GROUNDWATER OBSERVATIONS

LAKE RIDGE 2ND ADDITION

STORMWATER DRAIN NO. 101

WICHITA, KANSAS

PREPARED BY

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MARCH 11, 1994

I. Introduction

This report describes observations of groundwater levels made during and after construction of a detention/retention reservoir constructed into the groundwater table. The site lies near 21st and Ridge Road in Wichita, Sedgwick County, Kansas, in the S 1/2 of the SW 1/4 of Sec. 3, T 27 S, R 1 W (see Figure 1).

The reader is advised that this report states the findings made at this site under a specific set of conditions. Use of the data presented in this report is the sole responsibility of the reader. Evaluation of the applicability of this data to other sites or to this site in other circumstances is beyond the scope of this report.

II. Project Description

Under contract to the City of Wichita, Bergkamp Construction Co., Inc., constructed a drainage project for the Lake Ridge 2nd Addition known as Storm Water Drain No. 101. The project consisted of construction of an earthen detention/retention pond by means of excavation below the groundwater table to a depth of approximately six feet. The undeveloped site consisted of a fine sandy loam underlain by fine sands. The water-bearing stratum is sand and gravel alluvium of the Arkansas River Valley.

During the course of the construction, the Contractor maintained a pumping system to locally lower the groundwater elevation to permit excavation of the basin by means of conventional scraper earthmoving equipment. The purpose of the investigation was to make a determination of the zone of influence that the pumping exerts on the surrounding groundwater table.

III. Investigation Description

After the pumping operation had been in place for approximately three weeks, and the aquifer had presumably reached equilibrium, five temporary well points were set (see Figure 2). These were placed close to the pond outlet at approximately right angles to the natural groundwater gradient direction. Groundwater level observations were made at all five locations during the assumed equilibrium stage. After the pumping operation system ceased, observations were made to evaluate the rate of rise of the groundwater table as it rose back to a normal elevation. Table 1 lists the data collected.

Figure 3 illustrates the drawdown effect as a function of distance from the pond, and the rise of the groundwater over time as well.

IV. Summary

Five observation wells were established adjacent to a pond excavated into the groundwater. During and after pumping operations to locally drawdown the groundwater table, observations of the groundwater elevations were made. The greatest zone of drawdown influence is closest to the lake, as can be expected. At a distanceof 200 feet from the lake, the rate of groundwater elevation change was less than one foot per week.

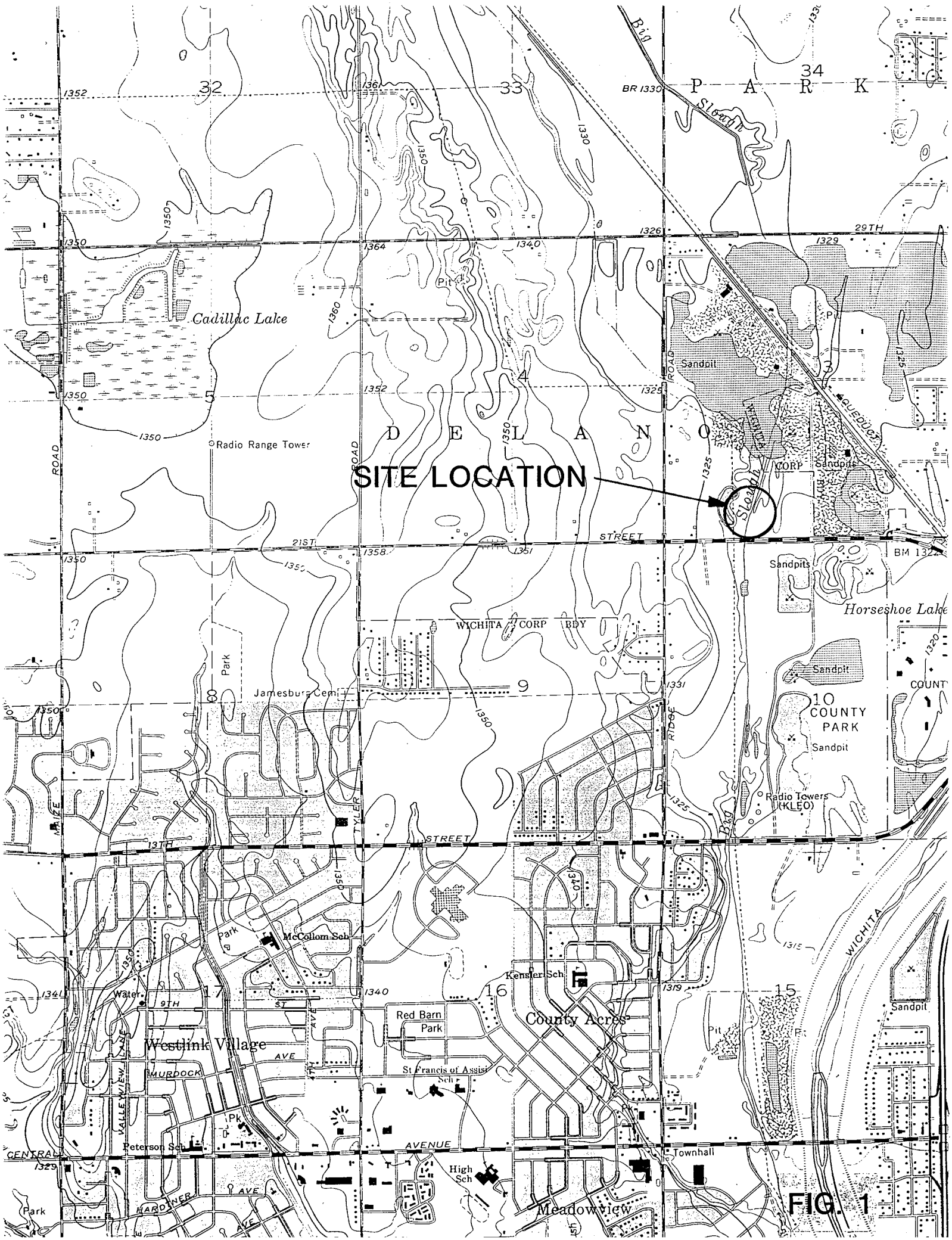
SITE LOCATION
Cadillac Lake
Radio Range Tower
D E L A N C O
P A R K
Big Slough
BR 1330
29TH
STREET
21ST
STREET
13TH
STREET
ROAD
Sandpit
Pit
CORP
Sandpits
Horseshoe Lake
WICHITA CORP BDY
Jamesburg Cem
Park
10
COUNTY
PARK
Sandpit
Radio Towers
(KLEO)
McCollom Sch
Kensler Sch
Red Barn
Park
County Acres
Westlink Village
St Francis of Assisi
Sch
Peterson Sch
High
Sch
Townhall
Meadowview
Water
Pk
Park
MURDOCK
AVE
CENTRAL
AVENUE
HARDTNER
AVE
9TH
ST
VALLEY VIEW
LANE
MAIZE
TYLER
RIDGE
WICHITA
Sandpit
Pit

FIG. 1

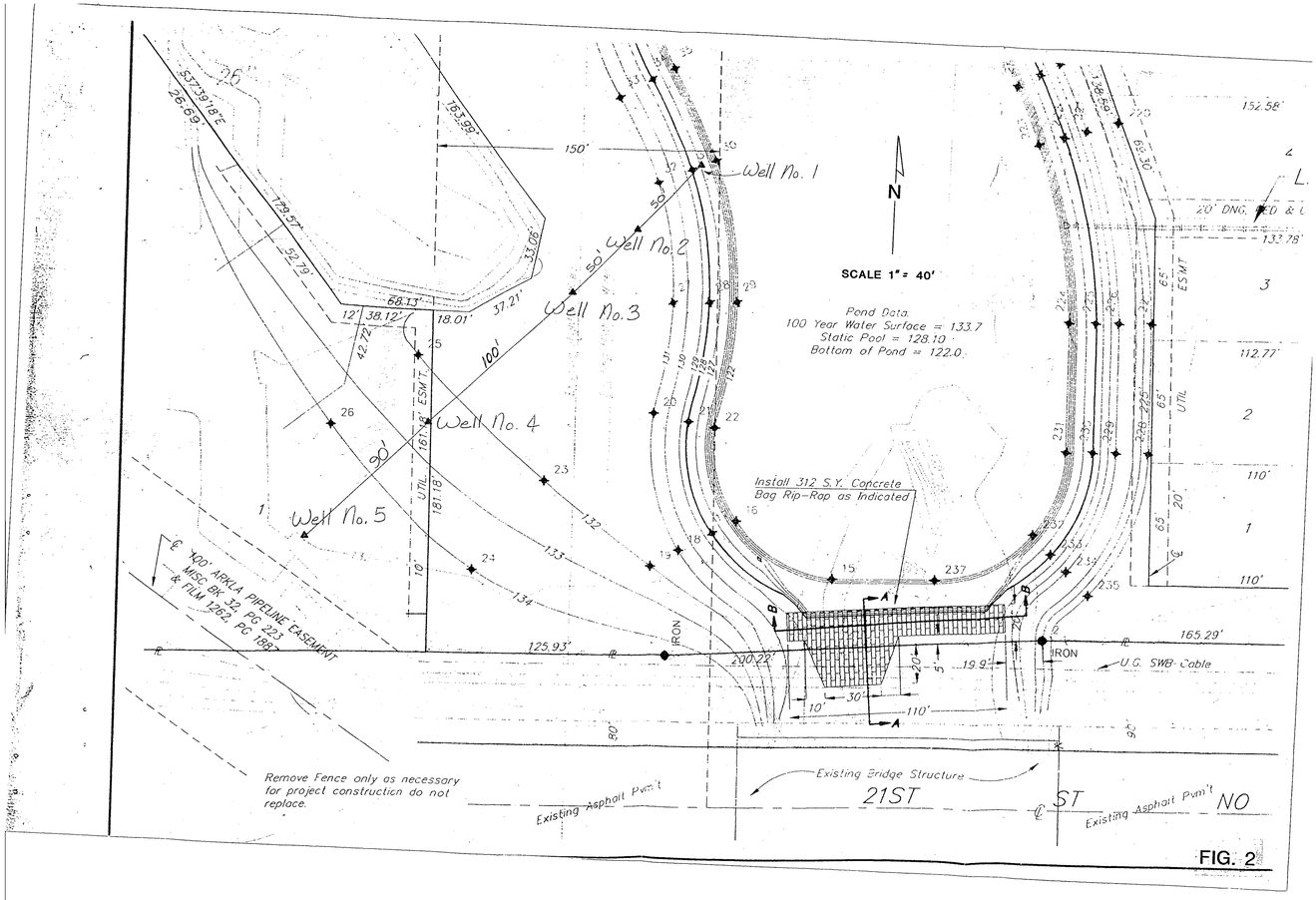
Well No. 1
Well No. 2
Well No. 3
Well No. 4
Well No. 5
N
SCALE 1" = 40'
Pond Data
100 Year Water Surface = 133.7
Static Pool = 128.10
Bottom of Pond = 122.0
Install 312 S.Y. Concrete
Bag Rip-Rap as Indicated
100' ARKLA PIPELINE EASEMENT
MISC. BK. 32 PG. 323
& FILM 1962 PG. 1882
IRON
U.G. SWB Cable
Remove Fence only as necessary
for project construction do not
replace.
Existing Asphalt Pvm't
Existing Bridge Structure
21ST
ST
NO
Existing Asphalt Pvm't

FIG. 2

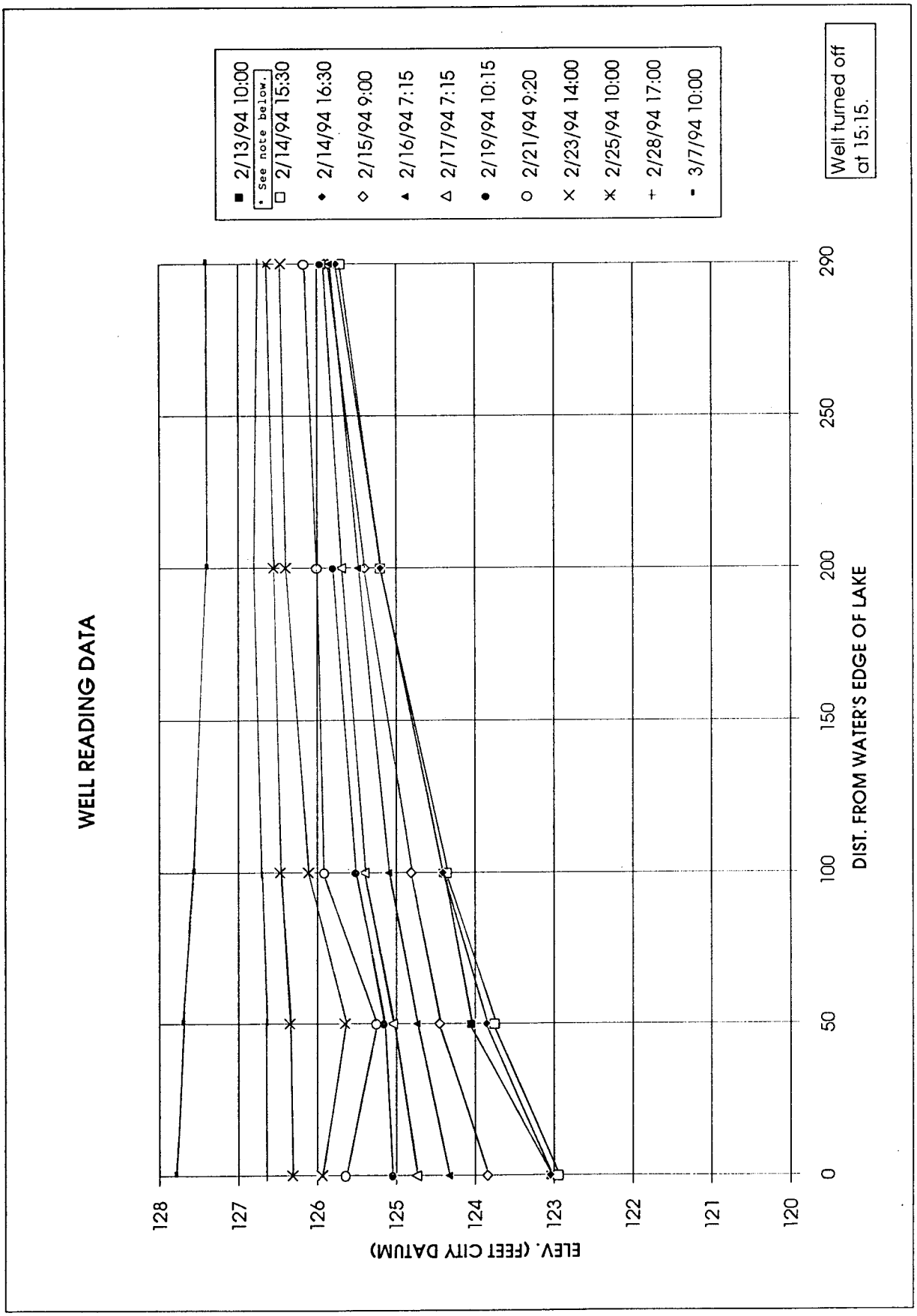
WELL READING DATA
ELEV. (FEET CITY DATUM)
DIST. FROM WATER'S EDGE OF LAKE
128
127
126
125
124
123
122
121
120
0
50
100
150
200
250
290
2/13/94 10:00
See note below.
2/14/94 15:30
2/14/94 16:30
2/15/94 9:00
2/16/94 7:15
2/17/94 7:15
2/19/94 10:15
2/21/94 9:20
2/23/94 14:00
2/25/94 10:00
2/28/94 17:00
3/7/94 10:00
Well turned off at 15:15.

FIG. 3

WELL READING DATA

	Elevation	2/13/94 10:00		2/14/94 15:30		2/14/94 16:30		2/15/94 9:00		2/16/94 7:15		2/17/94 7:15	
Boring #	Top of PVC	Depth	Elev.	Depth	Elev.	Depth	Elev.	Depth	Elev.	Depth	Elev.	Depth	Elev.
1	130.94	7.90	123.04	8.00	122.94	7.90	123.04	7.10	123.84	6.60	124.34	6.20	124.74
2	132.75	8.70	124.05	9.00	123.75	8.90	123.85	8.30	124.45	8.00	124.75	7.70	125.05
3	131.71	7.30	124.41	7.35	124.36	7.30	124.41	6.90	124.81	6.60	125.11	6.30	125.41
4	131.9	6.70	125.20	6.70	125.20	6.70	125.20	6.50	125.40	6.40	125.50	6.20	125.70
5	132.56	6.80	125.76	6.83	125.73	6.80	125.76	6.70	125.86	6.70	125.86	6.60	125.96

	Elevation	2/19/94 10:15		2/21/94 9:20		2/23/94 14:00		2/25/94 10:00		2/28/94 17:00		3/7/94 10:00	
Boring #	Top of PVC	Depth	Elev.	Depth	Elev.	Depth	Elev.	Depth	Elev.	Depth	Elev.	Depth	Elev.
1	130.94	5.90	125.04	5.30	125.64	5.00	125.94	4.63	126.31	4.30	126.64	3.15	127.79
2	132.75	7.60	125.15	7.50	125.25	7.10	125.65	6.40	126.35	6.10	126.65	5.05	127.70
3	131.71	6.20	125.51	5.80	125.91	5.60	126.11	5.24	126.47	5.00	126.71	4.15	127.56
4	131.90	6.10	125.80	5.90	126.00	5.50	126.40	5.35	126.55	5.10	126.80	4.50	127.40
5	132.56	6.60	125.96	6.40	126.16	6.10	126.46	5.92	126.64	5.80	126.76	5.15	127.41

TABLE 1