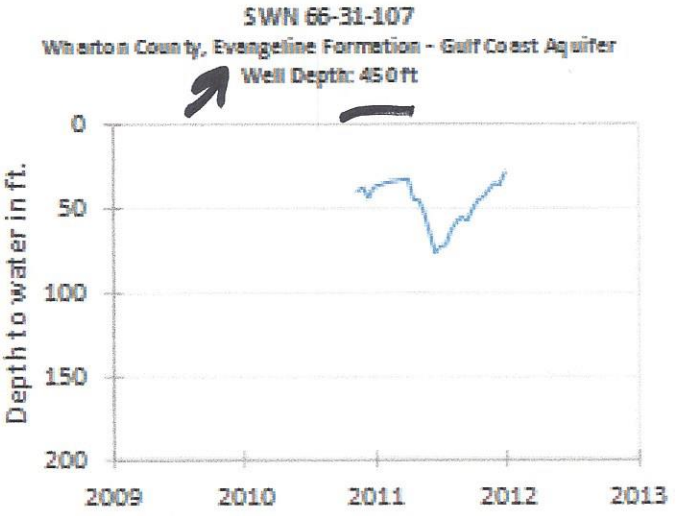
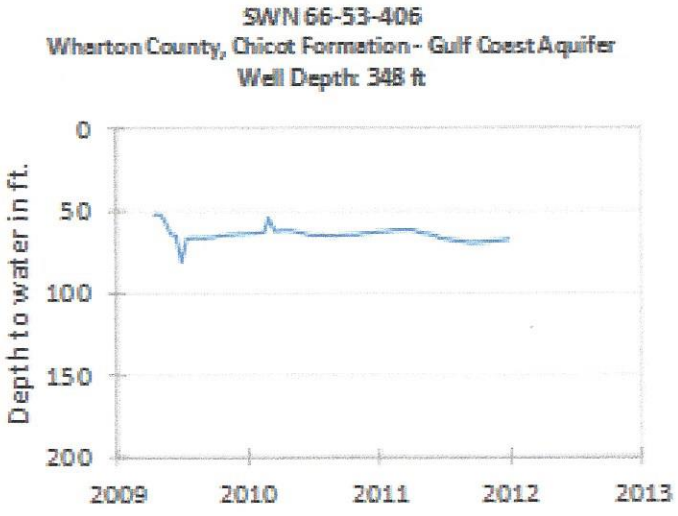
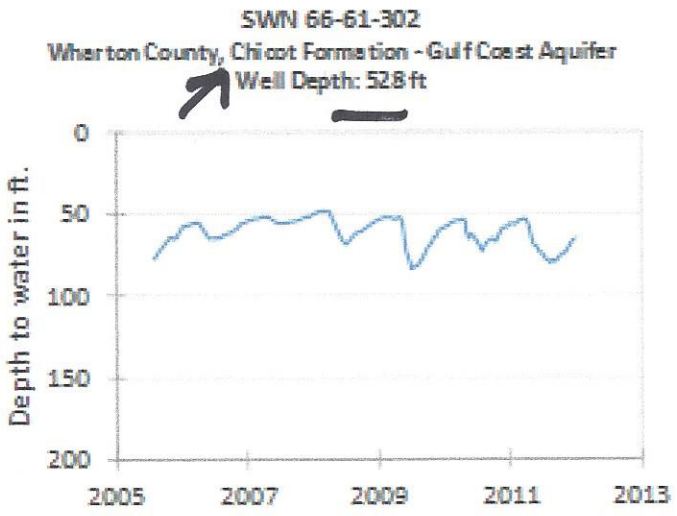
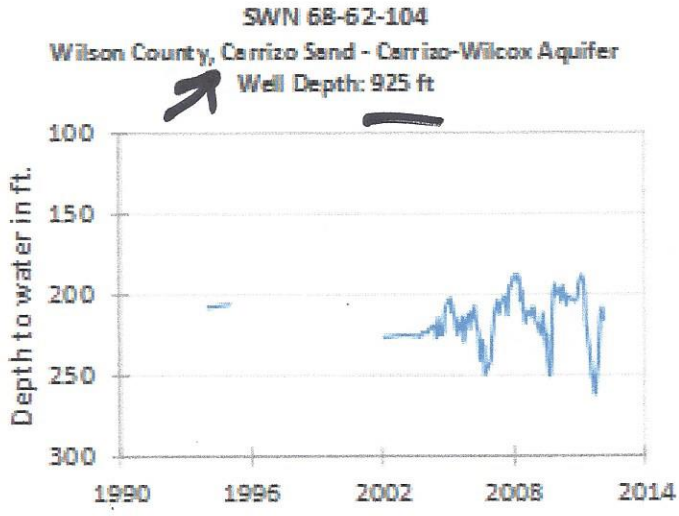


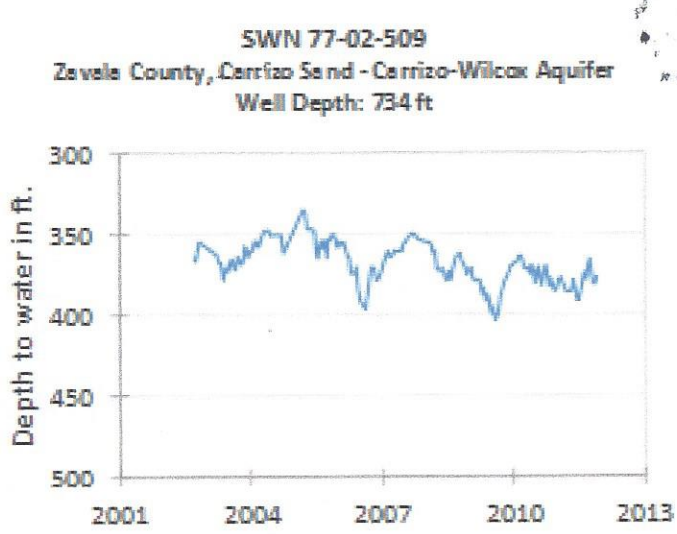
Figure 6-2. Selected hydrographs of TWDB recorder wells in South and East Texas.











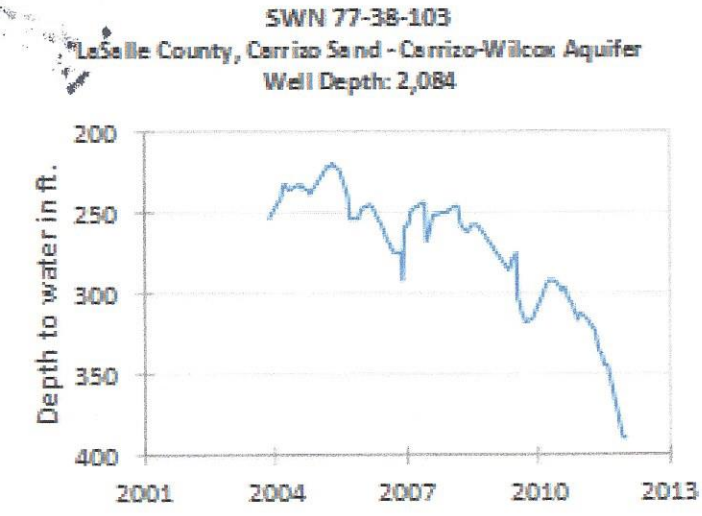


Figure 6-2 (cont'd). Selected hydrographs of TWDB recorder wells in South and East Texas

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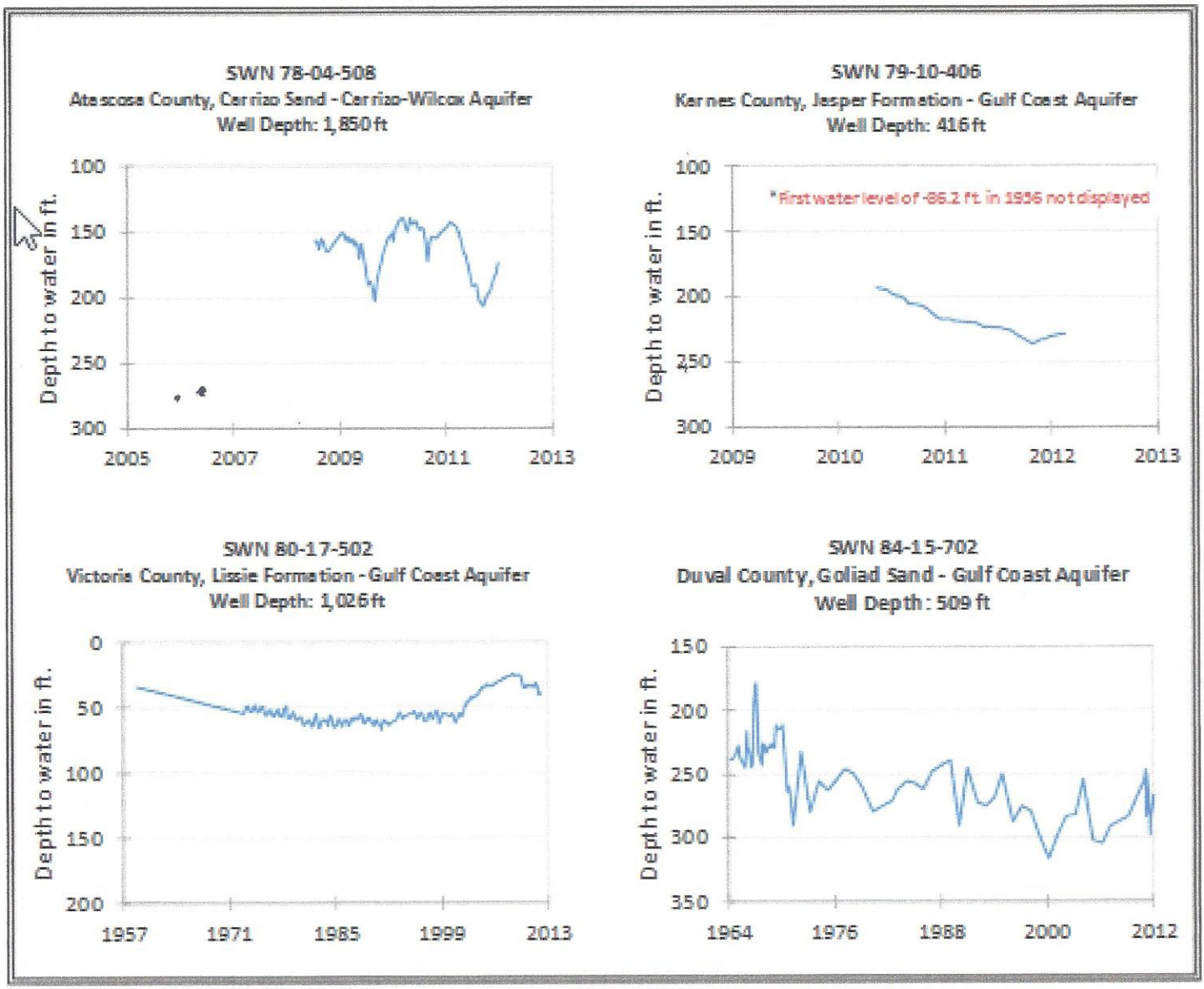

Figure 6-2 (cont'd). Selected hydrographs of TWDB recorder wells in South and East Texas.