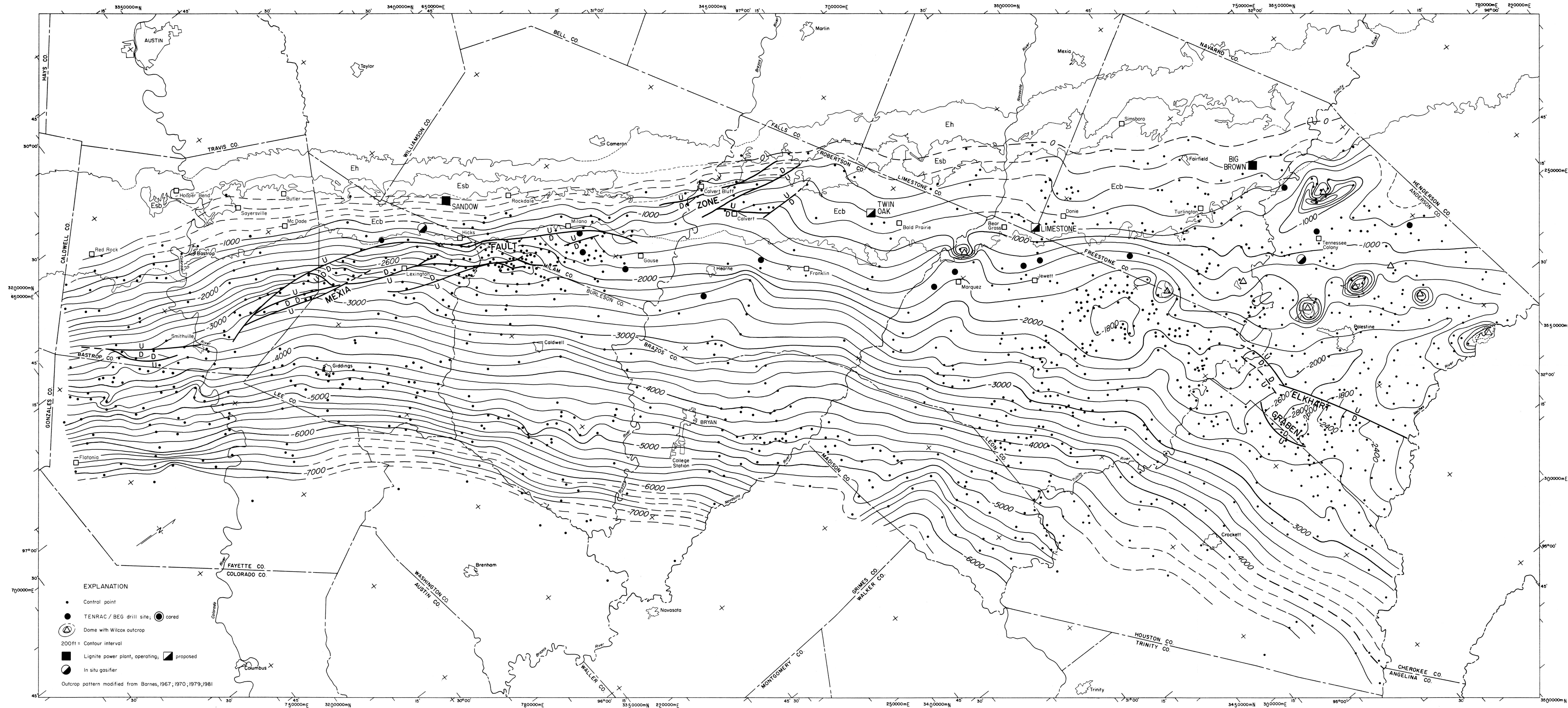




ATTACHMENT 3 –
REFERENCE MATERIALS



- EXPLANATION**
- Control point
 - TENRAC / BEG drill site; ● cored
 - ⊙ Dome with Wilcox outcrop
 - 200ft = Contour interval
 - Lignite power plant, operating; ▨ proposed
 - ⊙ In situ gasifier
- Outcrop pattern modified from Barnes, 1967, 1970, 1979, 1981

- Ecb Calvert Bluff Formation
- Esb Simsboro Formation
- Eh Hooper Formation

Base map adapted from Army Map Service base maps, 10,000-meter Universal Transverse Mercator grid, zones 14 and 15. Cartography by John T. Ames under the supervision of Richard L. Dillon.
by W. B. Ayers, Jr., and Amy H. Lewis

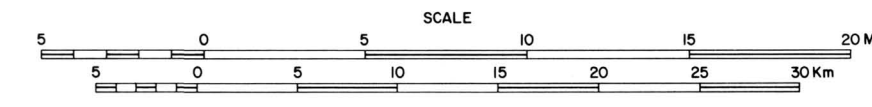
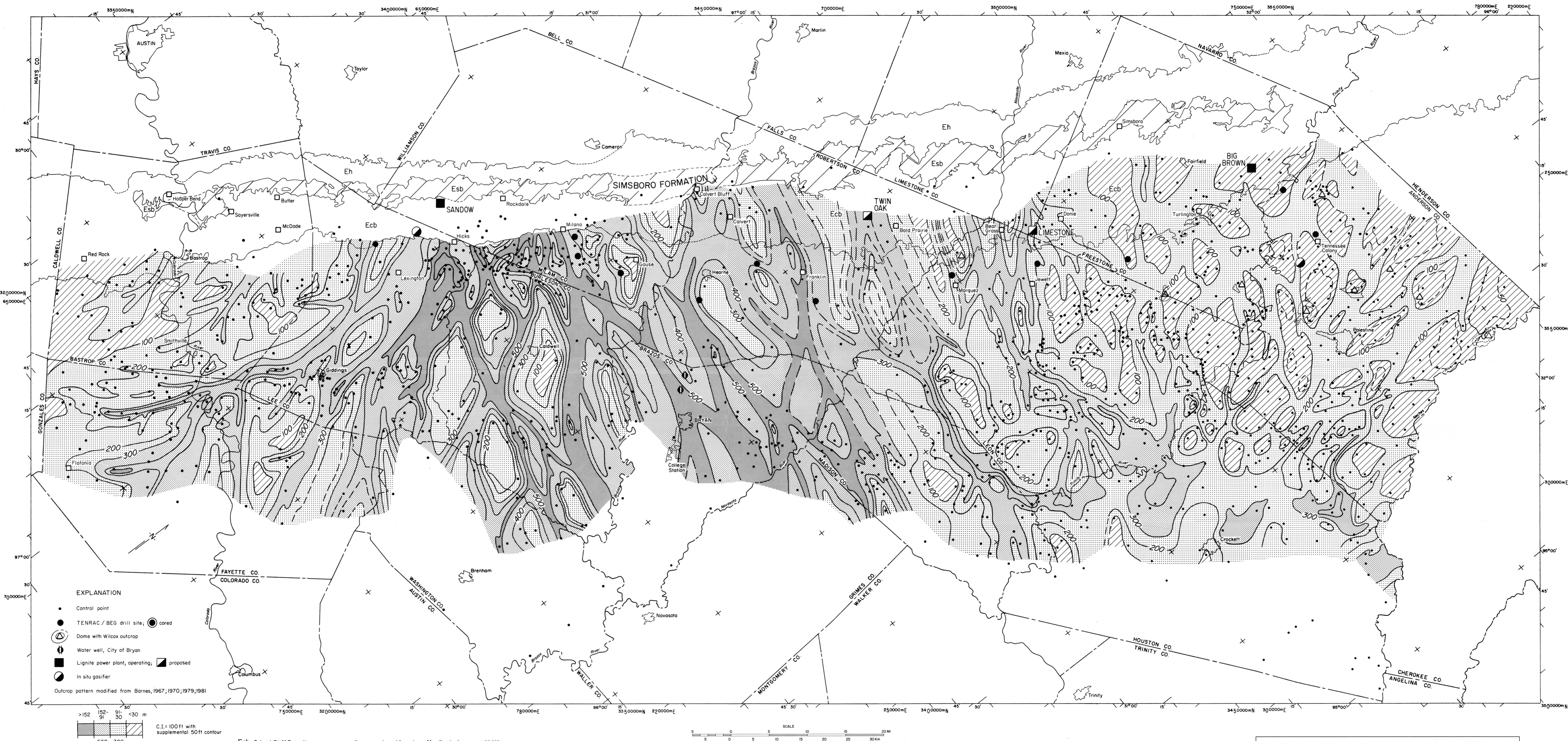


PLATE 2. WILCOX STRUCTURE MAP
1985

Generalized structure map drawn on the base of the Wilcox Group (sea-level datum) shows regional dip to the southeast. The angle of dip increases from the northeast (1/2°) to the southwest (2°). Major structural elements are the Mexia Fault Zone, the Elkhart Graben, salt structures in Anderson and Freestone Counties, and the East Texas Basin (fig. 2).



EXPLANATION

- Control point
- TENRAC / BEG drill site, ● cored
- Dome with Wilcox outcrop
- ⊕ Water well, City of Bryan
- Lignite power plant, operating; ▨ proposed
- ⊙ In situ gasifier

Outcrop pattern modified from Barnes, 1967, 1970, 1979, 1981

C.I. = 100 ft with supplemental 50 ft contour

>152 152-91 91-30 <30 m
>500 500-300 300-100 <100 ft

Ecb Calver Bluff Formation
Esb Simsboro Formation
Eh Hooper Formation

Base map adapted from Army Map Service base maps, 10,000-meter Universal Transverse Mercator grid, zones 14 and 15. Cartography by John T. Ames under the supervision of Richard L. Dillon.

by W. B. Ayers, Jr., and Amy H. Lewis

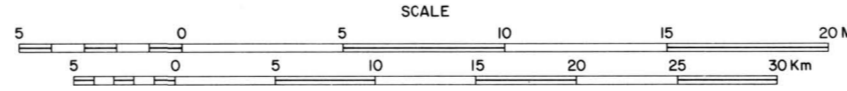


PLATE 5. SIMSBORO FORMATION, MAJOR-SAND ISOLITH MAP

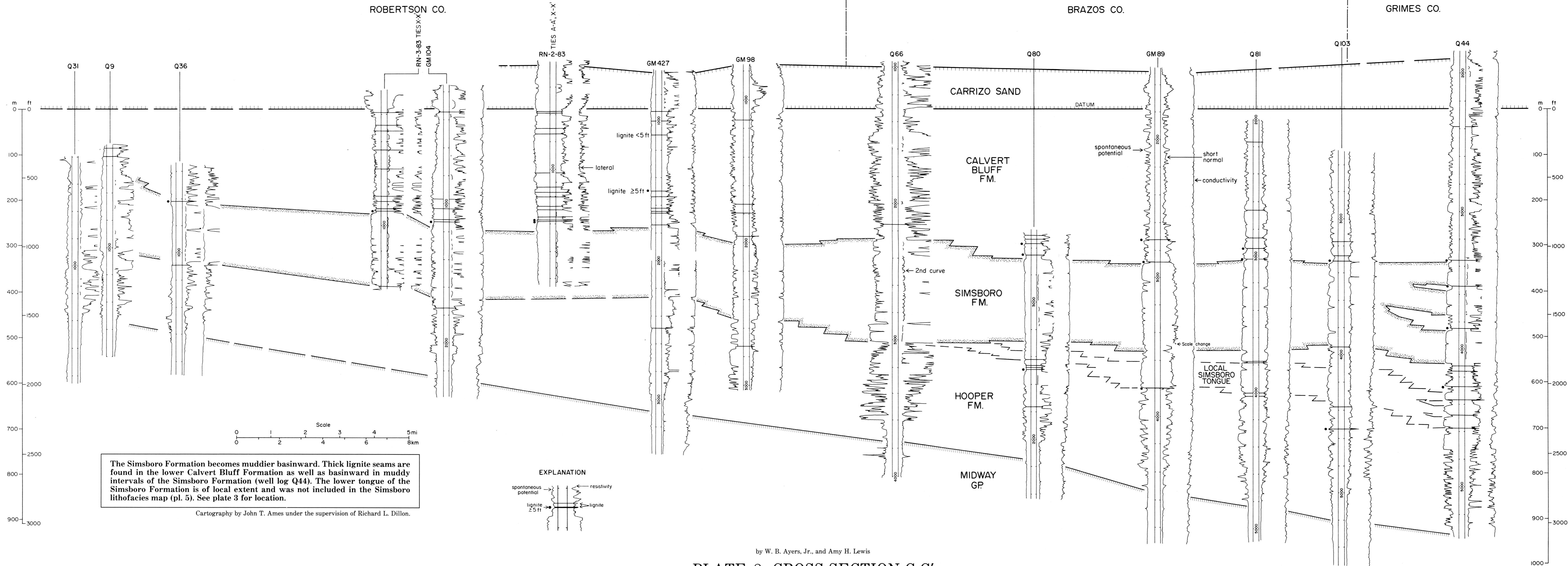
Dip-elongate major sand bodies (sands 40 ft [12 m] or thicker) in the shallow subsurface are straight; they bifurcate, displaying a deltaic geometry, in Fayette County and terminate in small delta lobes in Houston County. When projected updip, sand-body trends southwest of Leon County (Rockdale fluvial-deltaic system) intersect at a broad locus in Coryell County (fig. 3). Sand-body trends in Anderson and Houston Counties (secondary fluvial system with sources to the north and northeast) are directed into the axis of the East Texas Basin (fig. 2 and pl. 2).

C

NORTHWEST

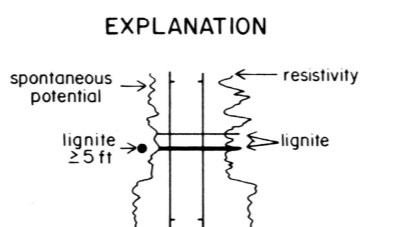
C'

SOUTHEAST



The Simsboro Formation becomes muddier basinward. Thick lignite seams are found in the lower Calvert Bluff Formation as well as basinward in muddy intervals of the Simsboro Formation (well log Q44). The lower tongue of the Simsboro Formation is of local extent and was not included in the Simsboro lithofacies map (pl. 5). See plate 3 for location.

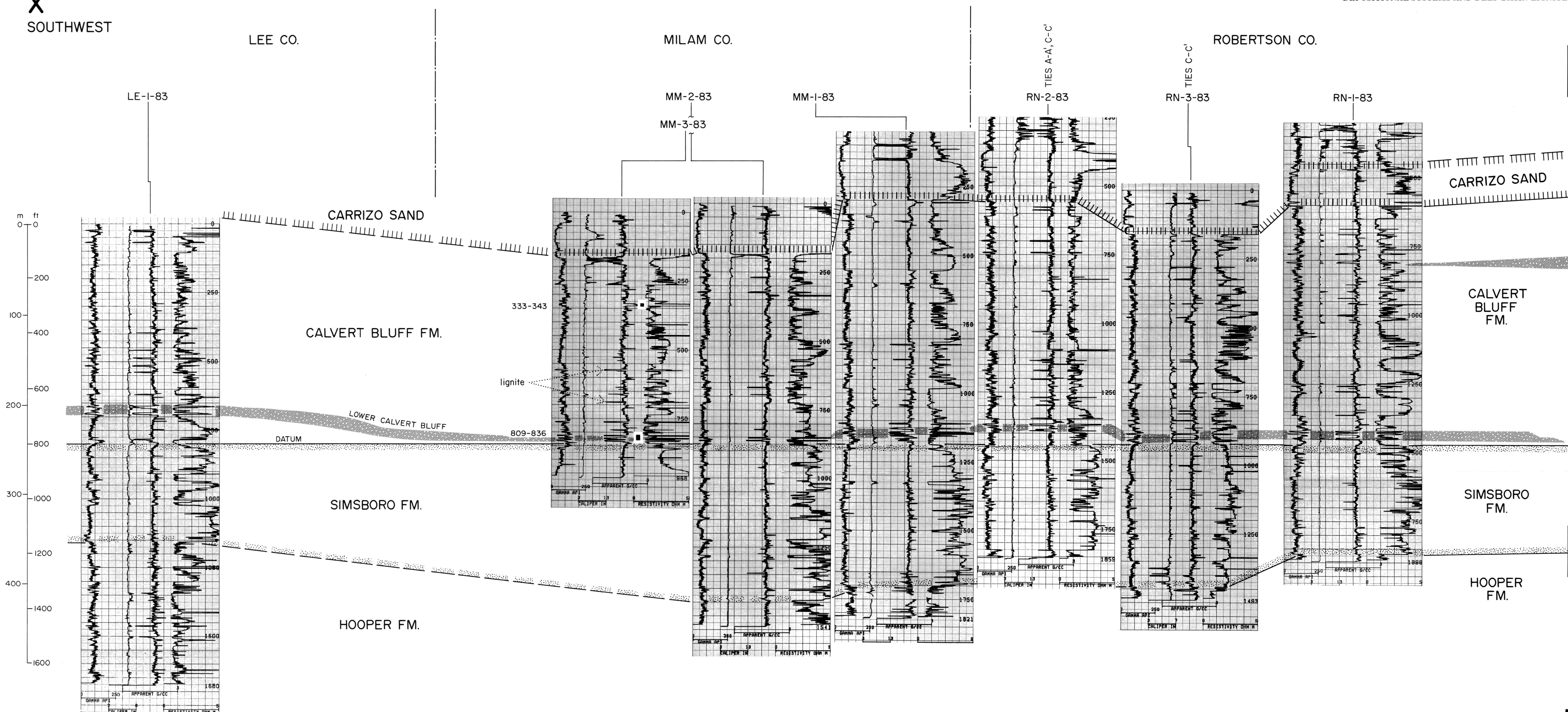
Cartography by John T. Ames under the supervision of Richard L. Dillon.



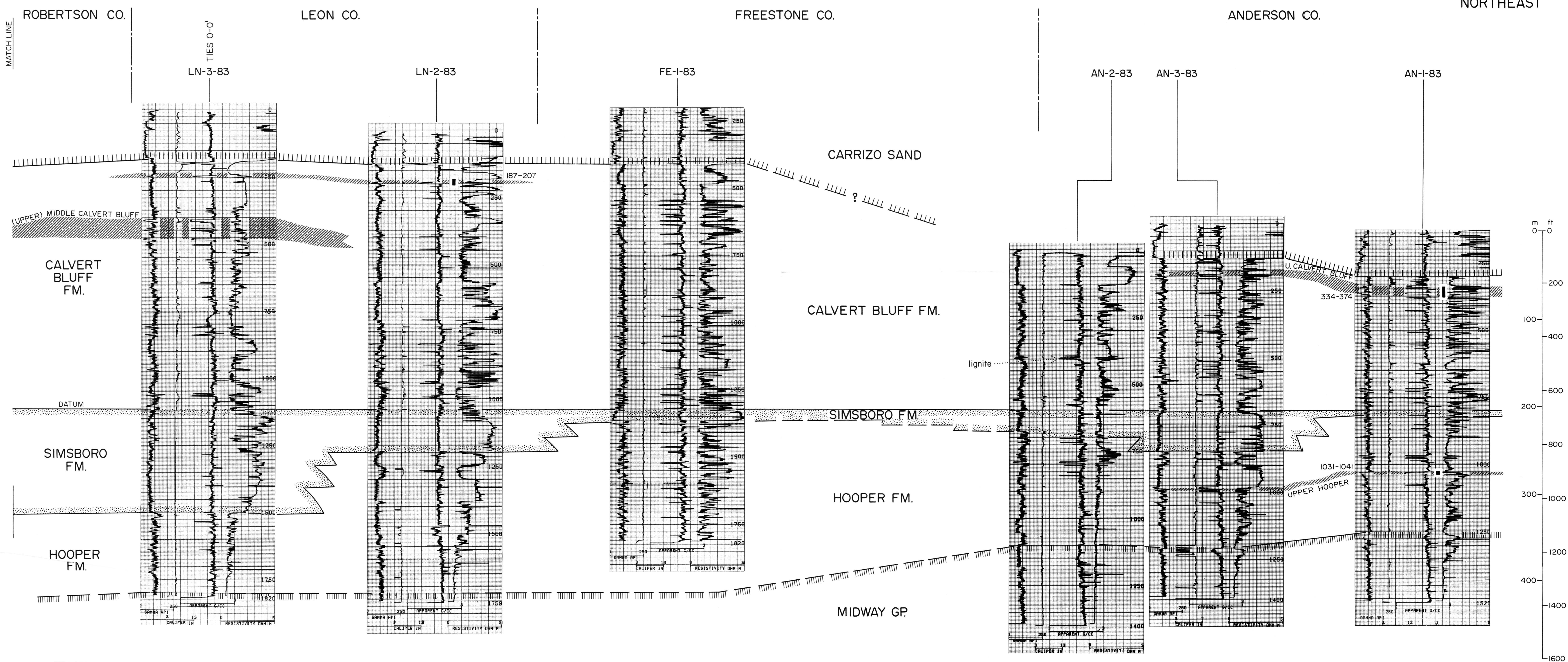
by W. B. Ayers, Jr., and Amy H. Lewis

PLATE 8. CROSS SECTION C-C'
 1985

X
SOUTHWEST



X'
NORTHEAST

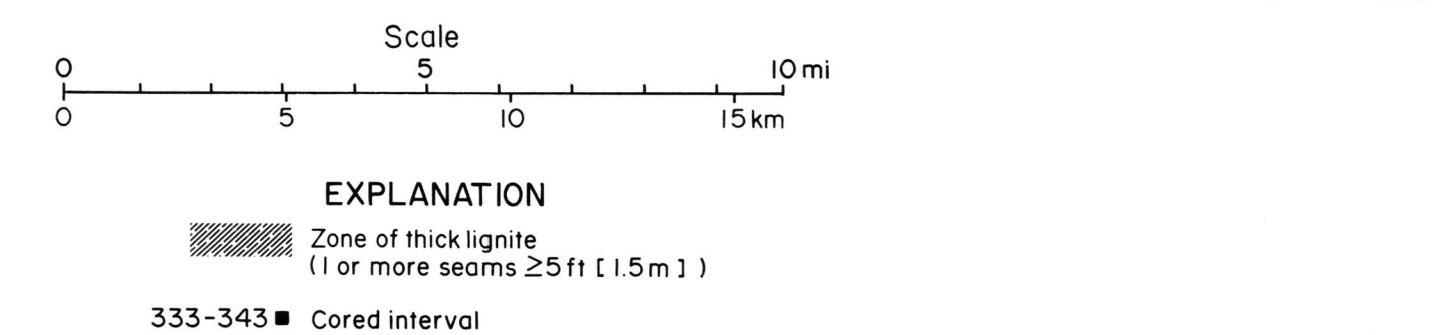


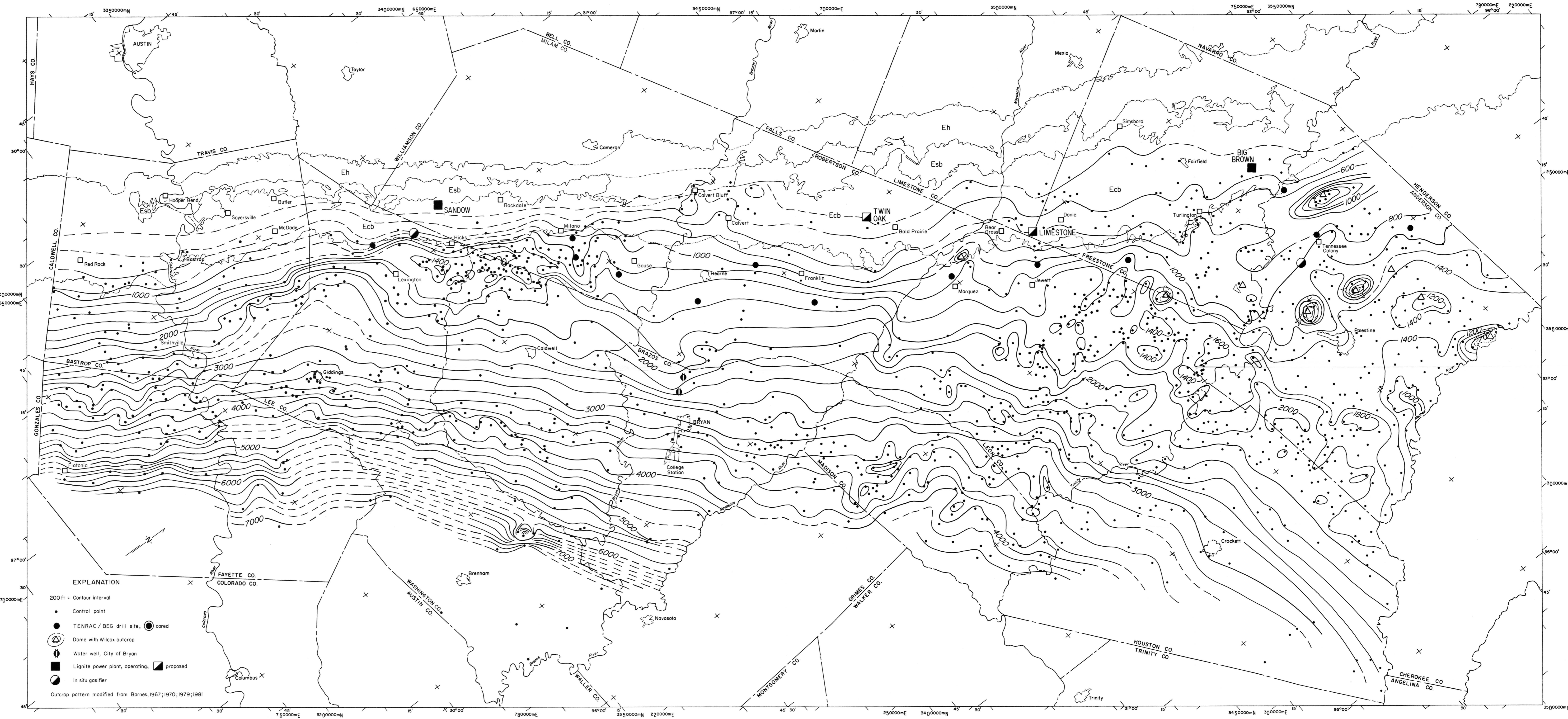
Geophysical logs from Texas Energy and Natural Resources Advisory Council/Bureau of Economic Geology wells show the stratigraphic occurrence of deep lignite (200 to 2,000 ft [61 to 610 m]) in east-central Texas. Thick lignite seams (seams 5 ft [1.5 m] or thicker) are found in the (a) upper Hooper Formation on the northeast, (b) lower Calvert Bluff Formation on the southwest, and (c) upper Calvert Bluff Formation on the northeast. Lateral continuity of individual lignite seams within the zones is neither implied nor true; wells were drilled in low-sand (floodbasin) areas between major-sand axes, which limit seam continuity. See plate 3 for location. Full-scale geophysical well logs are available from the Bureau of Economic Geology.

Cartography by John T. Ames under the supervision of Richard L. Dillon.

by W. B. Ayers, Jr., and Amy H. Lewis

PLATE 22. LIGNITE CROSS SECTION X-X'
1985





- EXPLANATION**
- 200 ft = Contour interval
 - Control point
 - TENRAC / BEG drill site; ● cored
 - ⊙ Dome with Wilcox outcrop
 - ⊕ Water well, City of Bryan
 - Lignite power plant, operating; ▣ proposed
 - ⊙ In situ gasifier
- Outcrop pattern modified from Barnes, 1967; 1970; 1979; 1981

- Ecb Calvert Bluff Formation
- Esb Simsboro Formation
- Eh Hooper Formation

Base map adapted from Army Map Service base maps, 10,000-meter Universal Transverse Mercator grid, zones 14 and 15. Cartography by John T. Ames under the supervision of Richard L. Dillon.

by W. B. Ayers, Jr., and Amy H. Lewis

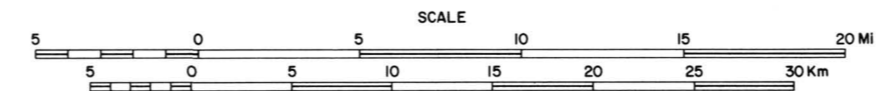


PLATE 28. SIMSBORO OVERBURDEN MAP

1985

The depth to the top of the Simsboro (Simsboro overburden) provides an estimate of the depth required to test the entire lignite-bearing Calvert Bluff Formation.

04E1984-28

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	5903437
County	Robertson
River Basin	Brazos
Groundwater Management Area	12
Regional Water Planning Area	G - Brazos G
Groundwater Conservation District	Brazos Valley GCD
Latitude (decimal degrees)	30.938611
Latitude (degrees minutes seconds)	30° 56' 19" N
Longitude (decimal degrees)	-96.741667
Longitude (degrees minutes seconds)	096° 44' 30" W
Coordinate Source	+/- 1 Second
Aquifer Code	124SMBR - Simsboro Sand Member of Rockdale Formation
Aquifer	Carrizo-Wilcox
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	290
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	460
Well Depth Source	Owner
Drilling Start Date	
Drilling End Date	0/0/1975
Drilling Method	
Borehole Completion	

Well Type	Withdrawal of Water
Well Use	Domestic
Water Level Observation	GCD Current Site Visit
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Lee Fazzino Sr.
Driller	G. P. Brien
Other Data Available	
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	11/12/1992
Last Update Date	9/5/2014

Remarks Historical observation well.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
4	Blank				0	160
2	Screen				450	460

Well Tests - No Data

Lithology - No Data

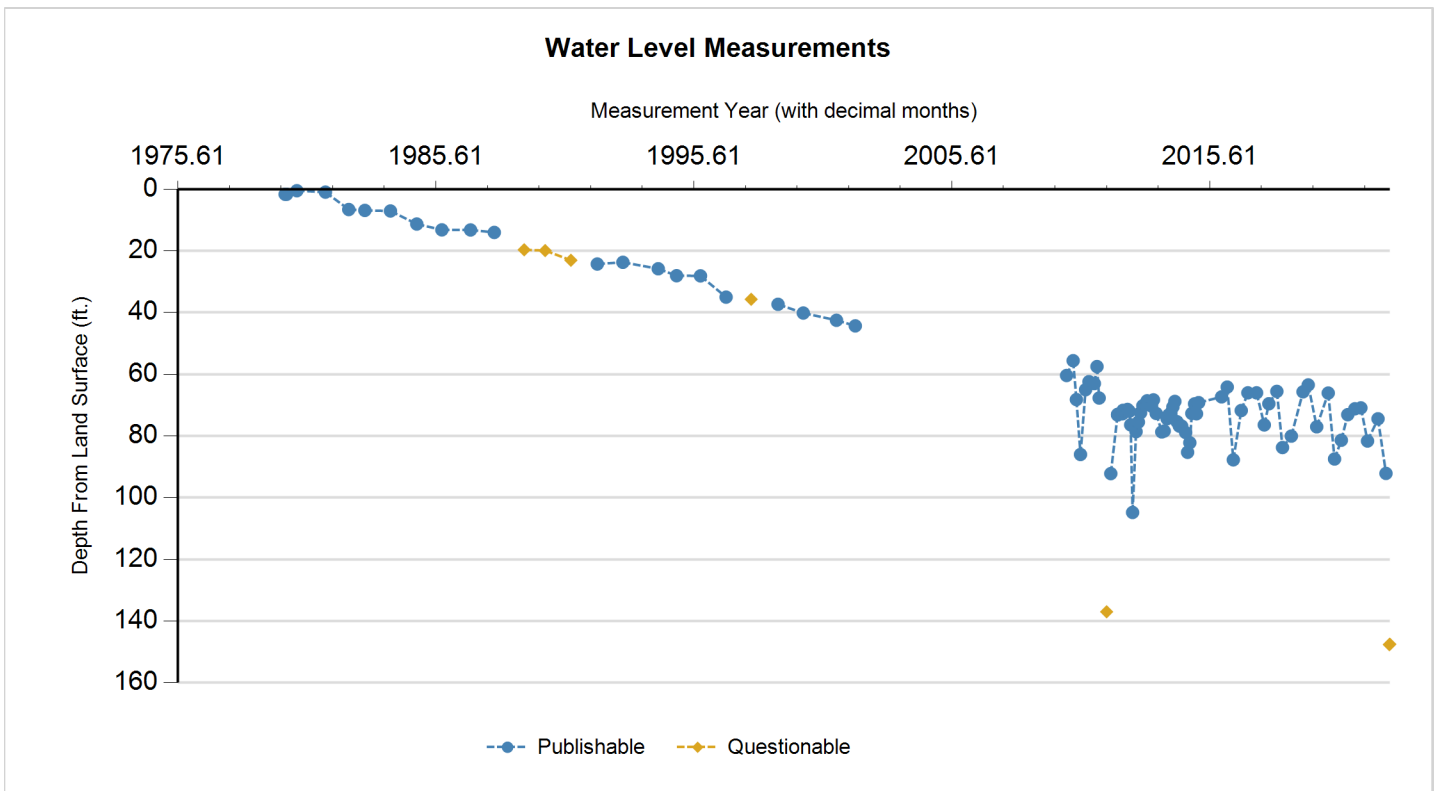
Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
X	8/12/1975					1	Registered Water Well Driller		27	
P	10/9/1979		1.65		288.35	1	Other or Source of Measurement Unknown	Unknown		
P	10/29/1979		1.65	0.00	288.35	1	Texas Water Development Board	Steel Tape		
P	3/20/1980		0.5	(1.15)	289.5	1	Texas Water Development Board	Steel Tape		
P	4/29/1981		0.95	0.45	289.05	1	Texas Water Development Board	Steel Tape		
P	3/24/1982		6.6	5.65	283.4	1	Texas Water Development Board	Steel Tape		
P	11/12/1982		6.88	0.28	283.12	1	Texas Water Development Board	Steel Tape		
P	11/9/1983		7.07	0.19	282.93	1	Texas Water Development Board	Steel Tape		
P	11/16/1984		11.3	4.23	278.7	1	Texas Water Development Board	Steel Tape		
P	11/6/1985		13.19	1.89	276.81	1	Texas Water Development Board	Steel Tape		
P	12/17/1986		13.22	0.03	276.78	1	Texas Water Development Board	Steel Tape		
P	11/18/1987		14.02	0.80	275.98	1	Texas Water Development Board	Steel Tape		
Q	1/11/1989		19.65	5.63	270.35	1	Texas Water Development Board	Steel Tape	2	
Q	11/8/1989		19.9	0.25	270.1	1	Texas Water Development Board	Steel Tape	2	
Q	11/7/1990		23.05	3.15	266.95	1	Texas Water Development Board	Steel Tape	2	
P	11/15/1991		24.26	1.21	265.74	1	Texas Water Development Board	Steel Tape		
P	11/12/1992		23.7	(0.56)	266.3	1	Texas Water Development Board	Steel Tape		
P	3/22/1994		25.8	2.10	264.2	1	Texas Water Development Board	Steel Tape		
P	12/12/1994		28.05	2.25	261.95	1	Texas Water Development Board	Steel Tape		
P	11/15/1995		28.1	0.05	261.9	1	Texas Water Development Board	Steel Tape		
P	11/12/1996		35	6.90	255	1	Texas Water Development Board	Steel Tape		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
59-03-437**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
Q	11/3/1997		35.7	0.70	254.3	1	Texas Water Development Board	Steel Tape	2	
P	11/17/1998		37.32	1.62	252.68	1	Texas Water Development Board	Steel Tape		
P	11/9/1999		40.15	2.83	249.85	1	Texas Water Development Board	Steel Tape		
P	2/19/2001		42.5	2.35	247.5	1	Texas Water Development Board	Steel Tape		
P	11/15/2001		44.31	1.81	245.69	1	Texas Water Development Board	Steel Tape		
X	11/11/2002					1	Texas Water Development Board		30	
X	10/9/2003					1	Texas Water Development Board		30	
X	2/26/2005					1	Texas Water Development Board		30	
X	12/14/2005					1	Texas Water Development Board		30	
P	1/19/2010		60.4		229.6	1	Groundwater Conservation District	Sonic/Laser Device		
P	4/22/2010		55.6	(4.80)	234.4	1	Groundwater Conservation District	Sonic/Laser Device		
P	6/8/2010		68.2	12.60	221.8	1	Groundwater Conservation District	Sonic/Laser Device		
P	8/6/2010		86	17.80	204	1	Groundwater Conservation District	Sonic/Laser Device		
P	10/18/2010		65	(21.00)	225	1	Groundwater Conservation District	Sonic/Laser Device		
P	12/6/2010		62.4	(2.60)	227.6	1	Groundwater Conservation District	Sonic/Laser Device		
P	2/17/2011		63	0.60	227	1	Groundwater Conservation District	Sonic/Laser Device		
P	3/24/2011		57.5	(5.50)	232.5	1	Groundwater Conservation District	Sonic/Laser Device		
P	4/25/2011		67.7	10.20	222.3	1	Groundwater Conservation District	Sonic/Laser Device		
Q	8/11/2011		137	69.30	153	1	Groundwater Conservation District	Sonic/Laser Device	12	
P	10/10/2011		92.2	(44.80)	197.8	1	Groundwater Conservation District	Sonic/Laser Device		
P	1/10/2012		73.2	(19.00)	216.8	1	Groundwater Conservation District	Sonic/Laser Device		
P	1/11/2012		73	(0.20)	217	1	Groundwater Conservation District	Sonic/Laser Device		
P	3/20/2012		72.8	(0.20)	217.2	1	Groundwater Conservation District	Sonic/Laser Device		
P	3/27/2012		71.7	(1.10)	218.3	1	Groundwater Conservation District	Sonic/Laser Device		
P	5/31/2012		71.4	(0.30)	218.6	1	Groundwater Conservation District	Sonic/Laser Device		
P	6/26/2012		72	0.60	218	1	Groundwater Conservation District	Sonic/Laser Device		
P	7/16/2012		76.4	4.40	213.6	1	Groundwater Conservation District	Sonic/Laser Device		
P	8/13/2012		104.8	28.40	185.2	1	Groundwater Conservation District	Sonic/Laser Device		
P	10/2/2012		78.6	(26.20)	211.4	1	Groundwater Conservation District	Sonic/Laser Device		
P	11/5/2012		75.5	(3.10)	214.5	1	Groundwater Conservation District	Sonic/Laser Device		
P	12/6/2012		72.5	(3.00)	217.5	1	Groundwater Conservation District	Sonic/Laser Device		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
59-03-437**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	1/3/2013		70.2	(2.30)	219.8	1	Groundwater Conservation District	Sonic/Laser Device		
P	2/7/2013		69.8	(0.40)	220.2	1	Groundwater Conservation District	Sonic/Laser Device		
P	3/4/2013		68.6	(1.20)	221.4	1	Groundwater Conservation District	Sonic/Laser Device		
P	4/2/2013		69.1	0.50	220.9	1	Groundwater Conservation District	Sonic/Laser Device		
P	5/6/2013		70.3	1.20	219.7	1	Groundwater Conservation District	Sonic/Laser Device		
P	6/3/2013		68.3	(2.00)	221.7	1	Groundwater Conservation District	Sonic/Laser Device		
P	7/12/2013		72.7	4.40	217.3	1	Groundwater Conservation District	Sonic/Laser Device		
P	10/1/2013		78.7	6.00	211.3	1	Groundwater Conservation District	Sonic/Laser Device		
P	11/5/2013		78.4	(0.30)	211.6	1	Groundwater Conservation District	Sonic/Laser Device		
P	12/16/2013		74.4	(4.00)	215.6	1	Groundwater Conservation District	Sonic/Laser Device		
P	1/3/2014		73.2	(1.20)	216.8	1	Groundwater Conservation District	Sonic/Laser Device		
P	2/3/2014		72.6	(0.60)	217.4	1	Groundwater Conservation District	Sonic/Laser Device		
P	3/3/2014		70.6	(2.00)	219.4	1	Groundwater Conservation District	Sonic/Laser Device		
P	4/1/2014		68.8	(1.80)	221.2	1	Groundwater Conservation District	Sonic/Laser Device		
P	5/2/2014		75.4	6.60	214.6	1	Groundwater Conservation District	Sonic/Laser Device		
P	6/5/2014		76.8	1.40	213.2	1	Groundwater Conservation District	Sonic/Laser Device		
P	7/7/2014		76.8	0.00	213.2	1	Groundwater Conservation District	Sonic/Laser Device		
P	9/4/2014		78.9	2.10	211.1	1	Groundwater Conservation District	Sonic/Laser Device		
P	10/1/2014		85.3	6.40	204.7	1	Groundwater Conservation District	Sonic/Laser Device		
P	11/3/2014		82.2	(3.10)	207.8	1	Groundwater Conservation District	Sonic/Laser Device		
P	12/1/2014		72.7	(9.50)	217.3	1	Groundwater Conservation District	Sonic/Laser Device		
P	1/5/2015		69.6	(3.10)	220.4	1	Groundwater Conservation District	Sonic/Laser Device		
P	2/2/2015		72.8	3.20	217.2	1	Groundwater Conservation District	Sonic/Laser Device		
P	3/2/2015		69.2	(3.60)	220.8	1	Groundwater Conservation District	Electric Line		
P	1/22/2016		67.33	(1.87)	222.67	1	Groundwater Conservation District	Electric Line		
P	4/12/2016		64.16	(3.17)	225.84	1	Groundwater Conservation District	Electric Line		
P	7/8/2016		87.74	23.58	202.26	1	Groundwater Conservation District	Electric Line		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
59-03-437**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/30/2016		71.75	(15.99)	218.25	1	Groundwater Conservation District	Electric Line		
P	1/29/2017		66.02	(5.73)	223.98	1	Groundwater Conservation District	Electric Line		
P	6/2/2017		66.02	0.00	223.98	1	Groundwater Conservation District	Electric Line		
P	9/21/2017	13:2	76.42	10.40	213.58	1	Groundwater Conservation District	Electric Line		
P	11/26/2017	17:1	69.56	(6.86)	220.44	1	Groundwater Conservation District	Steel Tape		
P	3/14/2018	10:5	65.55	(4.01)	224.45	1	Groundwater Conservation District	Electric Line		
P	6/4/2018	12:1	83.75	18.20	206.25	1	Groundwater Conservation District	Electric Line		
P	10/9/2018		80.04	(3.71)	209.96	1	Groundwater Conservation District	Electric Line		Static < 24 hrs
P	3/19/2019		65.69	(14.35)	224.31	1	Groundwater Conservation District	Electric Line		Static
P	6/3/2019		63.46	(2.23)	226.54	1	Groundwater Conservation District	Steel Tape		Static
P	10/3/2019		77.04	13.58	212.96	1	Groundwater Conservation District	Steel Tape		Static < 24 hrs
P	3/11/2020		66.09	(10.95)	223.91	1	Groundwater Conservation District	Electric Line		Static
P	6/10/2020		87.47	21.38	202.53	1	Groundwater Conservation District	Steel Tape		Static < 24 hrs
P	9/16/2020		81.38	(6.09)	208.62	1	Groundwater Conservation District	Steel Tape		
P	12/17/2020		73.1	(8.28)	216.9	1	Groundwater Conservation District	Steel Tape		
P	3/22/2021		71.2	(1.90)	218.8	1	Groundwater Conservation District	Steel Tape		
P	6/18/2021		70.89	(0.31)	219.11	1	Groundwater Conservation District	Steel Tape		
P	9/22/2021		81.64	10.75	208.36	1	Groundwater Conservation District	Steel Tape		
P	2/15/2022		74.44	(7.20)	215.56	1	Groundwater Conservation District	Steel Tape		
P	6/8/2022		92.14	17.70	197.86	1	Groundwater Conservation District	Electric Line		
Q	7/26/2022		147.65	55.51	142.35	1	Groundwater Conservation District	Steel Tape	12	Farm Pivot
Q	8/2/2022		147.5	(0.15)	142.5	1	Groundwater Conservation District	Sonic/Laser Device	12	

Code Descriptions

Status Code	Status Description
P	Publishable
Q	Questionable
X	No Measurement

Remark ID	Remark Description
2	Pumping-level measurement
12	Uncertain of reason for questionable measurement
27	Well flowing and unable to shut-in
30	Well temporarily inaccessible due to impassable roads, locked gate, etc.

Water Quality Analysis

Sample Date: 3/20/1980 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board
Sampled Aquifer: Simsboro Sand Member of Rockdale Formation
Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved
Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		5	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		318	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		375.87	mg/L	
00910	CALCIUM (MG/L)		4	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		6	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		43	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.4	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		12	mg/L	
00920	MAGNESIUM (MG/L)		0.5	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.1	mg/L	
00400	PH (STANDARD UNITS), FIELD		8.5	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		6.12		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		15	mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		21.31		
00932	SODIUM, CALCULATED, PERCENT		96	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		170	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		755	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		2.9	mg/L	
00010	TEMPERATURE, WATER (CELSIUS)		23	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		426	mg/L	

Water Quality Analysis

Sample Date: 7/29/1987 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Simsboro Sand Member of Rockdale Formation

Analyzed Lab: Texas Department of Health

Reliability: Reliability unknown or not available

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)			5 mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)			316 mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)			373.43 mg/L	
00910	CALCIUM (MG/L)			4 mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)			6 mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)			45 mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)			0.4 mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)			14 mg/L	
00920	MAGNESIUM (MG/L)			1 mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)			0.04 mg/L	
00400	PH (STANDARD UNITS), FIELD			8.5 SU	
00937	POTASSIUM, TOTAL (MG/L AS K)			1 mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED			6.04	
00955	SILICA, DISSOLVED (MG/L AS SiO2)			15 mg/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)			19.7	
00932	SODIUM, CALCULATED, PERCENT			96 PCT	
00929	SODIUM, TOTAL (MG/L AS Na)			170 mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)			755 MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)			3 mg/L	
00010	TEMPERATURE, WATER (CELSIUS)			25 C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)			429 mg/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..

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[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	5911348
County	Robertson
River Basin	Brazos
Groundwater Management Area	12
Regional Water Planning Area	G - Brazos G
Groundwater Conservation District	Brazos Valley GCD
Latitude (decimal degrees)	30.844167
Latitude (degrees minutes seconds)	30° 50' 39" N
Longitude (decimal degrees)	-96.629167
Longitude (degrees minutes seconds)	096° 37' 45" W
Coordinate Source	+/- 1 Second
Aquifer Code	124SMBR - Simsboro Sand Member of Rockdale Formation
Aquifer	Carrizo-Wilcox
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	272
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	1142
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	5/6/1972
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Perforated or Slotted

Well Type	Withdrawal of Water
Well Use	Stock
Water Level Observation	None
Water Quality Available	No
Pump	
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	Frank Gangemi
Driller	Herrod Drilling
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	2/23/1999
Last Update Date	2/23/1999

Remarks | Flowing well when visited.

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
4	Blank	Steel			0	84
2	Blank	Steel			0	1100
2	Screen				1100	1142

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements

No Data Available

Water Quality Analysis - No Data Available

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Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Brien Water Wells**
5214 South Highway 6
Hearne, TX 77859

Driller Name: **Johnny Williams** License Number: **2854**

Comments: **\$dfs**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	68	Clay,Sand,Gravel
68	120	Shale
120	133	Sand
133	203	Shale and Coal Seams
203	243	Sand
243	401	Shale/Rocks and Coal Seams
401	480	Sand
480	640	Shale-Sand Streaks
640	710	Shale, S-Shale
710	719	Tight-Shale
719	732	Sand
732	840	Shale
840	1080	Sand
1080	1095	Shale and Rocks

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
30	New	Steel Pipe	+1 68
16	New	Steel Pipe	+2 973
16	New	Pipe Base SS Scrn	973 1073
16	New	Steel Pipe	1073 1095 .028

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	985-1085	Potable

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Brien Water Wells**
5214 S Hwy 6
Hearne, TX 77859

Driller Name: **G. P. Brien** License Number: **1750**

Comments: **Septic system not installed.**
^EO

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	72	clay and gravel and sand
72	118	sand and sandy shale
118	171	shale
171	190	sand and sandy shale
190	198	shale
198	212	s-shale
212	213	rock
213	241	shale
241	243	rock
243	285	s-shale and sand and rock
285	315	sand(b)
315	320	s-shale
320	337	shale
337	470	s-shale and rocks
470	570	sandy shale and shale
570	590	shale and soft rocks
590	730	shale

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
30 N Steel	+1-68		
16 N Steel	+2-1011		
16 N Pipe Base SS Screen	1011-1111	.030	
16 N Steel	1111-1113		

730	810	sand and rocks
810	880	shale
880	925	shale and sandy shale
925	926	rock
926	955	sand(b)
955	1004	sand (some streaks of shale)
1004	1010	rock
1010	1024	sand(b)
1024	1042	sand and streak of coal
1042	1049	rock
1049	1118	sand
1118	1120	shale and coal
1120	1130	sand
1130	1131	rock

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P.O. Box 12157
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(512) 334-5540**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	367	POTABLE

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BRIEN WATER WELLS**
5214 S HWY 6
HEARNE, TX 77859

Driller Name: **JOHNNY WILLIAMS** License Number: **2854**

Comments: **SWN 5903440 assigned by TWDB 9/4/2014.**

Lithology:
 DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
 BLANK PIPE & WELL SCREEN DATA

<i>From (ft)</i>	<i>To (ft)</i>	<i>Description</i>
		TOP SOIL, SAND, GRAVEL 0-60
		SHALE, COAL 60-82
		SAND 82-95
		SHALE, ROCK COAL 95-235
		SAND 235-269
		SHALE 269-295
		SAND 295-317
		SHALE 317-320
		SAND 320-386
		ROCK, SAND, SHALE 386-414
		SAND, ROCK, SHALE 414-520
		SANDY SHALE 520-530

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
			30 NEW STEEL + 1-60
			16 NEW STEEL +2-367
			16 NEW ROD BASE STAINLESS 367-387 .026
			STEEL
			16 NEW STEEL 387-418
			16 NEW SS SCREEN 418-438 .026
			16 NEW STEEL 438-448
			16 NEW SS SCREEN 448-488 .026
			16 NEW STEEL 488-497
			16 NEW SS SCREEN 497-517 .026
			16 NEW STEEL- CAPPED 517-519

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P.O. Box 12157
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(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #378269

Owner: BOSWELL, ANSELL	Owner Well #: No Data
Address: RT1 BOX 719 Hearne, TX 77859	Grid #: 59-12-2
Well Location: Old Hearne Road Hearne, TX 77859	Latitude: 30° 50' 33" N
Well County: Robertson	Longitude: 096° 33' 38" W
	Elevation: 306 ft. above sea level
Type of Work: Replacement	
Proposed Use: Domestic	

Drilling Start Date: **8/28/2014** Drilling End Date: **9/3/2014**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	12.25	0	12
	6.75	12	650
	3.875	650	700

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **telescope**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	12	10 Sakrete
	0	10	8 Sakrete
	435	640	23 Portland

Seal Method: **Grout and Pressure**

Distance to Property Line (ft.): **50 +**

Sealed By: **Driller**

Distance to Septic Field or other concentrated contamination (ft.): **100 +**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Measured**

Surface Completion: **Surface Sleeve Installed**

Water Level: **55 ft. below land surface on 2014-09-02** Measurement Method: **Unknown**

Packers: **k-packer 604'**

Type of Pump: **Submersible** Pump Depth (ft.): **200**

Well Tests: **Jetted** Yield: **60+ GPM with 55 ft. drawdown after 4 hours**

Water Quality:

Strata Depth (ft.)	Water Type
637 - 700	Potable

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Brien Water Wells**
5214 South Highway 6
Hearne, TX 77859

Driller Name: **Pete Brien**

License Number: **1750**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	5	Sand
5	80	Sand and Sandy Clay
80	260	Sandy Shale and Sand
260	380	Sandy Shale and Shale
380	610	Sand
610	637	Sandy Shale
637	700	Sand

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
8"	New	PVC Casing	0 - 12
4"	New	PVC Casing	+1 - 640
2"	New	Galvanized Liner	604 - 667
2.5"	New	PVC Screen	667 - 697 .016
2"	New	PVC pipe	697 - 700

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STATE OF TEXAS WELL REPORT for Tracking #449034

Owner:	Cliff A Skiles	Owner Well #:	No Data
Address:	PO Box 1729 Dalhart , TX 79022	Grid #:	59-03-4
Well Location:	Barton Farm HQ Barton Farm road Hearne, TX 77859	Latitude:	30° 55' 12.4" N
		Longitude:	096° 42' 42.91" W
Well County:	Robertson	Elevation:	289 ft. above sea level

****This well has been plugged****

Plugging Report Tracking #181855

Type of Work: New Well	Proposed Use: Stock
Replaced by Tracking # <u>495742</u>	

Drilling Start Date: **4/14/2017** Drilling End Date: **4/19/2017**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	12.25	0	55
	6.75	55	580
	3.875	580	601

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Screened**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	10	Concrete 12 Bags/Sacks
	350	570	Cement 23 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **100+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **100+**

Method of Verification: **stepped**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **61 ft. below land surface on 2017-04-19** Measurement Method: **Electric Line**

Packers: **K-Packer at 538 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **160**

Well Tests: **Jetted** **Yield: 60 GPM with 56 ft. drawdown after 2 hours**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	560 - 601	good

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Brien Water Wells**
5214 South Highway 6
Hearne, TX 77859

Driller Name: **Pete Brien** License Number: **1750**

Apprentice Name: **Frank Mendoza** Apprentice Number: **56871**

Comments: **No Data**

Lithology:
 DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
 BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	26	sandy clay
26	52	small gravel and sand
52	188	shale
188	189	rock
189	274	sandy shale and sand
274	280	Coal
280	306	sandy shale and shale
306	494	shale, sandy shale and rocks
494	560	sandy shale and sand
560	601	sand

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
8	Blank	New Plastic (PVC)	PIP	0	55
4	Blank	New Plastic (PVC)	40	0	570
2	Blank	New Galvanized Steel	40	538	580
2.5	Screen	New Plastic (PVC)	0.015	580	600
2	Blank	New Plastic (PVC)	40	600	601

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Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	810 - 1204	POTABLE

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Brien Water Wells**
5214 South Highway 6
Hearne, TX 77859

Driller Name: **GORDON BRIEN** License Number: **1750**

Apprentice Name: **BOBBY BARRETT** Apprentice Number: **60636**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	36	CLAY
36	39	SAND
39	54	GRAVEL- SMALL
54	160	SHALE, ROCKS
160	188	S-SHALE
188	190	ROCK
190	220	S-SHALE, ROCKS
220	263	S-SHALE
263	264	ROCK
264	342	SAND
342	404	SAND, S-SHALE
404	520	S-SHALE, SAND, ROCKS
520	565	S-SHALE
565	569	SHALE, TIGHT
569	614	S-SHALE
614	620	SHALE, TIGHT
620	664	S-SHALE, ROCKS

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
30	Blank	New Steel	.375	0	67
18	Blank	New Steel	.500	0	810
18	Screen	New Pipe Base Stainless Steel	.500	810	916
18	Blank	New Steel	.500	916	932
18	Screen	New Pipe Base Stainless Steel	.500	932	980
18	Blank	New Steel	.500	980	1000
18	Screen	New Pipe Base Stainless Steel	.500	1000	1084
18	Blank	New Steel	.500	1084	1112
18	Screen	New Pipe Base Stainless Steel	.500	1112	1204
18	Blank	New Steel	.500	1204	1210

664	697	SHALE, TIGHT
697	776	S-SHALE
776	928	SAND
928	931	SHALE
931	986	SAND
986	996	SHALE
996	1086	SAND, ROCKS
1086	1102	SHALE, TIGHT
1102	1121	SAND, S-SHALE
1121	1171	SAND
1171	1173	SHALE, ROCK
1173	1213	SAND
1213	1230	S-SHALE
1230	1240	SAND

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Water Quality:	Strata Depth (ft.)	Water Type
	2328-2750	Desirable

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Weisinger Water Well, Inc.**
2200 East Davis
Conroe, TX 77301

Driller Name: **James Edward Murphy** License Number: **3153**

Comments: **45.39 specific capacity @ 3503 gpm after 1 hour**
30" underreamed 2322-2770
12-20 Unimin Gravel

Amended 12/15/05 ref#2702
TWDB assigned SWN 5921108.

Report Amended on by Request #2702

Report Amended on 4/6/2017 by Request #21125

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	8	dirt
8	60	clay
60	100	shale
100	150	clay
150	245	Sand
245	274	dark clay
274	305	clay,sandy clay
305	336	sandy clay
336	356	sand
356	428	dark clay
428	460	shale,sand
460	490	sand,shale,sand

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
24	N	Surface Casing	0-800
16	N	Surface Casing	800-2322
10	N	Blank Liner	2122-2328
10	N	Pipe Base Screen	2328-2520 .025
10	N	Blank Liner	2520-2530
10	N	Pipe Base Screen	2530-2588 .025
10	N	Blank Liner	2588-2598
10	N	Pipe Base Screen	2598-2606 .025
10	N	Blank Liner	2606-2612
10	N	Pipe Base Screen	2612-2647 .025
10	N	Blank Liner	2647-2654
10	N	Pipe Base Screen	2654-2690 .025
10	N	Blank Liner	2690-2704

490	525	dark clay
525	560	clay,sandy shale
560	585	shale,sand
585	615	sand,clay sandy
615	650	sandy,shale
650	680	sandy shale,sand
680	710	sand,shale
710	740	sand
740	771	sand,shale streak
771	802	shale
802	833	sand
833	864	shale & sand streak
864	900	shale
900	1060	shale,sand streaks
1060	1090	shale
1090	1120	shale,sandy shale
1120	1155	shale,sand
1155	1200	sand
1200	1240	shale,sand streaks
1240	1300	sandy shale
1300	1492	sticky shale
1492	1556	shale & sand streaks
1556	1587	shale & lignite
1587	1619	shale
1619	1635	sand
1635	1650	shale & sand streaks
1650	1680	shale
1680	1713	shale & sand streaks
1713	1745	shale & sand
1745	1810	sand
1810	1840	sand & shale
1840	1871	shale & sandy shale
1871	1960	sand
1960	1980	shale
1980	2000	sand
2000	2030	hard shale
2030	2090	shale

10 N Pipe Base Screen 2704-2750 .025
10 N Blank Liner & BPV 2750-2770

2090	2155	shale,sand streaks
2155	2182	shale,hard shale
2182	2215	shale
2215	2250	shale & sand streaks
2250	2320	shale
2320	2400	sand
2400	2412	shale
2412	2435	course sand
2435	2440	sand
2440	2465	sand & shale
2465	2495	shale
2495	2515	sand
2515	2527	shale
2527	2558	shale,sand
2558	2619	sand
2619	2651	shale,sand
2651	2685	shale
2685	2746	sand
2746	2809	shale
2809	2880	sand
2880	2900	hard shale

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #172420

Owner:	City of College Station Well No.7	Owner Well #:	7
Address:	P.O. Box 9960 College Station, TX 77843	Grid #:	59-21-4
Well Location:	OSR/NW of Sandy Point Rd College Station, TX	Latitude:	30° 42' 21" N
Well County:	Brazos	Longitude:	096° 29' 19" W
		Elevation:	No Data
Type of Work: New Well		Proposed Use: Public Supply	

Drilling Start Date: **11/26/2007** Drilling End Date: **3/26/2009** Plans Approved by TCEQ - **YES**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	48	0	92
	26	0	800
	22	800	2389

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed; Under-reamed**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	2389	2965	Gravel	12-20 #1

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	2389	2388-Cement

Seal Method: **Positive Displacement**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: **199 ft.** below land surface on **2008-03-18** Measurement Method: **Unknown**

Packers: **No Data**

Type of Pump: **Turbine** Pump Depth (ft.): **470**

Well Tests: **Pump** Yield: **3008 GPM with 65 ft. drawdown after 36 hours**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	2395-2945	Desirable

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Weisinger Water Well, Inc.**

**2200 East Davis
Conroe, TX 77301**

Driller Name: **Clint Gaskins** License Number: **54561**

Apprentice Name: **Bobby Terry** Apprentice Number: **57233**

Comments: **PWS ID#0210002
UNIMIN #1 12-20
SCREEN GAUGE .025
26" UNDERREAMED
Assigned SWN 59-21-415 by TWDB on 6/9/2010.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	60	Clay
60	173	Clay,Some Gravel
173	204	Clay,Gravel
204	235	Clay
235	298	Clay,Sand
298	330	Gravel,Sand
330	361	Clay,Gravel
361	423	Clay
423	486	Clay,Sand
486	517	Clay
517	547	Clay,some Gravel
547	578	Sand,little gravel
578	609	Clay,little sand
609	641	Clay,sand
641	672	Clay

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
20	N	Surface Casing	2-800
16	N	Surface Casing	800-2389
10	N	Blank Liner	2239-2395
10	N	SS Screen	2395-2468
10	N	Blank Liner	2468-2485
10	N	SS Screen	2485-2666
10	N	Blank Liner	2666-2685
10	N	SS Screen	2685-2724
10	N	Blank Liner	2724-2740
10	N	SS Screen	2740-2746
10	N	Blank Liner	2746-2761
10	N	SS Screen	2761-2767
10	N	Blank Liner	2767-2783
10	N	SS Screen	2783-2827
10	N	Blank Liner	2827-2844
10	N	SS Screen	2844-2850

672	733	Sand,Clay
733	764	Sand
764	796	Clay
796	827	Sand,Clay
827	980	Sand,Gravel
980	1011	Sand,Clay
1011	1042	Clay
1042	1074	Sand,little clay
1074	1105	sand
1105	1136	Sand,Shale
1136	1167	Shale
1167	1197	Shale,Sand
1197	1228	Clay,Sand
1228	1290	Clay
1290	1322	Clay,Gravel
1322	1385	Gravel,Clay
1385	1417	Clay,Gravel
1417	1510	Clay
1510	1541	Lignite,Clay
1541	1572	Clay,Gravel
1572	1603	Gravel
1603	1634	Gravel,little Sand
1634	1665	Gravel,Sand
1665	1674	Clay
1674	1759	Sand,some Gravel
1759	1791	Gravel,Sand
1791	1822	Clay
1822	1853	Gravel
1853	1914	Sand
1914	1945	Sand,Gravel
1945	1977	Clay,Sand
1977	2007	Clay,some Sand
2007	2037	Clay
2037	2069	Shale,Clay
2069	2101	Shale,little Clay
2101	2163	Gravel,Clay
2163	2194	Clay,Sand

10 N Blank Liner 2850-2868
10 N SS Screen 2868-2945
10 N Blank Liner & BPV 2945-2965
Cement Plug 2970-3000

2194	2225	Clay,Sand
2225	2256	Lignite,Clay
2256	2287	Clay,little Gravel
2287	2319	Clay
2319	2382	Clay,Sand
2382	2413	Sand
2413	2475	Sand,little Clay
2475	2506	Clay,Sand
2506	2537	Sand,some Clay
2537	2569	Sand
2569	2630	Sand,Gravel
2630	2660	Gravel,little Sand
2660	2691	Clay,Gravel
2691	2723	Clay,Gravel,Shale
2723	2754	Gravel,Clay
2754	2785	Clay,Shale
2785	2817	Clay,Sand
2817	2848	Sand,Clay
2848	2879	Sand,little Clay
2879	2910	Sand
2910	2941	Sand,Gravel
2941	3000	Clay,Shale

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Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **J & S Water Wells**
P.O. Box 675
Bellville, TX 77418

Driller Name: **Monte D. Richardson** License Number: **54385**

Comments: **Type pump: Goulds Model # 11CMC-7 / 125 HP USEM**
\$mew
TWDB SW #59-21-510
7/8/2010 Doc Jones

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	40	30-inch Conductor
40	44	Red Clay
44	65	Gray Sand & Rocks
65	92	Gray Clay & Sand Streaks
92	127	Gray Clay
127	185	Gray Shale
185	233	Rocks & Shale
233	243	Gray Sand & Shale Streaks
243	285	Gray Shale & Clay
285	333	Gray Semi-Coarse Sand
333	360	Gray Clay
360	365	Sand
365	420	Gray Clay
420	500	Light Gray Coarse Sand
500	520	Hard Rocks & Coarse Sand
520	577	Hard Gray Clay

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
Installed Material Record & Figure attached to original form.			

577	600	Gray Sand & Rocks
600	630	Gray Sand
630	640	Rocks & Sand
640	688	Clay & Sand Streaks
688	780	Gray Sand Mixed with Some Rocks
780	790	Gray Clay
790	864	Gray Sand & Rocks

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(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #212279

Owner:	CITY OF COLLEGE STATION WELL # 8	Owner Well #:	3
Address:	300 KRENEK RD, 2ND FLOOR COLLEGE STATION, TX 77840	Grid #:	59-20-3
Well Location:	4036 WEST OSR BRYAN, TX 77807	Latitude:	30° 42' 32" N
Well County:	Brazos	Longitude:	096° 30' 24" W
		Elevation:	No Data
Type of Work: New Well		Proposed Use: Public Supply	

Drilling Start Date: **10/19/2009**

Drilling End Date: **3/6/2010**

Plans Approved by TCEQ - **YES**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	42	0	86
	30	86	1200
	22	1200	2146

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed; Under-reamed**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	1986	2749	Gravel	12/20

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	86	92
	0	2146	2083

Seal Method: **Positive Displacement**

Distance to Property Line (ft.): **50**

Sealed By: **SCHLUMBERGER**

Distance to Septic Field or other concentrated contamination (ft.): **150**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **ENGINEERING FIRM**

Surface Completion: **Surface Slab Installed**

Water Level: **103.33 ft. below land surface on 2010-03-06** Measurement Method: **Unknown**

Packers: **N/A**

Type of Pump: **Turbine** Pump Depth (ft.): **585**

Well Tests: **Pump** Yield: **3002 GPM with 70 ft. drawdown after 36 hours**

Plug Information:	Description (number of sacks & material)	Top Depth (ft.)	Bottom Depth (ft.)
	2790 TO 2750 40 SACKS		

Water Quality:	Strata Depth (ft.)	Water Type
	SEE ABOVE	FRESH

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **ALSAY INCORPORATED**
6615 GANT
HOUSTON, TX 77066

Driller Name: **BRITT ROLLIE** License Number: **4992**

Apprentice Name: **DAVID SIGMAN** Apprentice Number: **58292**

Comments: **Hammons, Travis P.**
58346
TWDB swm 5920317 added 3/19/2013

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0	6	Sub-structure
6	27	Dark Brown Clay
27	68	Gravel
68	132	Gray Sandy Clay
132	204	Dark Gray Coarse Sand w/ Lignite
204	244	Dark Gray Clay
244	256	Sand (Dark Gray)
256	266	Clay (Dark Gray)
266	332	Sand (w/ Clay Streaks)
332	362	Clay (Dark Gray)
362	400	Sand (Dark Gray)
400	424	Clay (Dark Gray)
424	610	Sand (Gray)
610	634	Clay (Dark Gray)

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
36	N	STEEL 0-86 .312	
24	N	STEEL (ABOVE NAT. GRND LVL) 12-1200 .500	
16	N	STEEL W/SWEDGE 1200-2146 .500	
10-3/4	N	STEEL W/SS SCREEN 1976-2160 .500	
10-3/4	N	STEEL W/SS SCREEN 2160-2284 .500	
10-3/4	N	STEEL W/SS SCREEN 2284-2292 .500	
10-3/4	N	STEEL W/SS SCREEN 2292-2466 .500	
10-3/4	N	STEEL W/SS SCREEN 2466-2472 .500	
10-3/4	N	STEEL W/SS SCREEN 2472-2484 .500	
10-3/4	N	STEEL W/SS SCREEN 2484-2489 .500	
10-3/4	N	STEEL W/SS SCREEN 2489-2550 .500	
10-3/4	N	STEEL W/SS SCREEN 2550-2556 .500	
10-3/4	N	STEEL W/SS SCREEN 2556-2577 .500	
10-3/4	N	STEEL W/SS SCREEN 2577-2582 .500	
10-3/4	N	STEEL W/SS SCREEN 2582-2592 .500	

634 û 700 Sand (Gray)
700 û 870 Clay (Gray)
870 û 930 Gray Sandy Clay
930 û 1122 Sand (Few Clay Streaks)
1122 û 1228 Clay (Gray)
1228 û 1268 Sandy Clay (Gray)
1268 û 1282 Clay (Gray)
1282 û 1370 Sandy Gray Clay
1370 û 1702 Clay (Gray)
1702 û 1774 Sandy Gray Clay
1774 û 1804 Clay (Gray)
1804 û 1814 Sand (Gray)
1814 û 1842 Sandy Clay (Gray)
1842 û 1926 Sand (Gray)
1926 û 1960 Sandy Gray Clay
1960 û 1996 Sand (Gray)
1996 û 2010 Clay (Gray)
2010 û 2036 Sand (Gray)
2036 û 2050 Clay (Gray)
2050 û 2054 Sand
2054 û 2066 Clay (Gray)
2066 û 2132 Sand (Gray)
2132 û 2160 Sandy Clay (Gray)
2160 û 2284 Sand
2284 û 2292 Clay (Whitish Gray)
2292 û 2594 Sand (Some Lignite Streaks)
2594 û 2630 Clay (Gray)
2630 û 2816 Sand
2816 û 2860 Sandy Clay (Gray)
2860 û 2874 Sand
2874 û 2904 Clay (Gray)
2904 û 3007 Sandy Gray Clay

10-3/4 N STEEL W/SS SCREEN 2592-2631 .500
10-3/4 N STEEL W/SS SCREEN 2631-2724 .500
10-3/4 N STEEL W/SS SCREEN 2724-2749 .500

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P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #332785

Owner: City of College Station	Owner Well #: No Data
Address: 1101 Texas Avenue College Station, TX 77842	Grid #: 59-21-4
Well Location: 6 mi. N Hwy21 on OSR College Station, TX 77842	Latitude: 30° 41' 54" N
Well County: Brazos	Longitude: 096° 29' 19" W
	Elevation: No Data
Type of Work: New Well	
Proposed Use: Public Supply	

Drilling Start Date: **1/25/2006** Drilling End Date: **2/9/2006** Plans Approved by TCEQ - **YES**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	24	0	40
	22	40	1110
	18	1110	1360

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed; Under-reamed**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	1020	1360	Gravel	

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	1110	1006

Seal Method: **Positive Displacement**

Distance to Property Line (ft.): **No Data**

Sealed By: **Advanced Oilwell Services**

Distance to Septic Field or other concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: **83.7 ft. below land surface on 2006-05-15** Measurement Method: **Unknown**

Packers: **No Data**

Type of Pump: **Turbine** Pump Depth (ft.): **460**

Well Tests: **Pump** Yield: **863 GPM with 210 ft. drawdown after 36 hours**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information:

Driller Name: **Monte Richardson** License Number: **54385**

Comments: **Carrizo Well #1**
24 conductor 36' Hole
24' Underream

^CLH

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	40	24 inch conductor
40	126	gray clay
126	140	gray sand
140	170	clay
170	185	gray sand
185	240	rocks & clay
240	350	rocks & gray sand
350	380	hard gray shale
380	400	gray sand & rocks
400	413	gray clay
413	423	hard gray sand with coal streaks
423	454	gray clay & coal
454	510	gray clay & rocks
510	540	sand & coal

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
See Attached Installed Material record			

540	570	sand & rocks with coal streaks
570	618	gray clay & coal
618	628	gray sand
628	640	gray clay
640	685	gray sand
685	705	gray clay
705	826	gray sand
826	1030	hard gray clay
1030	1115	gray clay & rocks
1115	1260	white sand & rocks
1260	1290	white sand with clay streaks
1290	1330	gray clay
1330	1340	white sand & rocks
1340	1390	gray clay
1390	1400	white sand
1400	1415	coal
1415	1446	hard gray clay

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P.O. Box 12157
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(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #481333

Owner: City of College Station	Owner Well #: 9
Address: PO Box 9960 College Station, TX 77842	Grid #: 59-20-3
Well Location: 4192 W OSR Rd Bryan, TX 77807	Latitude: 30° 43' 20.5" N
Well County: Robertson	Longitude: 096° 30' 31.8" W
	Elevation: 250 ft. above sea level
Type of Work: New Well	
Proposed Use: Public Supply	

Drilling Start Date: **1/28/2018** Drilling End Date: **4/29/2018** Plans Approved by TCEQ - YES
PWS# 0210002

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	30	0	1200
	26	1200	2630
	12.25	2630	2800

Drilling Method: **Mud (Hydraulic) Rotary**
 Borehole Completion: **Filter Packed; Screened; Under-reamed**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	2078	2634	Gravel	12/20

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	2078	Cement 3425 Bags/Sacks

Seal Method: **Pressure** Distance to Property Line (ft.): **No Data**
 Sealed By: **Driller** Distance to Septic Field or other concentrated contamination (ft.): **No Data**
 Distance to Septic Tank (ft.): **No Data**
 Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed** **Surface Completion NOT by Driller**

Water Level: **144.33 ft. below land surface on 2018-04-29** Measurement Method: **Electric Line**
 Packers: **No Data**
 Type of Pump: **Turbine** Pump Depth (ft.): **420**
 Well Tests: **Pump** Yield: **3503 GPM with 59.61 ft. drawdown after 36 hours**

Plug Information:

Description (number of sacks & material)	Top Depth (ft.)	Bottom Depth (ft.)
Cement	2634	2800

Water Quality:

Strata Depth (ft.)	Water Type
2088 - 2610	Fresh

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Weisinger, Inc**
2200 E DAVIS ST
Conroe, TX 77301

Driller Name: **Larry Jernigin** License Number: **50285**

Apprentice Name: **Seth Flynt** Apprentice Number: **59915**

Comments: **Datum Point (FT): 12ft above ground level for lithology, Casing, Screen, Liner and well completion depths.**

Lithology:
 DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
 BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	160	sand
160	220	sand with clay seams
220	305	sand
305	310	sandy clay
310	550	sand
550	580	sandy clay
580	635	sand
635	740	sandy clay
740	770	clay with sand seams
770	785	clay
785	795	clay/sand
795	1000	sand with clay seams
1000	1020	clay
1020	1070	sand
1070	1085	sandy clay

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
24	Surface Casing	New Steel	.500	2	1200
20	Surface Casing	New Steel	.500	1200	2078
14	Blank	New Steel	.500	1928	2088
14	Screen	New Pipe Base Stainless Steel	.500 0.025	2088	2358
14	Blank	New Steel	.500	2358	2368
14	Screen	New Pipe Base Stainless Steel	.500 0.025	2368	2430
14	Blank	New Steel	.500	2430	2444
14	Screen	New Pipe Base Stainless Steel	.500 0.025	2444	2610
14	Blank	New Steel	.500 0.5	2610	2630

1085	1290	sand/lignite
1290	1300	clay/lignite
1300	1335	sand lignite
1335	1350	clay/lignite
1350	1775	sand/lignite
1775	1800	sand
1800	1880	sandy clay/ lignite
1880	1970	sandy clay/lignite
1970	1985	clay
1985	2090	sand/clayseams/lignite
2090	2680	sand/lignite seams
2680	2800	sand seams/shale/lignite

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**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

Please use black ink.
Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Robt. Earl Bishop (Name) Address P.O. Box 131 (Street or RFD) HEARNE, TX. (City) 77859 (State) (Zip)
2) LOCATION OF WELL: County ROBERTSON 1 miles in N direction from HEARNE (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.
 Legal description: Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
#1. See attached map.

3) TYPE OF WORK (Check): New Well Deepening Reconditioning Plugging
4) PROPOSED USE (Check): Domestic Industrial Monitor Public Supply Irrigation Test Well Injection Other _____
5) DRILLING METHOD (Check): Mud Rotary Air Hammer Jetted Bored Air Rotary Cable Tool Other _____ Driven

6) WELL LOG: Date Drilling: Started 5-23 1988 Completed 5-28 1988
DIAMETER OF HOLE: Dia. (in.) From (ft.) To (ft.)
Surface 1 1/4 555
3/8 555 4193
7) BOREHOLE COMPLETION: Open Hole Straight Wall Underreamed Gravel Packed Other _____
If Gravel Packed give interval ... from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material	Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)	Gage Casing Screen
						From	To
0	45	CLAY, IRON ORE, + SAND					
45	60	GRAY CLAY					
60	75	SHALE	4	N	P.V.C.	0	540
75	230	SAND	2	N	GALV. STEEL	507	1131
230	285	SAND + S-SHALE	2	N	S.S. (U.S.) SCREEN	1131	1151 .020
285	307	SAND (B)	2	N	GALV. STEEL	1151	1193
307	351	SHALE + S-SHALE					
351	353	COAL					
353	390	SHALE					
390	430	SAND					
430	460	" + S-SHALE					
460	485	SHALE + S-SHALE					
485	500	SHALE					
500	530	BROWN SHALE + COAL					
530	555	S-SHALE					
555	610	SHALE					
610	675	SAND					
675	678	COAL					
678	700	S-SHALE					
700	730	" + SAND					
730	804	" + SHALE					
804	828	SHALE 1093-1104 S-SHALE					
828	920	SAND 1104-1118 SHALE + COAL					
920	939	SHALE 1118-1153 SAND					
939	960	" + SAND					
960	968	COAL 1153-1193 SAND +					
968	1015	SHALE S-SHALE					
1015	1093	SAND (B)					

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 0 ft. to 540 ft. No. of Sacks Used 26
ft. to _____ ft. No. of Sacks Used _____
Method used PRESSURE
Cemented by P. BRIEN

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 319.44(c)]
 Pitless Adapter Used [Rule 319.44(d)]
 Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 78 ft. below land-surface Date 5-28-88
Artesian flow _____ gpm. Date _____

12) PACKERS: Type _____ Depth _____

13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
 Other _____
Depth to pump bowls, cylinder, jet, etc., 180 ft.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? Yes No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? Yes No

14) WELL TESTS:
Type Test: Pump Bailer Jetted Estimated
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME BRIEN WATER WELLS (Type or Print) Water Well Driller's License No. 1750
ADDRESS Rt. 1 Box 702 (Street or RFD) HEARNE (City) TX. (State) 77859 (Zip)
(Signed) [Signature] (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available. For TWC use only Well No. 59-03-9 Located on map _____

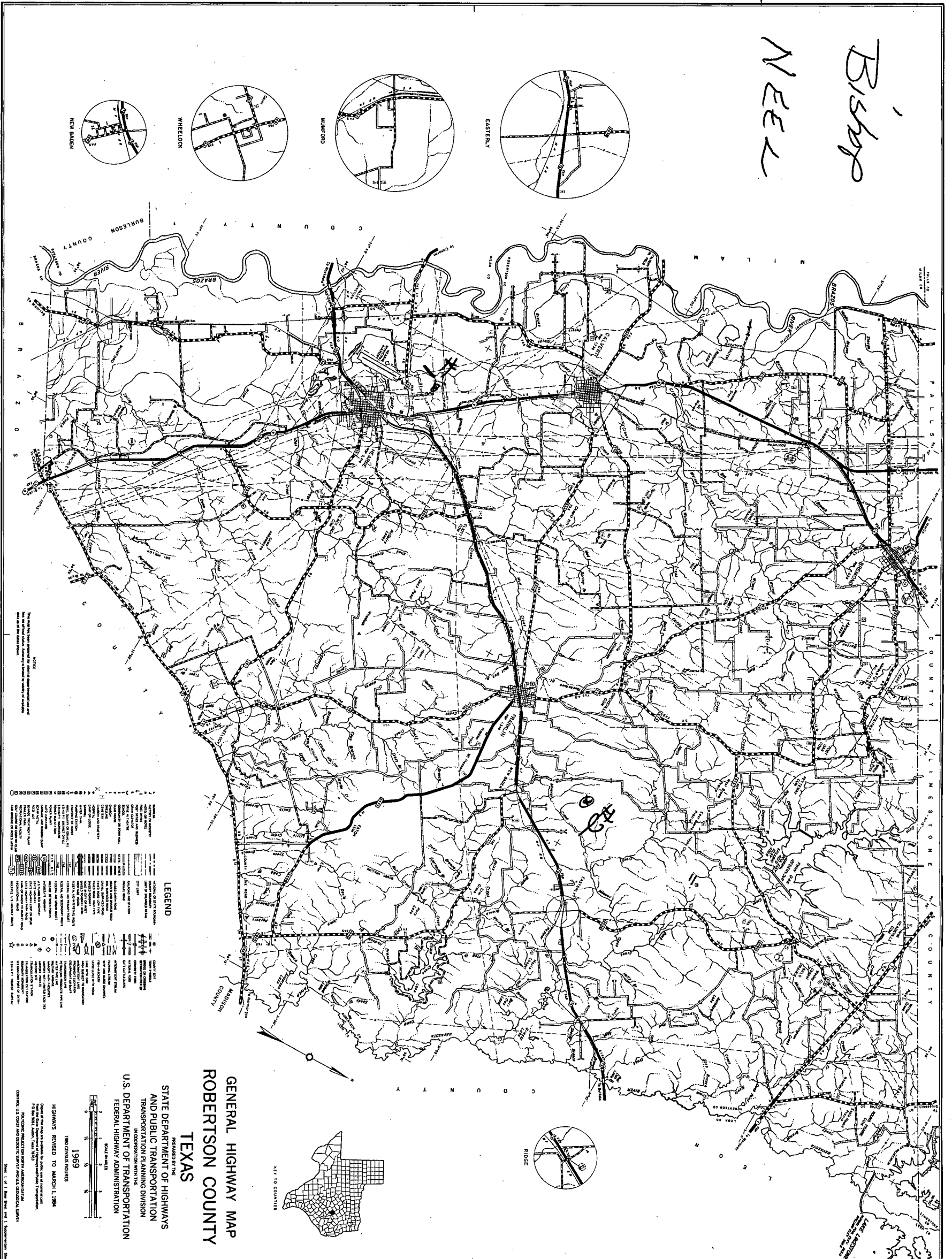
**IMPORTANT NOTICE FOR PERSONS
HAVING WELLS DRILLED CONCERNING
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Texas Water Commission are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

“Every licensed water well driller drilling, deepening or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within 30 days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. Each copy of a well log, other than a Commission copy, shall include the name, mailing address, and telephone number of the Board and the Commission. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record.”

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential.

#1 Bishop
#2 NEEL



LEGEND

	INTERSTATE HIGHWAY
	FEDERAL HIGHWAY
	STATE HIGHWAY
	COUNTY ROAD
	LOCAL ROAD
	RAILROAD
	WATERWAY
	AIRPORT
	CITY
	TOWN
	VILLAGE
	UNINCORPORATED COMMUNITY
	SCHOOL
	CHURCH
	CEMETERY
	PUBLIC BUILDING
	INDUSTRIAL BUILDING
	WAREHOUSE
	GAS STATION
	TELEPHONE EXCHANGE
	POWER LINE
	PIPELINE
	RIDGE
	DEPRESSION
	CONTOUR LINE
	SPOT ELEVATION
	ELEVATION CONTOUR
	WATER CONTOUR
	MARSH
	SWAMP
	FOREST
	PARK
	CEMETERY
	CHURCH
	PUBLIC BUILDING
	INDUSTRIAL BUILDING
	WAREHOUSE
	GAS STATION
	TELEPHONE EXCHANGE
	POWER LINE
	PIPELINE
	RIDGE
	DEPRESSION
	CONTOUR LINE
	SPOT ELEVATION
	ELEVATION CONTOUR
	WATER CONTOUR
	MARSH
	SWAMP
	FOREST
	PARK

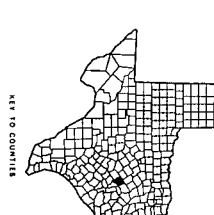
**GENERAL HIGHWAY MAP
ROBERTSON COUNTY
TEXAS**

PREPARED BY THE
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



1969

HIGHWAYS REVISION TO MARCH 1, 1964



KEY TO COUNTIES

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER LARRY ZEIG (Name) Address P.O. Box 653 HEARNE, TX 77859 (Street or RFD) (City) (State) (Zip)
2) LOCATION OF WELL: County Robertson 1 miles in N direction from HEARNE (Town)

Legal description:

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

Section No. Block No. Township Abstract No. Survey Name Distance and direction from two intersecting section or survey lines

See attached map. #13 Map on 59-04-7E

3) TYPE OF WORK (Check): New Well Deepening Reconditioning Plugging
4) PROPOSED USE (Check): Domestic Industrial Public Supply Irrigation Test Well Other
5) DRILLING METHOD (Check): Mud Rotary Air Hammer Driven Bored Air Rotary Cable Tool Jetted Other

6) WELL LOG: DIAMETER OF HOLE (Dia. in., From ft., To ft.) Date drilled 10-22-84
7) BOREHOLE COMPLETION: Open Hole Straight Wall Underreamed Gravel Packed Other

Table with 4 columns: From (ft.), To (ft.), Description and color of formation material, 8) CASING, BLANK PIPE, AND WELL SCREEN DATA (Dia. in., New or Used, Steel, Plastic, etc. Screen Mfg., if commercial, Setting (ft.), Gage Casing Screen)

CEMENTING DATA: Cemented from 0 ft. to 549 ft. Method used PRESSURE Cemented by P. BRIEN (Company or Individual)

9) WATER LEVEL: Static level 115 ft. below land surface Date 11-8-84 Artesian flow gpm. Date

10) PACKERS: Type Depth LEAD SEAL 540' K-PACKER 541' BRIDGE PLATE 1092', 1197', & 1218'

11) TYPE PUMP: Turbine Jet Submersible Cylinder Other Depth to pump bowls, cylinder, jet, etc., 294 ft.

13) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable water? Yes No If yes, submit "REPORT OF UNDESIRABLE WATER" Type of water? Depth of strata Was a chemical analysis made? Yes No

12) WELL TESTS: Type Test Pump Bailer Jetted Estimated Yield: 30 gpm with ft. drawdown after hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME BRIEN WATER WELLS Water Well Driller's License No. 1750 ADDRESS Rt 1 Box 702 HEARNE TX 77859 (Signed) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available. For TDWR use only Well No. 59-04-7E Located on map YES DLE

**IMPORTANT NOTICE FOR PERSONS
HAVING WELLS DRILLED CONCERNING
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Department of Water Resources are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

"Every registered water well driller drilling, deepening, or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within sixty (60) days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential. Please note that the term "Commission" in the above-quoted section and elsewhere in the Water Well Drillers Act now properly means the Texas Department of Water Resources (P. O. Box 13087; Austin, Texas 78711).

01-18-81
10:10 AM
NO. 1111
DEPARTMENT OF WATER RESOURCES

Please use black ink.
Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER RONNIE SWARNER (Name) Address 26 Woodland DR HEARNE, TX 77859 (Street or RFD) (City) (State) (Zip)
2) LOCATION OF WELL: County ROBERTSON (County) miles in N (N.E., S.W., etc.) direction from HEARNE (Town)

Legal description: Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
 See attached map. # 1.

3) TYPE OF WORK (Check): New Well Deepening Reconditioning Plugging
4) PROPOSED USE (Check): Domestic Industrial Public Supply Irrigation Test Well Other _____
5) DRILLING METHOD (Check): Mud Rotary Air Hammer Driven Bored Air Rotary Cable Tool Jetted Other _____

6) WELL LOG: Date drilled 9-5-84
DIAMETER OF HOLE: Dia. (in.) From (ft.) To (ft.)
6 1/4 Surface 445
3 3/8 445 1225
7) BOREHOLE COMPLETION: Open Hole Straight Wall Underreamed Gravel Packed Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material	Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	To	Gage Casing Screen
0-35		Clay + Iron Ore						
35-125	800-822	Shale						
125-340	822-827	SAND (B)	4	N	P.V.C.	0	440	
340-361	827-828	S-Shale	2	N	Galv. Steel	409	1190	
361-365	828-835	Rock	2	N	S.S. Underbar Screen	1190	1210	dia 2
365-445	835-854	S-Shale	2	N	Galv. Steel	1210	1225	
445-450	854-856	SAND						
450-470	856-871	Shale + Coal						
470-488	871-880	SAND (B)						
488-490	880-895	S-Shale						
490-500	895-905	S-Shale						
500-510	905-910	SAND						
510-518	910-933	S-Shale						
518-530	933-946	S-Shale						
530-580	946-955	SAND						
580-628	955-973	Shale						
628-654	973-984	Rock						
654-655	984-981	Shale						
655-667	981-986	SAND + S-Shale						
667-699	986-1008	SAND (B)						
699-705	1008-1020	S-Shale						
705-715	1020-1106	SAND (B)						
715-740	1106-1166	Shale + Coal						
740-750	1166-1173	SAND						
750-777	1173-1195	S-Shale						
777-795	1195-1220	Shale						
795-800	1220-1225	Coal						

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:
9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 0 ft. to 440 ft.
ft. to _____ ft.
Method used PRESSURE
Cemented by P. BRIEN

10) SURFACE COMPLETION
 Specified Surface Slab Installed [Rule 319.44(c)]
 Pitless Adapter Used [Rule 319.44(d)]
 Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 103 ft. below land surface Date 9-8-84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth
BURLAP 1075' & 1096'
K-PARKER 409' & 430'

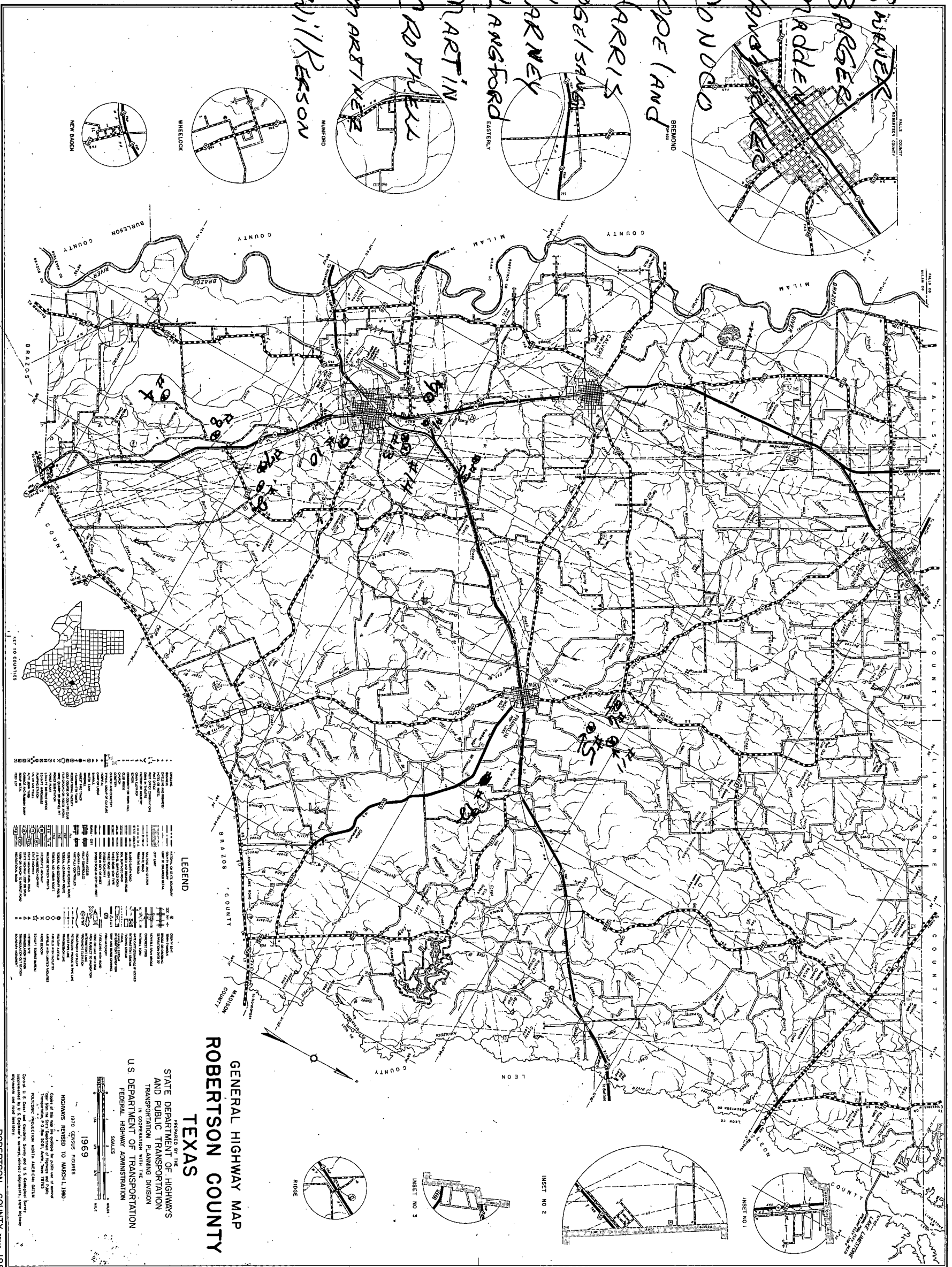
13) TYPE PUMP:
 Turbine Jet Submersible Cylinder
Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? Yes No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? Yes No
DEPT. OF WATER RESOURCES

14) WELL TESTS:
Type Test: Pump Bailer Jetted Estimated
Yield: 30 gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.
COMPANY NAME BRIEN WATER WELLS Water Well Driller's License No. 1750
ADDRESS RT. 1 Box 202 HEARNE TX 77859
(Street or RFD) (City) (State) (Zip)
(Signed) P. Brien (Signed) _____
(Licensed Water Well Driller) (Registered Driller Trainee)
Please attach electric log, chemical analysis, and other pertinent information, if available.
For TDWR use only
Well No. 59-04-71
Located on map yes C.F.S.

- #1 SWANER
- #2 BRADLEE
- #3 MIDDLETON
- #4 HORN
- #5 CONDOD
- #6 CODELAND
- #7 HARRIS
- #8 VOGELSMAN
- #9 KIRKNEY
- #10 LANGFORD
- #11 MARTIN
- #12 CRAYBELL
- #13 MARTINEZ
- #14 WILLKERSON



**GENERAL HIGHWAY MAP
ROBERTSON COUNTY
TEXAS**

PREPARED BY THE
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
IN COOPERATION WITH THE
FEDERAL DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

1969
1970 CENSUS FIGURES
HIGHWAYS REVISED TO MARCH 1, 1969.

Scale: 1 inch = 10 miles
1:62,500
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ATTACHMENT 4 –
SELECTED REFERENCES

SELECTED REFERENCES

Ayers, W. B. Jr, Lewis, Amy H., *The Wilcox Group and Carrizo Sand (Paleogene) in East Central Texas : Depositional Systems and Deep-Basin Lignite*, Bureau of Economic Geology, 1985.

Dutton, Alan R., Harden, Bob, Nicot, Jean-Philippe, O'Rourke, David O., Tinker, Scott W., Jackson, John, Jackson, Katherine G., *Groundwater Availability Model for the Central Part of the Carrizo-Wilcox Aquifer in Texas*, Prepared for the Texas Water Development Board, February 2003.

Intera, Inc., 2015, Update on Monitoring Program, Presented at the Post Oak Savannah Groundwater Conservation District Offices, PowerPoint Presentation, November 10, 2015.

Intera, Inc. *Groundwater Availability Models for the Queen City and Sparta Aquifers*. GAM, Austin. Texas, Water Development Board, 2004.

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Theis, C.V., 1935, *The Relation Between the Lowering of the Piezometric Surface and the Rate and Duration of Discharge of a Well Using Groundwater Storage: Transactions of the American Geophysical Union*, v. 16, p. 519-524.

Thornhill Group, Inc., 2018, Calvert Mine, Permit No. 27H – 2017 Annual Simsboro Depressurization/Drawdown Report, Prepared for Walnut Creek Mining Company for Submittal to the Surface Mining Division of the Texas Railroad Commission, October 19, 2018.

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Young, Steven, PhD, PE, Jigmond, Marius, Jones, Toya, and Ewing, Tom, PhD, PE, Final Report: Groundwater Availability Model for the Central Portion of the Sparta, Queen City, and Carrizo-Wilcox Aquifers, Texas Water Development Board Report ###, September 2018.