

EDWARDS UNDERGROUND WATER DISTRICT

1619 Tower Life Building
San Antonio, Texas

BULLETIN 13

CHEMICAL ANALYSES OF WATER FROM OBSERVATION WELLS IN THE EDWARDS AND ASSOCIATED LIMESTONES, SAN ANTONIO AREA, TEXAS, 1966

Compiled by

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Prepared in cooperation with the Geological Survey,
United States Department of the Interior,
the Texas Water Commission, and
the City of San Antonio

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A program to resample observation wells tapping a zone of transition between water of good quality and saline water in the Edwards and associated limestones was begun in 1959. The chemical analyses of the resampling program are being used to detect possible encroachment of saline water into the fresh-water areas as the head in the aquifer changes. Those analyses compiled through 1965 were published by the Edwards Underground Water District (Garza, 1962b, 1964, 1965, 1966), and this report presents the chemical analyses compiled during 1966. This program is part of a more extensive hydrologic investigation carried on by the U.S. Geological Survey in cooperation with the Edwards Underground Water District, the Texas Water Development Board, and the city of San Antonio.

Listed in this report are chemical analyses from 37 wells, most of which are sampled twice a year, but some are sampled only once a year because they are little used. The number of wells was reduced in 1966 from 72 to 37, but the original 72 will be sampled again when water levels drop to those levels near and below the recorded lows.

The water samples are analyzed in the laboratory of the U. S. Geological Survey in Austin, Texas, for specific conductance, pH, chloride, sulfate, bicarbonate, and hardness. A more complete analysis has been made for one sample from each well, and these analyses are on file in the offices of the Geological Survey in Austin and San Antonio. Locations of wells and other data pertaining to the resampling program may be found in reports listed below.

REFERENCES

Garza, Sergio, 1962a, Recharge, discharge, and changes in ground-water storage in the Edwards and associated limestones, San Antonio area, Texas, A progress report on studies, 1955-59: Texas Water Comm. Bull. 6201.

_____ 1962b, Chemical analyses of water from observation wells in the Edwards and associated limestones, San Antonio area, Texas: Edwards Underground Water District Bull. 1.

_____ 1964, Chemical analyses of water from observation wells in the Edwards and associated limestones, San Antonio area, Texas, 1963: Edwards Underground Water District Bull. 4.

_____ 1965, Chemical analyses of water from observation wells in the Edwards and associated limestones, San Antonio area, Texas, 1964: Edwards Underground Water District Bull. 7.

_____ 1966, Chemical analyses of water from observation wells in the Edwards and associated limestones, San Antonio area, Texas, 1965: Edwards Underground Water District Bull. 10.

_____ 1966b, Ground-water resources of the San Antonio area, Texas, A progress report on studies, 1960-64: Texas Water Development Board Report 34.

Chemical analyses of water from observation wells and springs in the San Antonio area, Texas
(Analyses are in parts per million, except specific conductance and pH)

Well	Owner	Depth of Well (ft.)	Date of Collection	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Dis- solved solids	Hard- ness as CaCO ₃	Specific Conduct- ance (micromhos at 25°C)	pH	Tempera- ture °F
<u>Kinney County</u>											
M-10	Wardlaw Bros.	750	Feb. 17, 1966	240	200	8.7		400	779	6.9	82
			Sept. 9, 1966	240	220	8.0		398	775	6.9	82
M-14	F. Beidler	618	Feb. 16, 1966	268	94	9.7		288	631	7.0	77
			Sept. 26, 1966	264	96	10	375	282	631	7.2	81
U-14	W. Richards	1390	Feb. 16, 1966	194	1670	7.2		1920	2710	6.5	94
			Sept. 9, 1966	210	1650	8.8		1910	2680	6.5	92
U-19	do	2000	Feb. 16, 1966	208	1580	12		1840	2630	6.6	-
V-7	Las Moras Springs		Feb. 16, 1966	248	6.8	9.7		220	446	7.1	-
			Aug. 23, 1966	220	6.8	6.8		206	409	7.2	74
V-29	R. Dodd	930	Feb. 16, 1966	230	352	7.0		550	989	6.9	81
			Aug. 23, 1966	232	336	8.0		532	965	7.2	82

Chemical analyses of water from observation wells and springs in the San Antonio area - continued

Well	Owner	Depth of Well (ft.)	Date of Collection	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Dis- solved solids	Hard- ness as CaCO ₃	Specific Conduct- ance (micromhos at 25°C)	pH	Tempera- ture °F
X-5	A. Harrison	514	Feb. 25, 1966	256	1220	24		1460	2260	6.8	-
			Aug. 23, 1966	220	1280	25		1520	2280	6.8	80
<u>Uvalde County</u>											
H-4-64	F. Turner (H. Martin)	842	Mar. 16, 1966	520	146	106		380	1360	7.1	77
			Sept. 9, 1966	532	129	112		392	1370	7.0	77
H-5-163	U.S. Fish & Wildlife	600	Feb. 25, 1966	308	116	220		564	1400	7.2	-
			Aug. 23, 1966	310	116	182		534	1260	7.0	73
H-5-240	W. Painter	562	Feb. 19, 1966	200	292	69		488	1080	7.2	-
			Aug. 23, 1966	280	264	72		528	1120	7.1	76
H-6-25	B. Turner	1410	Feb. 17, 1966	320	868	420		870	3230	6.7	90
I-7-15	T. M. Woodley	2575	Apr. 15, 1966	232	115	27		312	662	7.2	-

Chemical analyses of water from observation wells and springs in the San Antonio area - continued

Well	Owner	Depth of Well (ft.)	Date of Collection	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Dis- solved solids	Hard- ness as CaCO ₃	Specific Conduct- ance (micromhos at 25°C)	pH	Tempera- ture of
<u>Medina County</u>											
I-5-55	G.E. Farley	2000	Feb. 16, 1966	242	13	32		212	496	7.4	74
			Aug. 23, 1966	242	14	33		224	501	7.4	74
I-5-74	E. Hood	2260	Mar. 30, 1966	260	13	14		236	476	7.2	75
			July 14, 1966	264	12	19		236	486	7.8	76
J-4-143	H. Kelso	2765	Mar. 16, 1966	248	30	22		224	499	7.2	-
			July 27, 1966	234	34	23		224	501	7.8	96
<u>Atascosa County</u>											
3	C. W. Mask	2507	July 27, 1966	248	77	34		284	630	7.6	92
<u>Bexar County</u>											
284	City of San Antonio	1582	May 19, 1966	244	29	16		236	489	7.2	82
			Aug. 24, 1966	244	26	15		232	477	7.5	80

Chemical analyses of water from observation wells and springs in the San Antonio area - continued

Well	Owner	Depth of Well (ft.)	Date of Collection	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Dis- solved solids	Hard- ness as CaCO ₃	Specific Conduct- ance (micromhos at 25°C)	pH	Tempera- ture °F
G-7	Converse Water Co.	684	Feb. 16, 1966	246	36	22		244	522	7.4	82
			Sept. 12, 1966	246	40	22		266	525	7.3	81
I-206	Patio Foods, Inc.	11400	Feb. 16, 1966	250	37	16		244	504	7.2	83
			Aug. 23, 1966	248	36	18		244	501	7.4	83
J-40	E. Ackerman	900	Feb. 16, 1966	252	229	158		450	1300	7.3	79
			Aug. 22, 1966	252	254	175		480	1380	7.5	80
J-50	San Antonio Hot Wells	1878	Feb. 16, 1966	280	1900	900		2540	5570	6.9	102
			Aug. 23, 1966	282	1900	920		2560	5520	7.3	102
J-87	City of San Antonio	1185	Feb. 16, 1966	248	24	14		230	476	7.2	81
			Aug. 22, 1966	244	25	15		236	479	7.3	82
J-90	Holt Machinery	2179	Feb. 16, 1966	248	1990	940		2560	5640	6.8	110
			Aug. 22, 1966	280	1930	940		2560	5600	7.3	109

Chemical analyses of water from observation wells and springs in the San Antonio area - continued

Well	Owner	Depth of Well (ft.)	Date of Collection	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Dis- solved solids	Hard- ness as CaCO ₃	Specific Conduct- ance (micromhos at 25°C)	pH	Tempera- ture of
K-2	R. Schirmer	854	Feb. 18, 1966	274	1780	1580		2240	7370	6.7	85
			Aug. 22, 1966	306	1820	1650		2360	7560	7.2	89
M-44	R. Aelevoet	2226	Mar. 22, 1966	258	1670	756		2180	4840	6.9	105
			Aug. 22, 1966	260	1660	760		2360	4830	7.3	105
N-6	C. Verstuyft	1532	Feb. 16, 1966	248	28	16		240	489	7.0	83
			Aug. 22, 1966	246	28	18		236	490	7.4	81
<u>Guadalupe County</u>											
D-67	W. Kramer	565	Feb. 16, 1966	262	260	235		520	1610	7.0	76
			Aug. 22, 1966	270	360	335		640	2060	7.4	76
<u>Comal County</u>											
G-50	City of New Braunfels (Comal Springs)		Feb. 18, 1966	284	22	12		260	520	7.2	74
			Aug. 24, 1966	288	21	13		270	524	7.4	75

Chemical analyses of water from observation wells and springs in the San Antonio area - continued

Well	Owner	Depth of Well (ft.)	Date of Collection	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Dis- solved solids	Hard- ness as CaCO ₃	Specific Conduct- ance (micromhos at 25°C)	pH	Tempera- ture OF
G-84	H.C. Nelson	272	Feb. 17, 1966	376	190	155		540	1380	6.9	73
			Aug. 24, 1966	378	208	170		570	1440	7.2	75
H-20	W. Schaeffer	300	Feb. 24, 1966	290	25	22		264	563	7.2	74
			Mar. 25, 1966	300	18	22		256	540	7.4	73
			Aug. 24, 1966	268	40	23		262	562	7.2	74
H-49	E. Feick	515	Feb. 17, 1966	400	500	620		940	3270	7.0	-
<u>Hays County</u>											
E-76	City of Buda	390	Feb. 17, 1966	330	25	8.9		284	577	7.4	72
			Aug. 24, 1966	322	27	9.0		302	572	7.4	73
E-80	D. A. Dacy	492	Feb. 21, 1966	304	268	218		394	1630	7.2	-
			Sept. 1, 1966	300	288	235		424	1730	7.3	-
H-25	Four Seasons Farm	600	Feb. 17, 1966	250	472	690		715	3330	7.5	73
			Aug. 24, 1966	260	530	760		810	3510	7.4	74

Chemical analyses of water from observation wells and springs in the San Antonio area - continued

Well	Owner	Depth of Well (ft.)	Date of Collection	Bicar- bonate (HCO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Dis- solved solids	Hard- ness as CaCO ₃	Specific Conduct- ance (micromhos at 25°C)	pH	Tempera- ture °F
H-66	A. B. Rogers Estate (San Marcos Springs)		Feb. 18, 1966	304	24	20		288	585	7.3	71
			Aug. 24, 1966	310	22	19		286	575	7.2	72
H-107	City of Kyle	360	Mar. 15, 1966	284	127	11		314	713	7.1	78
			Sept. 14, 1966	278	136	11		368	710	7.2	-
K-5	E. Jackson	200	Feb. 17, 1966	374	229	210		580	1600	7.2	72