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MEMORANDUM ON  
GROUND-WATER IRRIGATION IN MITCHELL COUNTY, TEXAS

By

Oscar C. Dale and William L. Broadhurst

Prepared cooperatively by the Geological Survey,  
United States Department of the Interior

July 1953

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Although ground water is generally available in most parts of Mitchell County, Tex., for stock and domestic use, wells of large yield have not been reported until recently. In the past, Colorado City has had considerable difficulty in obtaining enough water for public supply from ground water in the immediate vicinity of the city. Reports of irrigation wells yielding more than 1,000 gallons a minute in east-central Mitchell County, therefore, have attracted considerable interest, particularly as the water was discovered during a period of severe drought. This memorandum is based on a brief investigation made in May 1953. Previous investigations have been made in various parts of Mitchell County, particularly in the vicinity of Colorado City, but this investigation is concerned mainly with irrigation wells in the northeastern part of the county.

There are about 65 to 70 irrigation wells in Mitchell County. Records were obtained for 48 of these wells, samples of water were taken from 21 wells for chemical analyses, and drillers' logs of 19 wells were obtained. These data are recorded in tables at the end of this memorandum.

The irrigation wells range in depth from 115 to 315 feet but most of them are 150 to 200 feet deep. The ground-water reservoir is composed of sand and gravel beds of Triassic age. In most places aquifers are found at two different depths, the upper between depths of 20 and 50 feet, and the lower between 100 and 200 feet. Some of the water is obtained from alluvium. No large quantity of water has been found below 300 feet. The cost of irrigation wells has been relatively small because the cost of drilling is about \$1.50 per foot and not much casing is required. Many wells have 20 to 50 feet of casing in them but some wells have no casing at all. It was not possible to measure static water levels in many of the wells because most of the wells had been pumping continuously for about 3 months. Static levels for a number of wells were measured in January 1953. It is reported that the static water levels in January, before pumping started, ranged from about 15 feet below the land surface in the northern part of the area to about 65 feet in the southern part. Most of the wells yield 200 to 250 gallons a minute, but the

range is from 100 to 1,140 gallons a minute. The yields of most of the wells were measured by the Soil Conservation Service of the United States Department of Agriculture, using weirs. The pumps are generally set within 5 to 10 feet of the bottoms of the wells. Most of the wells are equipped with turbine pumps having 5- to 15-horsepower electric motors, although there are some butane and natural-gas engines of 44 to 90 horsepower. Because the soil is rather sandy, sprinklers are used throughout the area. The number of sprinklers per well ranges from 13 to 62.

The chemical character of the water is generally suitable for irrigation of the crops grown in the area, which are grain, feed crops, and cotton. The analyses show that the water is not excessively mineralized, and in those waters in which the dissolved solids exceed 1,000 parts per million the mineralization is chiefly calcium sulfate. Experience has shown that most plants can tolerate rather high concentrations of calcium sulfate.

The volume of water that can be obtained from these wells over a period of years would be difficult to estimate because the water-bearing deposits are irregular in thickness and extent. Some of the wells in the city well field north of Colorado City that were in use in 1945 have been pumped continuously for more than 20 years and were still yielding about 20 gallons a minute. It was not possible to find out how much the wells yielded when drilled, but it is believed that the initial yields from these wells were less than the average obtained from the irrigation wells. The wells were pumped continuously and were closely spaced, and it may be assumed that each well was pumped at its maximum yield. More wells were drilled as the city needed more water and as yields declined. The irrigation wells are more widely spaced and will have the advantage of a fairly long rest period between irrigation seasons. On this basis, it seems reasonable to expect that the average irrigation well should not lose more than half its initial yield within a period of several years - 10 years or even more.

Table 1.- Records of irrigation wells in Mitchell County, Texas  
(All wells are drilled unless otherwise noted in the remarks column)

Method of lift: B, bucket; E, electric; J, jet; T, turbine. Number indicates horsepower.

Use of water: D, domestic; Irr, irrigation; S, stock.

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
E-7	Artie Grant	E. W. Martin	1952	215	8	25.6	Jan. 27, 1953	T, B, 44	Irr	Casing: 20 to 30 feet of surface. Irrigates 60 to 80 acres. See log.
E-10	Huron Gist	Huron Gist	1950	203	7	a/84.0	1950	T, E, 5	Irr, D	Casing: 7-inch to 145 feet. Pump set at 165 feet. Irrigates 5 acres. Reported yield 100 gpm. Temp. 69° F.
E-12	H. G. Logsdon	E. W. Martin	1952	170	8	a/35.0	May 1952	T, B, 44	Irr	Casing: 8-inch to 20 feet. Pump set at 160 feet. Measured yield 350 gpm. Irrigates 80 acres. Temp. 69° F. See log.
E-29	Harry Ratliff	do.	1952	126	8	43.8	May 7, 1953	T, E, 5	Irr	Casing: 8-inch to 10 feet. Pump set at 120 feet. Measured yield 120 gpm. Irrigates 20 acres. Temp. 68½° F. See log.
F-1	C. L. LeFevre	U. Compton	1952	230	8	a/17.0	1952	T, B, 90	Irr	Casing: 8-inch to 160 feet. Pump set at 160 feet. Reported sand from 55 to 75 feet and 130 to 230 feet. Measured yield 250 gpm. Irrigates 40 acres. Temp. 69° F.
F-2	Grady Ezell	Olin House	1953	205	8	--	--	T, E, 44	Irr	Casing: 8-inch to 20 feet. Pump set at 195 feet. Reported sand from 80 to 100 feet and 110 to 200 feet. Measured yield 200 gpm. Irrigates approximately 80 acres.
F-3	Bunk Walker	Huron Gist	1952	160	8	--	--	T, E, 15	Irr	Casing: 8-inch to 120 feet. Pump set at 158 feet. Reported sand from 120 to 160 feet. Measured yield 190 gpm. Irrigates 60 acres. Temp. 68½° F.
F-4	Lee Strain	E. W. Martin	1952	210	10	47.4	Jan. 27, 1953	T, B	Irr	Casing: 10-inch surface, 8-inch bowl pump. Measured yield 225 gpm. Irrigates approximately 60 acres. See log.
F-5	do.	do.	1952	171	6	a/15.0	do.	T, B, 44	Irr	Casing: 6-inch to 107 feet. Measured yield 120 gpm. Irrigates 20 acres. See log.
F-6	Bill Gale	Olin House	1953	165	6	--	--	T, E, 15	Irr	Casing: 6-inch to 70 feet. Reported sand from 91 to 135 feet. Pump set at 137 feet. Measured yield 176 gpm. Irrigates 40 acres.
F-10	-- Palmer	I. O. Fanning	1953	195	10	52.3	May 8, 1953	--	Irr	No pump set.
F-11	J. B. Mahon	do.	1952	196	16	--	--	T, B	Irr	Casing: 16-inch to 196 feet. Slotted at unknown depth. Pumping level measured May 6, 1953 was 147.3 feet below land surface datum. Irrigates 120 acres. Temp. 68° F.

a/ Reported by owner or driller.

Table 1.- Records of irrigation wells in Mitchell County--Continued

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
F-12	Bob Horton	U. Compton	1953	180	6	--	--	--	Irr	Casing: 6-inch surface. Reported yield 150 gpm Pump not set at time of visit.
F-13	Charlie Thompson	I. O. Fanning	1952	315	10	a/170.0	1952	T, B, 55	Irr	Casing: 10-inch to 315 feet. Slotted at unknown depth. Pump set at 270 feet. Reported yield 500+ gpm. Irrigates 60 to 70 acres. Temp. 68° F.
F-14	George Mahon	do.	1952	220	16	21.3	Jan. 27, 1953	T, B, 50	Irr	Casing: 16-inch to 150 feet. Slotted from 125 to 150 feet. Pump set at 135 feet. Irrigates 50 acres. Reported yield 250 gpm.
F-15	Felix Martin	Huron Gist	1952	232	10	--	--	T, B, 55	Irr	Casing: 10-inch to 232 feet. Perforated from 190 to 232 feet. Pump set at 225 feet. Measured yield 250 gpm. Irrigates 60 acres. Temp. 69° F.
F-16	Noble Walker	Noble Walker	1952	201	12½	68.2	Jan. 27, 1953	T, B, 44	Irr	Casing: none. Six-stage pump set at 195 feet. Irrigates approximately 60 acres.
F-17	do.	E. W. Martin	1952	184	10	54.5	do.	T, B, 32	Irr	Casing: 10-inch to 90 feet. Cemented. Water level measured May 6, 1953 was 63.3 feet. Irrigates approximately 60 acres. Reported bitter water in sand above 90 feet. Measured yield 200 gpm.
F-18	do.	do.	1952	188	12½	45.4	do.	T, B, 44	Irr	Casing: none. 10-inch pump set at 180 feet. Measured yield 230 gpm. Irrigates approximately 60 acres. Temp. 68° F. See log.
F-19	do.	do.	1952	170	7	53.6	do.	J, E, 1	D	Casing: 7-inch to 91 feet. Cemented. Reported bitter water in sand above 90 feet. Temp. 68½° F. See log.
F-22	Frank Kelly	do.	1950	171	6	a/70.0	do.	T, E, 1½	D, S	Casing: 6-inch to 140 feet. Open end.
F-23	Mrs. C. L. Root Estate	M. R. House	1952	179	15	21.8	do.	T, E, 15	Irr	Casing: 1½-inch surface. Measured yield 325 gpm. Irrigates 80 acres.
F-24	do.	do.	1952	163	10	--	--	T, E, 10	Irr	Casing: 10-inch to 150 feet. Pump set at 150 feet. Measured yield 300 gpm. Irrigates 80 acres. See log.
F-25	Jim Kelly	E. W. Martin	1953	166	8-5/8	31.4	May 7, 1953	T, E, 10	Irr	Casing: 8 5/8-inch to 54 feet. Measured yield 250 gpm. Irrigates 400 acres. See log.
F-26	Charlie Thompson	M. R. House	1952	178	8	--	--	T, E, 30	Irr	Casing: 8-inch to 150 feet. Slotted from 20 to 100 feet. Measured yield 425 gpm. Irrigates approximately 100 acres. See log.
F-27	do.	do.	1952	167	8	--	--	T, E, 15	Irr	Casing: 8-inch to 140 feet. Pump set at 150 feet. Measured yield 120 gpm. Irrigates 30 acres.
F-28	do.	do.	1952	162	8	--	--	T, E, 5	Irr	Casing: 8-inch to 158 feet. Pump set at 130 feet. Reported yield 160 gpm. Irrigates 30 to 40 acres. Temp. 67½° F. See log.

Table 1.- Records of irrigation wells in Mitchell County--Continued

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
F-29	Charlie Thompson	M. R. House	1952	315	8	--	--	T, E, 7½	Irr	Casing: 8-inch to 150 feet. Pump set at 150 feet. Reported water sand 120 to 150 feet. No water below 150 feet. Temp. 68° F.
F-30	do.	do.	1952	152	8	--	--	T, E, 15	Irr	Casing: 8-inch to 150 feet. Pump set at 138 feet. See log.
F-35	Haskell Miles	Olin House	1953	170	8	--	--	T, E	Irr	Casing: 8-inch to 80 feet. Reported yield 250 gpm. Irrigates approximately 60 acres. See log.
F-36	Del Barber	Del Barber	1952	150	6	29.2	May 8, 1953	T, E	Irr	Casing: 6-inch surface. Measured yield 200 gpm. One of 12 wells that irrigates 640 acres.
F-37	W. W. Rooland	E. W. Martin	1953	154	8	--	--	--	Irr	Casing: none. Measured yield 235 gpm. Irrigates 40 acres. See log.
F-38	Del Barber	do.	1952	170	8	65.9	Jan. 27, 1953	--	N	Casing: none. Not used.
F-39	do.	Bill Thomas	1953	174	8	--	--	T, E, 15	Irr	Casing: none. Pump set at 160 feet. Reported sand from 120 to 170 feet.
F-40	do.	Del Barber	1952	156	8	--	--	T, E	Irr	Casing: none. Measured yield 170 gpm. Pump set at 150 feet.
F-41	do.	Bill Thomas	1952	176	12	--	--	T, E, 40	Irr	Casing: 12-inch to 5 feet. Reported yield 650 to 700 gpm. Pump set at 150 feet. Temp. 68½° F.
F-42	J. B. Mahon	I. O. Fanning	1952	150	16	--	--	T, B	Irr	Casing: 16-inch to 150 feet. Reported yield 1,000 gpm. Irrigates approximately 80 acres. Temp. 68½° F.
F-43	Roscoe Hudgins	E. W. Martin	1952	130	12½	--	--	T, E, 15	Irr	Casing: 12½-inch to 50 feet. Pump set at 122 feet. Measured yield 180 gpm. Irrigates 800 acres. Temp. 68° F. See log.
F-44	Paris Yarborough	do.	1952	134	5	--	--	T, E, 15	Irr	Casing: 5-inch to 30 feet. Reported sand and gravel from 85 to 124 feet. Yield dropped from 200 to 80 gpm in Apr. 1953. Abandoned.
F-45	do.	do.	1952	134	5	--	--	T, E, 15	Irr	Casing: 5-inch to 32 feet. Pump set at 130 feet. Measured yield 165 gpm. Temp. 69° F. See log.
F-46	do.	do.	1953	261	5	--	--	T, E, 40	Irr	Casing: 5-inch to 8 feet. Measured yield 300 gpm. Irrigates 100 acres. Temp. 69° F.
F-47	Roy Buchanan	M. R. House	1953	150	8	--	--	--	Irr	Casing: none. Reported water sands from 20 to 30 feet and 100 to 150 feet. Reported yield 350 gpm. Not used.

Table 1.- Records of irrigation wells in Mitchell County--Continued

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
J-1	J. A. Thompson	E. W. Martin	1953	166	8	--	--	--	N	Well yielded 80 gpm on test. Never used. See log.
J-2	do.	--	--	Spring	--	--	--	--	--	A series of small opening springs in Champion Creek. Estimated flow May 7, 1953, 5 to 8 gpm. Reported never dry.
J-3	Elon Harrell	E. W. Martin	1953	200	10	--	--	T,B, 44	Irr	Casing: 10-inch to 30 feet. Measured yield 190 gpm. Irrigates 20 acres. See log.
J-4	L. S. Girvin	Olin House	1952	125	12	64.3	Jan. 27, 1953	T,B, 55	Irr	Casing: 12-inch to 20 feet. Reported sand from 67 to 80 feet and 95 to 120 feet. Reported yield 500 gpm. Irrigates approximately 60 acres.
J-5	Bob Fee	E. W. Martin	1953	115	14	34.8	do.	T,B, 72	Irr	Casing: 14-inch to 25 feet. Pump set at 76 feet. Measured yield 1,140 gpm. Drawdown 32 feet. Irrigates 150 acres. Temp. 68½° F. See log.
J-6	Tom Killian	U. Compton	1953	126	8	--	--	T,E, 7½	Irr	Casing: 8-inch to 30 feet. Pump set at 113 feet. Irrigates approximately 60 acres. Temp. 69° F.
J-7	A. L. White	do.	1952	240	12	a/90.0	May 1953	T,E	Irr	Casing: 12-inch to 20 feet. Pump set at 220 feet. Reported sand and gravel from 135 to 240 feet. Measured yield 425 gpm.

a/ Reported by owner or driller.

Table 2.- Drillers logs of irrigation wells in Mitchell County, Texas

Thickness (feet)		Depth (feet)			Thickness (feet)	Depth (feet)
Well E-7						
Artie Grant. Driller: E. W. Martin.						
Top soil .....	5	5	Shale, light-brown .....	20	104	
Clay and gravel .....	20	25	Red beds .....	37	141	
Sandrock .....	20	45	Shale, blue .....	24	165	
Red beds .....	39	84	Sand, water .....	50	215	
Well E-12						
H. G. Logsdon. Driller: E. W. Martin.						
Soil .....	5	5	Limestone, gravel and pyrites	34	82	
Clay .....	5	10	Shale .....	32	114	
Sand and gravel .....	15	25	Sand and gravel .....	55	169	
Limestone and gravel .....	11	36	Red beds .....	1	170	
Sand, water .....	12	48				
Well E-29						
Harry Ratliff. Driller: E. W. Martin.						
Top soil and sand .....	20	20	Shale .....	20	80	
Gravel .....	10	30	Sand, water .....	34	114	
Shale, blue .....	18	48	Shale, blue .....	12	126	
Sand, water .....	12	60				
Well F-4						
Lee Strain. Driller: E. W. Martin.						
Soil .....	5	5	Sand .....	11	53	
Sand .....	7	12	Shale, blue .....	15	68	
Limestone .....	3	15	Red beds .....	49	117	
Sand, water .....	12	27	Shale, blue .....	18	135	
Shale, blue .....	15	42	Sand, water .....	75	210	



Table 2.- Drillers logs of irrigation wells in Mitchell County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well F-5							
Lee Strain. Driller: E. W. Martin.							
Top soil .....	5	5	Shale, blue .....	25	107		
Shale, pink .....	23	28	Sand, water .....	44	151		
Red beds .....	54	82	Shale, blue .....	19	170		
			Red beds .....	1	171		
Well F-18							
Noble Walker. Driller: E. W. Martin.							
Sandrock .....	45	45	Sand, water .....	26	155		
Sand, water .....	19	64	Limestone .....	3	158		
Shale, blue .....	3	67	Shale, blue .....	2	160		
Sand, water .....	59	126	Sand and gravel .....	24	184		
Shale, blue .....	3	129	Limestone .....	4	188		
Well F-19							
Noble Walker. Driller: E. W. Martin.							
Top soil .....	5	5	Sand .....	11	85		
Sandrock .....	47	52	Shale .....	7	92		
Limestone .....	4	56	Sand, water .....	36	128		
Sand .....	2	58	Limestone .....	2	130		
Clay, yellow .....	2	60	Shale, blue .....	2	132		
Sand .....	10	70	Sand .....	38	170		
Limestone .....	4	74					
Well F-24							
Mrs. C. L. Root Estate. Driller: M. R. House.							
Top soil and sand .....	20	20	Clay, blue .....	25	78		
Clay, blue .....	17	37	Sand, water .....	2	80		
Sandrock, blue .....	3	40	Clay, blue .....	5	85		
Sand, water .....	13	53	Sand, water .....	78	163		

Table 2.- Drillers logs of Irrigation wells in Mitchell County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-25					
Jim Kelly. Driller: E. W. Martin.					
Top soil .....	5	5	Limestone, sandy .....	5	90
Sand, water and gravel .....	30	35	Sand .....	7	97
Red beds .....	5	40	Shale, blue .....	3	100
Shale, blue .....	22	62	Sand and gravel .....	64	164
Sand .....	23	85	Red beds .....	2	166
Well F-26					
Charlie Thompson. Driller: M. R. House.					
Top soil .....	12	12	Rock, hard .....	5	105
Rock, yellow .....	8	20	Granite, sandy .....	42	147
Sand, white, and water .....	23	43	Rock .....	4	151
Clay, blue .....	30	73	Red beds .....	27	178
Sand, water ... ..	27	100			
Well F-28					
Charlie Thompson. Driller: M. R. House.					
Top soil .....	5	5	Clay, blue .....	35	118
Sand, water .....	25	30	Rock .....	4	122
Granite .....	25	55	Sand, water .....	36	158
Rock ... ..	28	83	Red beds .....	4	162
Well F-30					
Charlie Thompson. Driller: M. R. House.					
Top soil .....	12	12	Rock, hard .....	2	55
Sand, water .....	8	20	Sand, water .....	86	141
Rock .....	23	43	Rock .....	7	148
Sand, water .....	10	53	Red beds .....	4	152

Table 2.- Drillers logs of irrigation wells in Mitchell County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well F-35							
Haskell Miles. Driller: Olin House.							
Top soil .....	5	5	Sand, water .....	40	120		
Rock, sand .....	40	45	Shale .....	2	122		
Sand, water .....	5	50	Sand, water .....	43	165		
Red beds .....	30	80	Red beds .....	5	170		
Well F-37							
W. W. Rooland. Driller: E. W. Martin.							
Top soil .....	3	3	Sand, water .....	12	101		
Rock, sand .....	37	40	Sand and gravel .....	11	112		
Shale, blue .....	30	70	Sand .....	39	151		
Shale, brown .....	11	81	Red beds .....	3	154		
Shale, blue .....	8	89					
Well F-43							
Roscoe Hudgins. Driller: E. W. Martin.							
Top soil .....	3	3	Gravel, fine .....	7	89		
Caliche .....	27	30	Shale, blue .....	13	102		
Gravel .....	21	51	Gravel .....	24	126		
Sandrock .....	11	62	Red beds .....	4	130		
Sand, water .....	20	82					
Well F-45							
Paris Yarborough. Driller: E. W. Martin.							
Soil .....	3	3	Gravel .....	28	110		
Sandrock .....	27	30	Sand .....	6	116		
Shale, brown light .....	16	46	Gravel .....	11	127		
Shale, blue .....	10	56	Limestone .....	5	132		
Sand, broken .....	26	82	Red beds .....	2	134		

Table 2.- Drillers logs of irrigation wells in Mitchell County--Continued

Thickness (feet)		Depth (feet)	Thickness (feet)		Depth (feet)
Well J-1					
J. A. Thompson. Driller: E. W. Martin.					
Soil .....	3	3	Sand and gravel .....	6	120
Sandrock .....	17	20	Sand .....	5	125
Limestone, sandy .....	6	26	Gravel .....	36	161
Shale, brown .....	63	89	Limestone .....	3	164
Sand .....	25	114	Red beds .....	2	166
Well J-3					
Elon Harrell. Driller: E. W. Martin.					
Soil .....	3	3	Gravel .....	15	115
Sandrock .....	23	26	Sand .....	12	127
Red beds .....	18	44	Limestone, sandy .....	4	131
Shale, blue .....	33	77	Shale, sandy, and gravel .....	16	147
Sand, water .....	23	100	Red beds .....	53	200
Well J-5					
Bob Fee. Driller: E. W. Martin.					
Top soil .....	3	3	Sand .....	4	83
Caliche .....	11	14	Sand and gravel .....	21	104
Gravel .....	14	28	Limestone .....	7	111
Sand, water .....	23	51	Shale, blue .....	2	113
Sand, (quicksand) .....	20	71	Red beds .....	2	115
Limestone .....	8	79			

Table 3.- Analyses of water from irrigation wells in Mitchell County, Texas

(Analyses given are in parts per million except specific conductance, pH, and percent sodium)

Well	Owner	Depth of well (ft.)	Date of collection	Silica (SiO <sub>2</sub> )	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids	Total hardness as CaCO <sub>3</sub>	Percent sodium	Specific conductance (Micromhos at 25° C.)	pH
E-10	Huron Gist	203	May 8, 1953	16	52	36	a/173	333	260	67	1.8	0.0	0.58	770	278	58	1,210	7.8
E-12	H. G. Logsdon	170	May 7, 1953	17	93	54	255	343	466	178	.4	.5	.62	1,230	454	54	1,880	7.9
E-29	Harry Ratliff	126	do.	16	60	35	170	318	242	102	1.0	.5	.48	783	294	55	1,260	7.7
F-1	C. L. LeFevre	230	May 8, 1953	28	94	48	a/119	339	270	87	.8	.0	.46	834	432	37	1,260	7.0
F-3	Bunk Walker	160	do.	22	60	40	a/84	325	164	42	1.8	.0	.43	574	314	37	920	7.4
F-11	J. B. Mahon	196	May 6, 1953	18	63	28	42	307	60	27	2.0	2.0	.27	380	272	24	655	8.1
F-13	Charlie Thompson	315	May 8, 1953	17	53	24	a/31	260	38	27	2.2	.0	.34	321	230	23	593	7.7
F-14	George Mahon	220	May 7, 1953	14	66	30	45	320	66	34	1.4	.0	.21	395	288	24	703	8.1
F-15	Felix Martin	232	May 6, 1953	18	66	35	a/35	310	70	36	1.4	.0	.20	416	308	20	703	7.6
F-18	Noble Walker	188	do.	20	87	50	50	331	192	38	1.0	.0	.28	612	422	19	933	7.8
F-19	do.	170	do.	18	226	97	73	325	689	105	1.0	.0	.24	1,370	963	13	1,870	7.6
F-28	Charlie Thompson	162	May 7, 1953	18	74	41	a/56	310	122	63	1.4	.0	.29	530	353	26	881	7.6
F-29	do.	315	do.	18	135	69	a/227	385	585	128	2.2	.2	.90	1,350	620	44	1,960	7.2
F-41	Del Barber	176	do.	17	79	31	a/36	295	90	43	1.2	.0	.13	449	324	19	745	7.9
F-42	J. B. Mahon	150	do.	18	90	39	34	304	118	57	1.0	.0	.18	506	385	14	852	7.5
F-43	Roscoe Hudgins	130	do.	17	84	31	33	288	81	61	.8	2.2	.09	505	337	16	775	7.6
F-45	Paris Yarborough	134	do.	17	93	42	39	301	149	60	1.2	1.0	.16	587	404	16	906	7.9
F-46	do.	261	do.	21	362	118	a/200	172	1,480	103	1.8	.2	.83	2,370	1,390	24	2,840	7.3
J-2	J. A. Thompson	Spring	do.	2.0	65	41	63	179	99	151	.6	.0	.16	510	330	27	943	7.8
J-5	Bob Fee	115	do.	19	73	33	a/29	239	102	56	.6	2.2	.18	463	318	17	792	7.8
J-6	Tom Killian	126	May 8, 1953	24	135	45	a/79	239	116	220	.8	70	.18	914	522	25	1,390	7.5

a/ Sodium (Na) only.

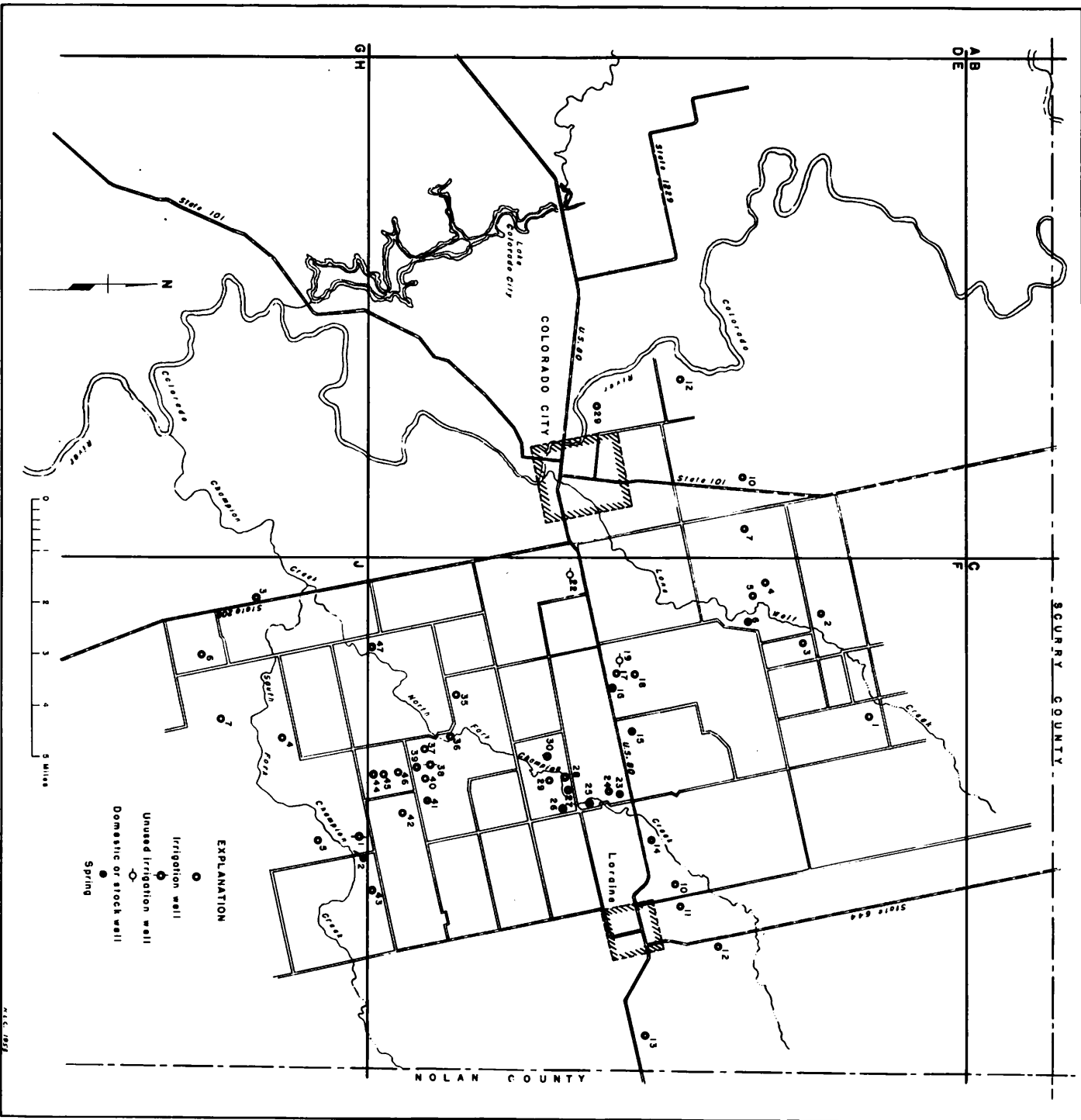


FIGURE 1.-Irrigation wells in northeastern part of Mitchell County, Tex.