

HYDROLOGIC DATA FROM THE TAMARACK WILDLIFE AREA AND  
VICINITY, LOGAN COUNTY, COLORADO

By Alan W. Burns

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GEOLOGICAL SURVEY

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## METRIC CONVERSIONS

Inch-pound units used in this report may be converted to SI (International System) units by use of the following conversion factors:

<i>Multiply inch-pound unit</i>	<i>By</i>	<i>To obtain metric unit</i>
square mile (mi <sup>2</sup> )	2.589	square kilometer
foot (ft)	0.3048	meter
inch (in.)	2.540	centimeter

*National Geodetic Vertical Datum of 1929 (NGVD of 1929):* A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called mean sea level. NGVD of 1929 is referred to as sea level in this report.

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## ABSTRACT

Hydrologic data were collected from the Tamarack Ranch Wildlife area and vicinity near Crook, Colo., during the period September 1979 to August 1981. These data will aid in the analysis of the effects of proposed water-development projects on the hydrologic system of the wildlife area. The data collected included a reconnaissance evaluation of specific conductance, a 24-hour sampling of air and water temperature at 6 sites, and periodic measurements of water levels, temperature, and specific conductance at 57 sites.

## INTRODUCTION

The Tamarack Wildlife area near Crook, Colo., in northeastern Colorado (fig. 1) is comprised of approximately 10,000 contiguous acres traversed by the South Platte River. Owned, operated, and managed by the Colorado Division of Wildlife, Department of Natural Resources, this wildlife area provides sustained yields of resident and migratory wildlife species for sport harvest, nonconsumptive wildlife recreation, education, and research.

Recognizing the need for integrated management of the water resources of the wildlife area, the Colorado Division of Wildlife entered into a cooperative agreement with the U.S. Geological Survey in the summer of 1979 to conduct an investigation into the hydrologic relationships among the South Platte River, the sloughs in the flood plain, and the adjacent underlying aquifer system.

This report presents tabulations and graphs of the data gathered during this investigation. Interpretations of these data are being made that describe the existing hydrologic system. That description will then aid in the analysis of the effects of the proposed water-development projects on the hydrologic system thus aiding management decisions.

The assistance of Ronald Desilet and Marvin Gardner of the Colorado Division of Wildlife in the administration and field work associated with the investigation is gratefully acknowledged, as is the assistance of William Condon, who allowed the installation and monitoring of wells on his property adjacent to the wildlife area.

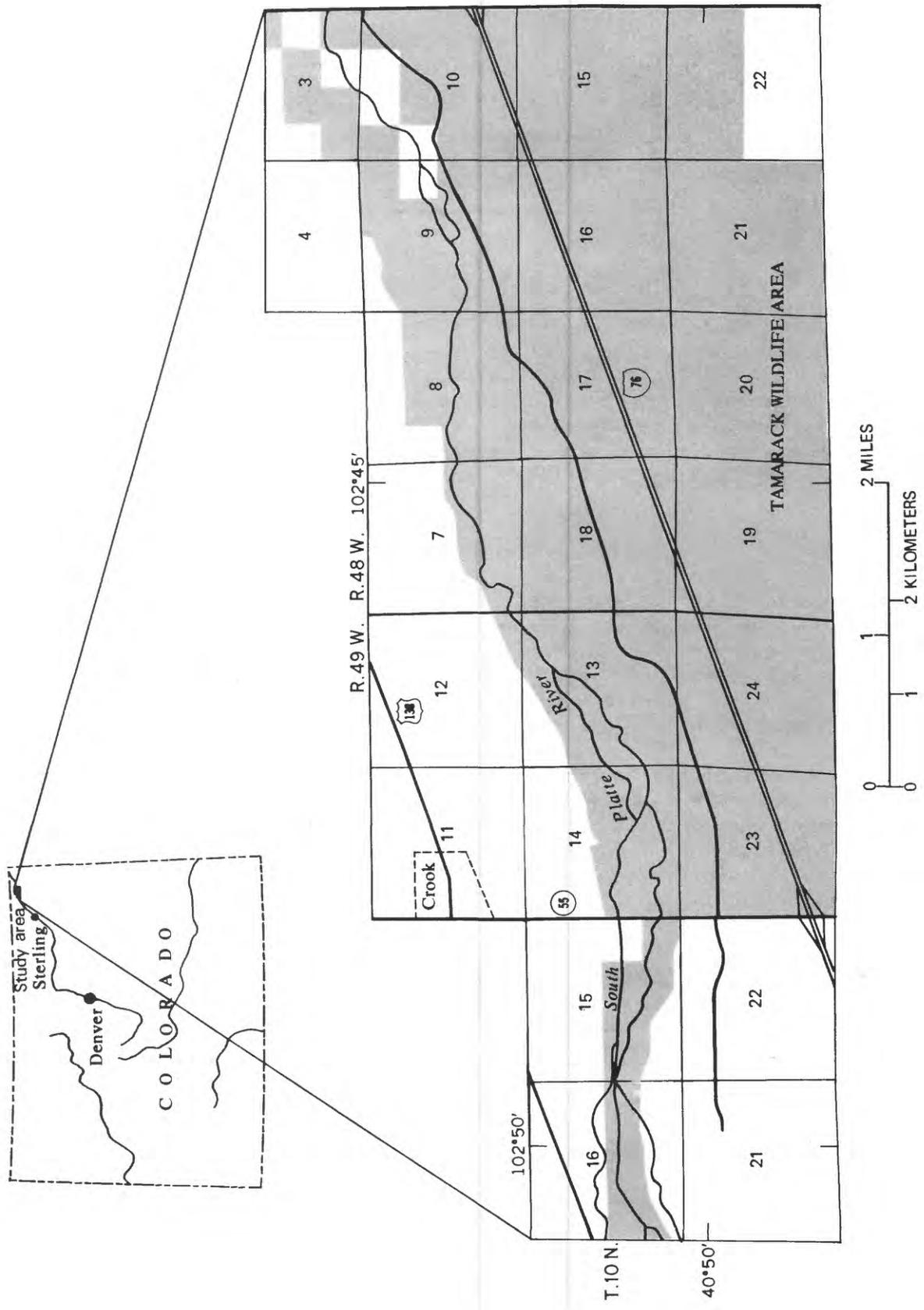


Figure 1.--Location of study area.

## HYDROLOGIC SETTING

Although the study area is quite small (about 12 mi<sup>2</sup>), there is considerable difference in physiographic setting and land use. The South Platte River was considered to form the northern boundary of this study. Except during floods, the South Platte River flows in a distinct, though extensively braided, sand channel with 5- to 10-foot steep banks.

The flood plain (or river bottom) is a low-lying area covered with grasses, cottonwood trees, and many other native riparian phreatophytes. The hydrologic conditions in the flood plain vary with the flow in the river. When flows in the river are low to moderate, the flood plain is generally dry. During high flows, much of the area becomes marshy, and during flood conditions, flowing water can be almost anywhere.

An important hydrologic characteristic of the flood plain is the secondary channel system known locally as sloughs. These sloughs are the primary hydrologic characteristic of interest to the Colorado Division of Wildlife. These sloughs reportedly contain relatively warm water during the winter months and do not freeze over even when the nearby river does. The possible impact of various water-development actions on these "warm-water" sloughs was the primary concern of this study.

On the south side of the flood plain is a relatively narrow strip of flat, grassy land defined as the valley meadow. Although slightly elevated above the flood plain, this area is still susceptible to the most extreme flood events. There are few trees on the valley meadow, except where planted by man. Hay meadows dominate this area, although the Colorado Division of Wildlife does cultivate part of this area, planting corn which remains unharvested for wildlife forage. No domesticated animals graze in the wildlife area, but the valley meadow on William Condon's property to the west is the primary winter grazing area for his cattle.

Due south of the valley meadow is an area of sand dunes. The sand dunes include highly variable topography rising as much as 100 ft above the nearby valley meadow. The numerous small peaks and depressions are covered with dry grasses and cacti typical of uncultivated and ungrazed semiarid prairies. There is no evidence of any channelization in the sandhills in this area, implying that all of the water resulting from the intense thunderstorms common to this area quickly infiltrates into the sandy soil.

## DATA COLLECTION

Data collection in the study area was separated into four major work items: (1) A reconnaissance sampling of temperature and specific conductance; (2) periodic sampling of water levels, air and water temperature, and specific conductance at 57 sites; (3) a 24-hour sampling of air and water temperature at 6 sites; and (4) an aquifer test and subsequent aquifer-recharge test.

A reconnaissance field trip was conducted early in the study to become familiar with the area, to cross-reference older topographic maps with more recent aerial photographs, and to identify the "warm-water" sloughs within the flood plain. Water temperatures taken during this September field trip showed that the term "warm-water" was a misnomer which describes only the wintertime condition of the water. During the summer, the water in the sloughs was cooler than the water flowing in the South Platte River. The water-quality indicator, which later proved useful in distinguishing surface water and ground water, and did not change very much seasonally, was specific conductance. Specific conductance is a measure of the ability of water to conduct an electric current and results primarily from the amount of dissolved ions in the water. Thus, specific conductance is a good indicator of the total dissolved solids. Plate 1 shows the specific-conductance readings taken during the September 1979 reconnaissance field trip.

Based on the findings of this reconnaissance field trip, an observation network consisting of 49 sites was established for periodic measurements of water level, water temperature, and specific conductance. During the course of the study, eight other sites were found or constructed. To supplement existing wells and bridge sites, the U.S. Geological Survey installed 17 wells, 4 staff gages, and a cantilever gage as part of this network. Plate 2 shows the locations of these 57 sites. Periodic measurements were made, generally at 4- to 6-week intervals, to determine the within-year variation of the data. The following section on "Site Descriptions and Hydrologic Data" gives brief descriptions of each site, a picture of the site, a hydrograph of water levels, and a table of the data periodically collected.

During collection of this periodic data, a few streamflow-discharge measurements were made at the surface-water sites noted in the tables in this section on "Site Descriptions and Hydrologic Data." Depth and velocity measurements were made along a cross section of the stream channel to determine stream discharge. The variability with time of the sandy bottom of the main channel of the South Platte River was determined during these discharge measurements. Measurements of the water surface and channel bottom prior to, during, and after the flood conditions of May and June 1980 are shown in figure 2.

Water and air temperatures vary not only seasonally, but also diurnally; therefore, a 24-hour sampling of six sites was conducted on July 22-23, 1980. These dates were specifically chosen because, on the average, the highest water temperature in the South Platte River can be expected to occur near this time (T. D. Steele, 1978, "A Simple-Harmonic Model for Depicting the Annual Cycle of Seasonal Temperature of Streams": U.S. Geological Survey Open-File Report 78-155, 20 p.). The results of this 24-hour sampling are shown in figure 3.

The data collected during the aquifer test of Tamarack Well 6 (site 24) and the subsequent aquifer-recharge test are not in this report, but will be presented along with their interpretation separately.

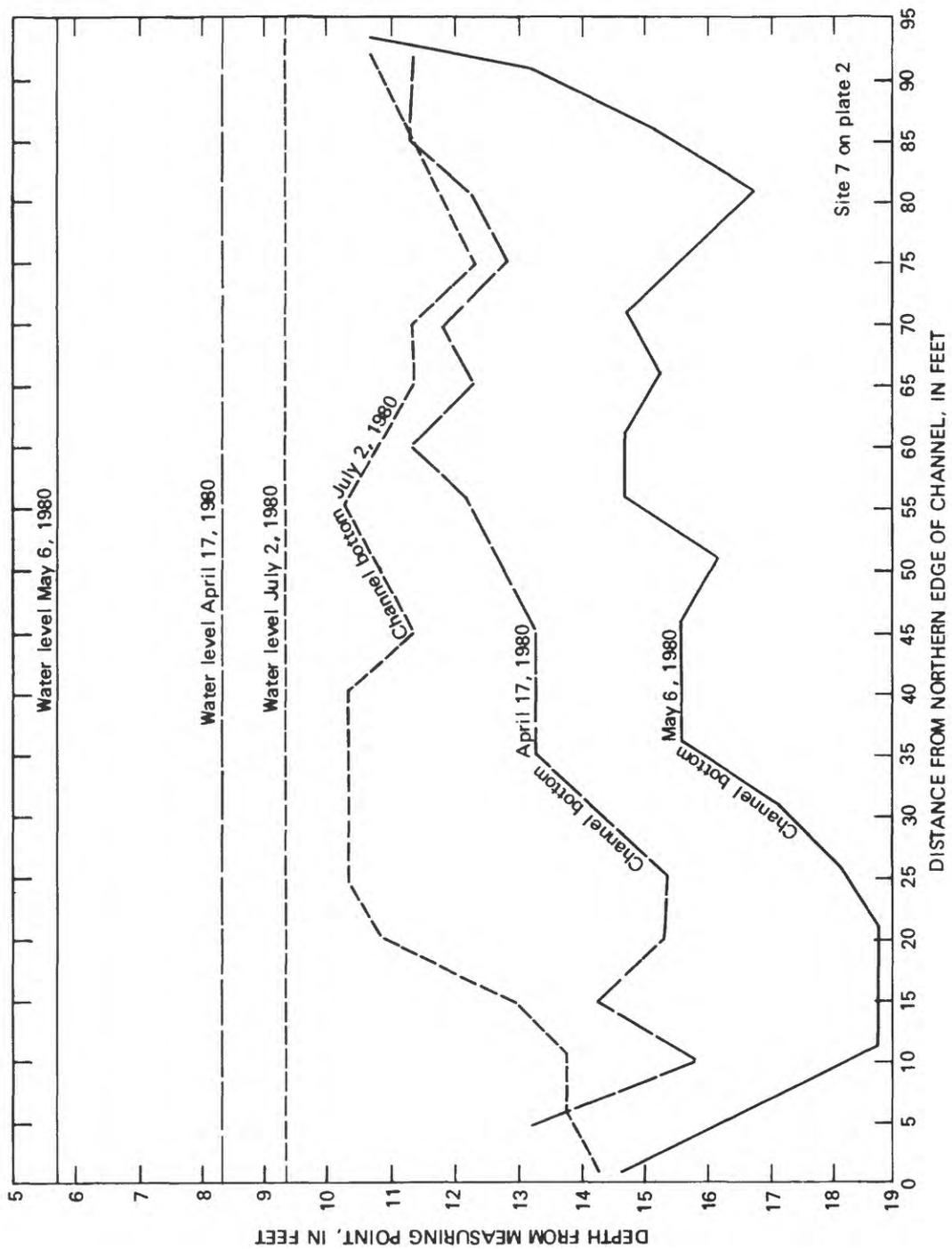


Figure 2.-- Section across the South Platte River showing changes in the water level and configuration of the main channel.

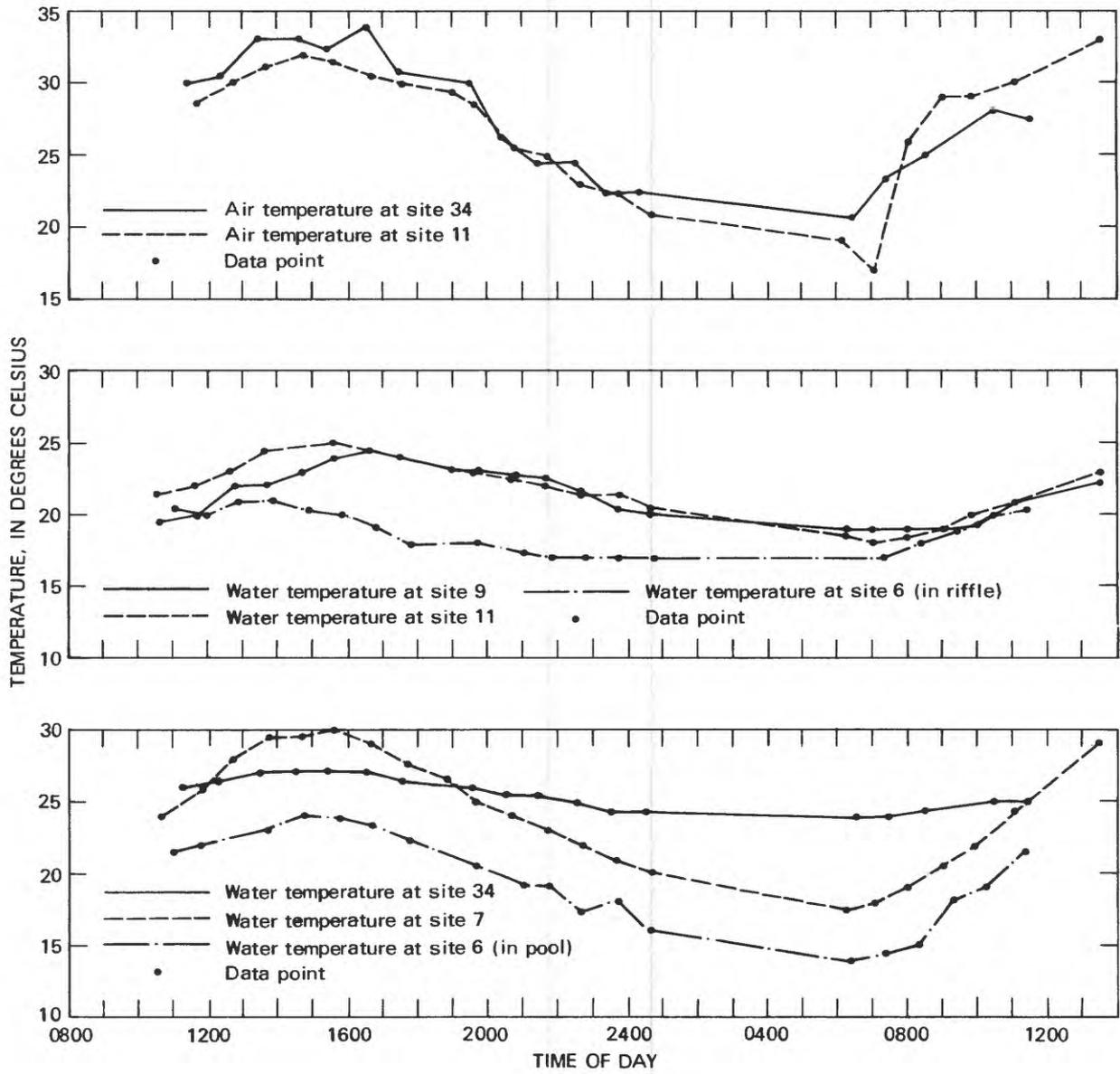


Figure 3.-- Temperatures on July 22-23, 1980.

SITE DESCRIPTIONS  
AND  
HYDROLOGIC DATA

### Explanation of Table Headings

- ALTITUDE is the elevation, in feet, of the measuring point (NGVD of 1929) as surveyed by personnel of the Colorado Division of Wildlife.
- DEPTH TO WATER is the depth below the measuring point, in feet.
- DEPTH OF WATER is the elevation, in feet, on a staff or cantilever gage relative to the surveyed altitude.
- DISCHARGE (of wells) is the flow rate of a production well, in gallons per minute.
- DISCHARGE (of river or slough) is the rate of streamflow, in cubic feet per second.
- FLOW METER is the cumulative flow from a production well, in acre-feet.
- POWER METER is the cumulative electricity used to power a production well, in kilowatt-hours.
- AIR TEMP is the ambient air temperature, in degrees Celsius.
- WATER TEMP or WATER TEMPERATURE is the ambient water temperature, in degrees Celsius.
- SPECIFIC COND or SPECIFIC CONDUCTANCE is a water-quality measure taken in the field with a conductivity meter, in micromhos per square centimeter at 25° Celsius.

### Explanation of Site Descriptions and Remarks in Tables

LOCAL WELL NUMBER is the U.S. Bureau of Land Management's land subdivision system (fig. 4), used to locate and number wells. The first character is an S, which indicates that the well is located in the area covered by the Sixth Principal Meridian. The next letter denotes the quadrant formed by the intersection of the base line (parallel) with the principal meridian. The quadrants are designated A, B, C, or D in a counterclockwise manner with the northeast quadrant being A. That letter is B for all wells in this report, and thus the SB has not been included in the text. The first two numbers designate the township, the next two designate the range, and the last two designate the section. Each section is then divided into quarters designated A, B, C, or D in a counterclockwise rotation, with the northeast quarter being A. This is done again for the quarter-quarter section and the quarter-quarter-quarter section. The three letters following the number designation of township, range, and section indicate the well's position first in the quarter section, then in the quarter-quarter section, and then in the quarter-quarter-quarter section. The final number is the order in which the well in the designated quarter-quarter-quarter section was inventoried. A well numbered 10-48-17BAA1 would be the first one located in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 17, T. 10 N, R. 48 W.

- MP - The measuring point (MP) is a reference point from which depth to the water surface is measured.
- D/W - depth-to-water.
- WT - water temperature.
- SC - specific conductance.
- WL - water level.

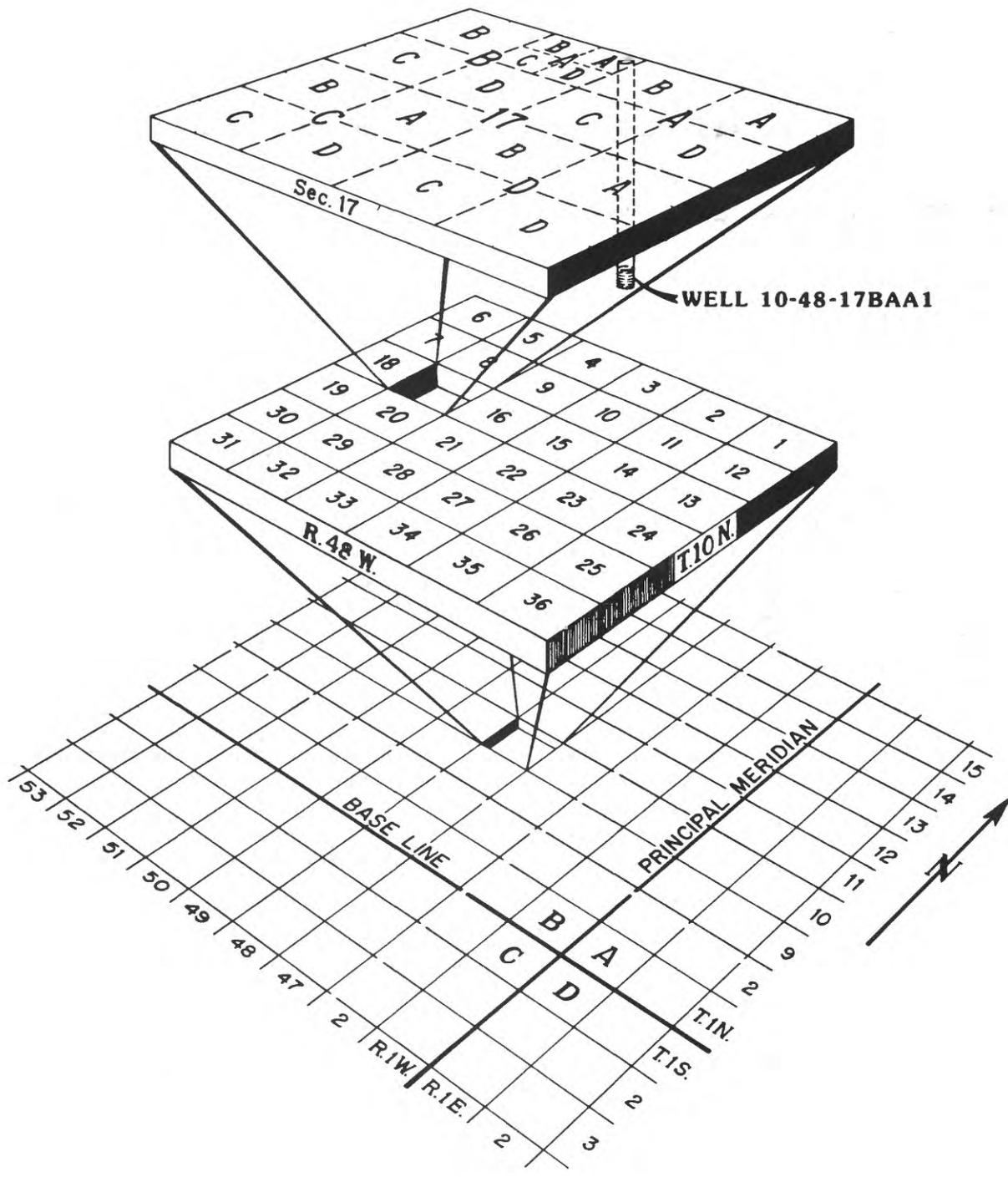


Figure 4.-- Diagram showing system of locating and numbering wells.

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 1

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS WELL

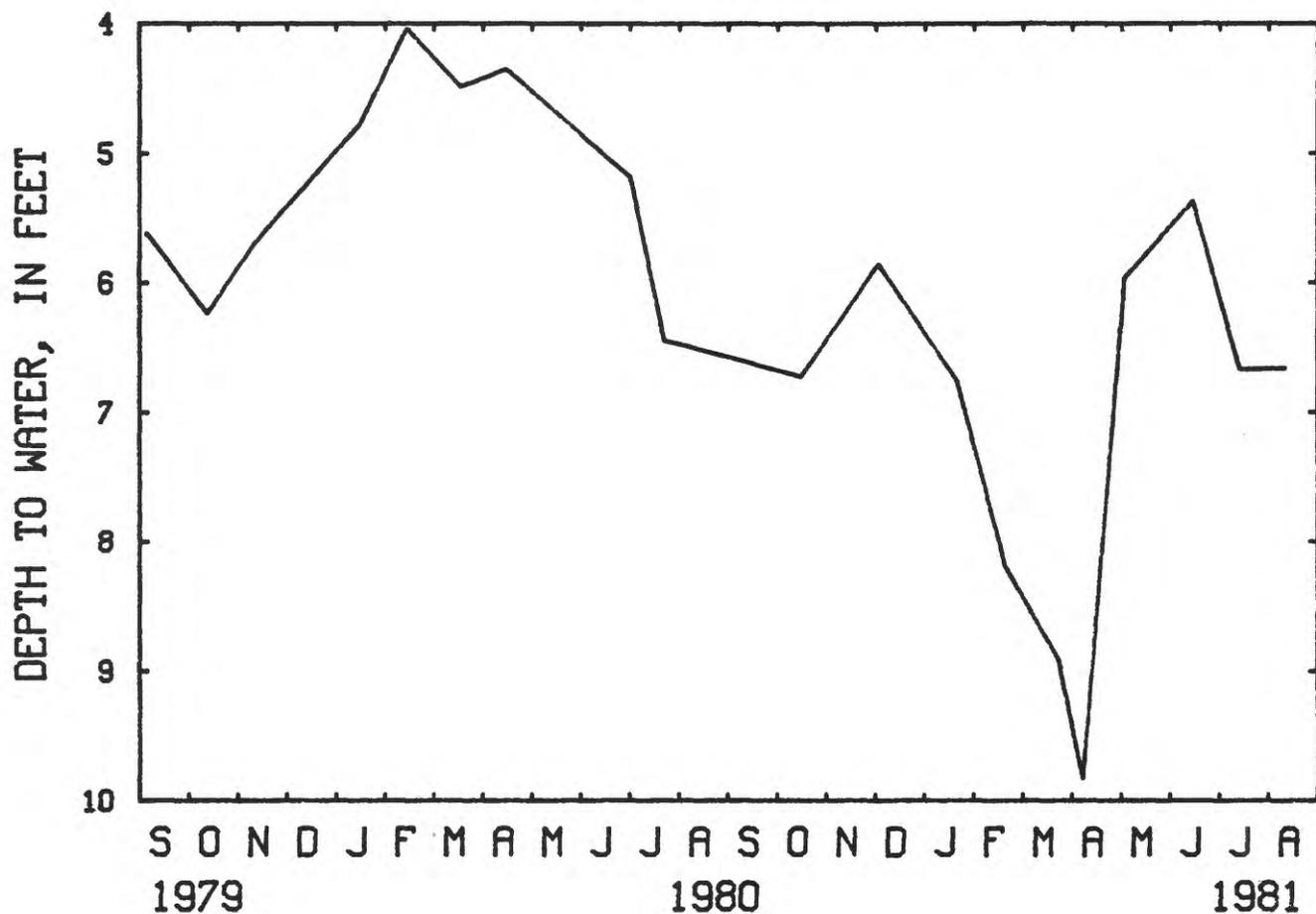
ALTITUDE = 3715.97

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1967 BY THE USGS TO A DEPTH OF 57 FEET. A 13 FOOT PIPE WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ALONG THE WILDLIFE AREA ACCESS ROAD ABOUT ONE FOOT SOUTH OF THE FENCE WHERE THE FENCE BEGINS TO PARALLEL THE ROAD. THE LOCAL WELL NUMBER IS 10-49-15 CCB. THE MP IS THE TOP OF WELL CASING.



# SITE 1



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	5	79	5.63	*****	*****	*****	18.0	850.	WATER WAS BLACK
10	12	79	6.24	*****	*****	*****	***	*****	
11	10	79	5.70	*****	*****	*****	14.0	1000.	
12	17	79	5.18	*****	*****	*****	9.5	1050.	
1	15	80	4.77	*****	*****	*****	8.0	1000.	WATER WAS BLACK
2	13	80	4.04	*****	*****	*****	6.5	1100.	
3	18	80	4.49	*****	*****	*****	7.0	1300.	
4	15	80	4.35	*****	*****	*****	8.0	1360.	
7	1	80	5.19	*****	*****	*****	20.0	1210.	
7	22	80	6.45	*****	*****	*****	15.0	1600.	WATER WAS BLACK
9	4	80	6.59	*****	*****	*****	16.5	1450.	
10	15	80	6.73	*****	*****	*****	***	*****	
12	2	80	5.86	*****	*****	*****	11.0	1300.	
1	20	81	6.77	*****	*****	*****	9.0	1350.	CONDON'S AUGMENTATION WELL NEARBY
2	19	81	8.20	*****	*****	*****	10.0	1590.	WATER WAS BLACK
3	24	81	8.92	*****	*****	*****	9.0	1200.	
4	8	81	9.83	*****	*****	*****	***	*****	
5	4	81	5.96	*****	*****	*****	11.5	1160.	WATER WAS BLACK
6	15	81	5.37	*****	*****	*****	15.5	1100.	WATER WAS BLACK
7	13	81	6.67	*****	*****	*****	18.0	1000.	WATER WAS BLACK
8	11	81	6.66	*****	*****	*****	***	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 2

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS WELL

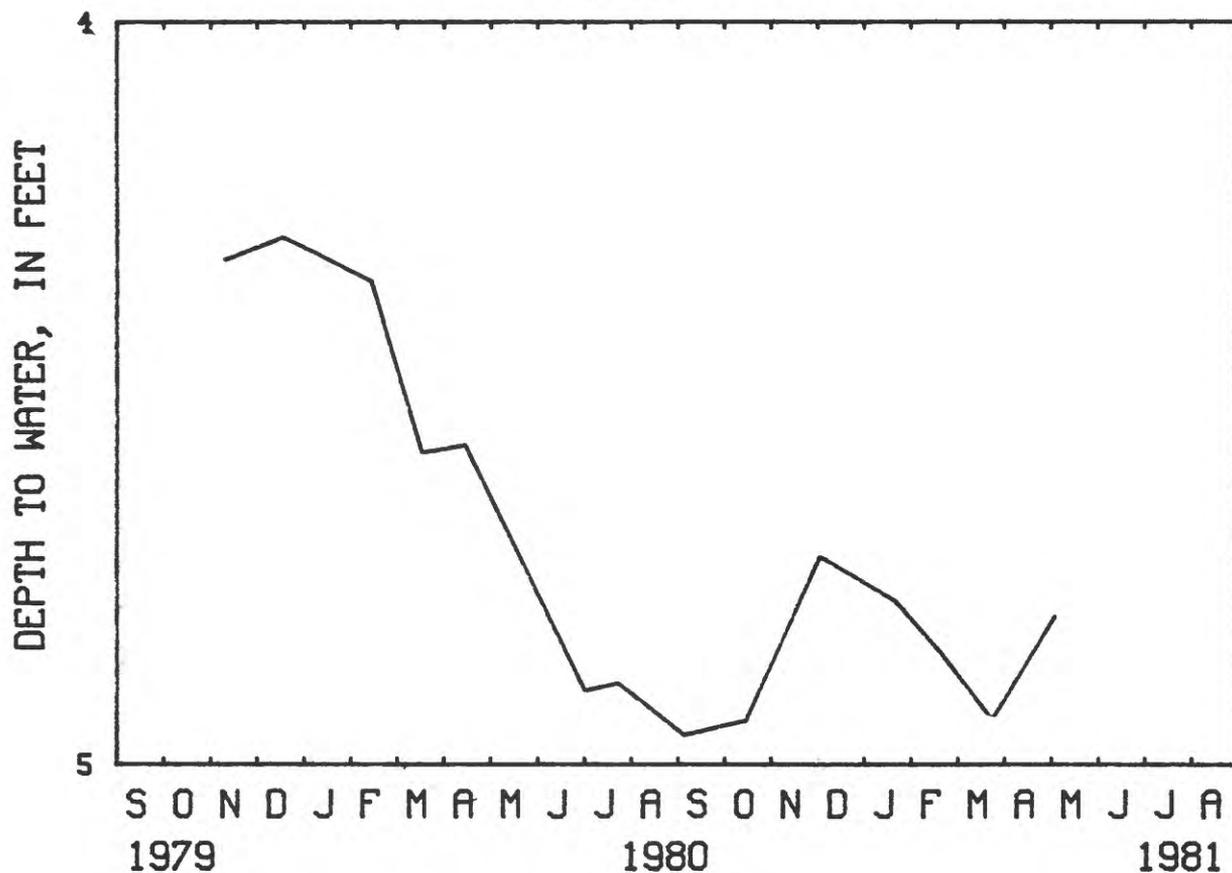
ALTITUDE = 3713.65

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1979 BY THE USGS TO A DEPTH OF 10 FEET. A 4 FOOT PIPE CONNECTED TO A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 25 FEET SOUTH OF THE POOL WHICH IS THE SLOUGH ORIGIN. THE LOCAL WELL NUMBER IS 10-49-15 CDA1. THE MP IS A CAP ON THE WELL AND MEASUREMENT IS MADE THROUGH THE HOLE IN THE CAP.



# SITE 2



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	10	79	4.32	*****	*****	*****	****	*****	
12	17	79	4.29	*****	*****	*****	9.5	520.	
1	15	80	4.32	*****	*****	*****	9.0	520.	
2	13	80	4.35	*****	*****	*****	7.5	610.	
3	18	80	4.58	*****	*****	*****	9.0	600.	
4	15	80	4.57	*****	*****	*****	8.5	560.	
5	7	80	*****	*****	*****	*****	****	*****	
7	1	80	4.90	*****	*****	*****	14.5	740.	
7	22	80	4.89	*****	*****	*****	15.0	700.	
9	4	80	4.96	*****	*****	*****	16.0	370.	
10	15	80	4.94	*****	*****	*****	15.0	570.	
12	2	80	4.72	*****	*****	*****	11.0	570.	
1	20	81	4.78	*****	*****	*****	11.0	640.	
2	19	81	4.85	*****	*****	*****	12.0	645.	
3	24	81	4.94	*****	*****	*****	9.5	640.	
5	4	81	4.80	*****	*****	*****	13.0	595.	

FLOODING RIVER WAS 0.39 FEET ABOVE MP

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 3

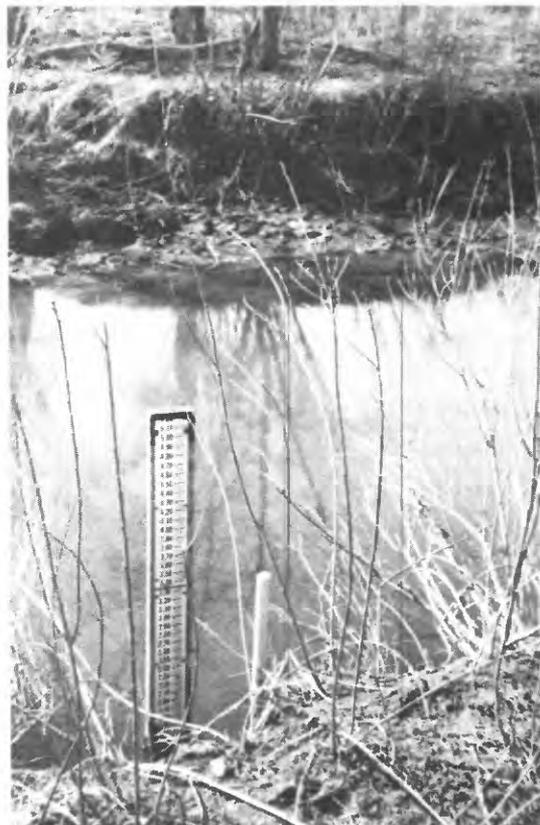
SITE SETTING IS RIVER BOTTOM

SITE TYPE IS WELL

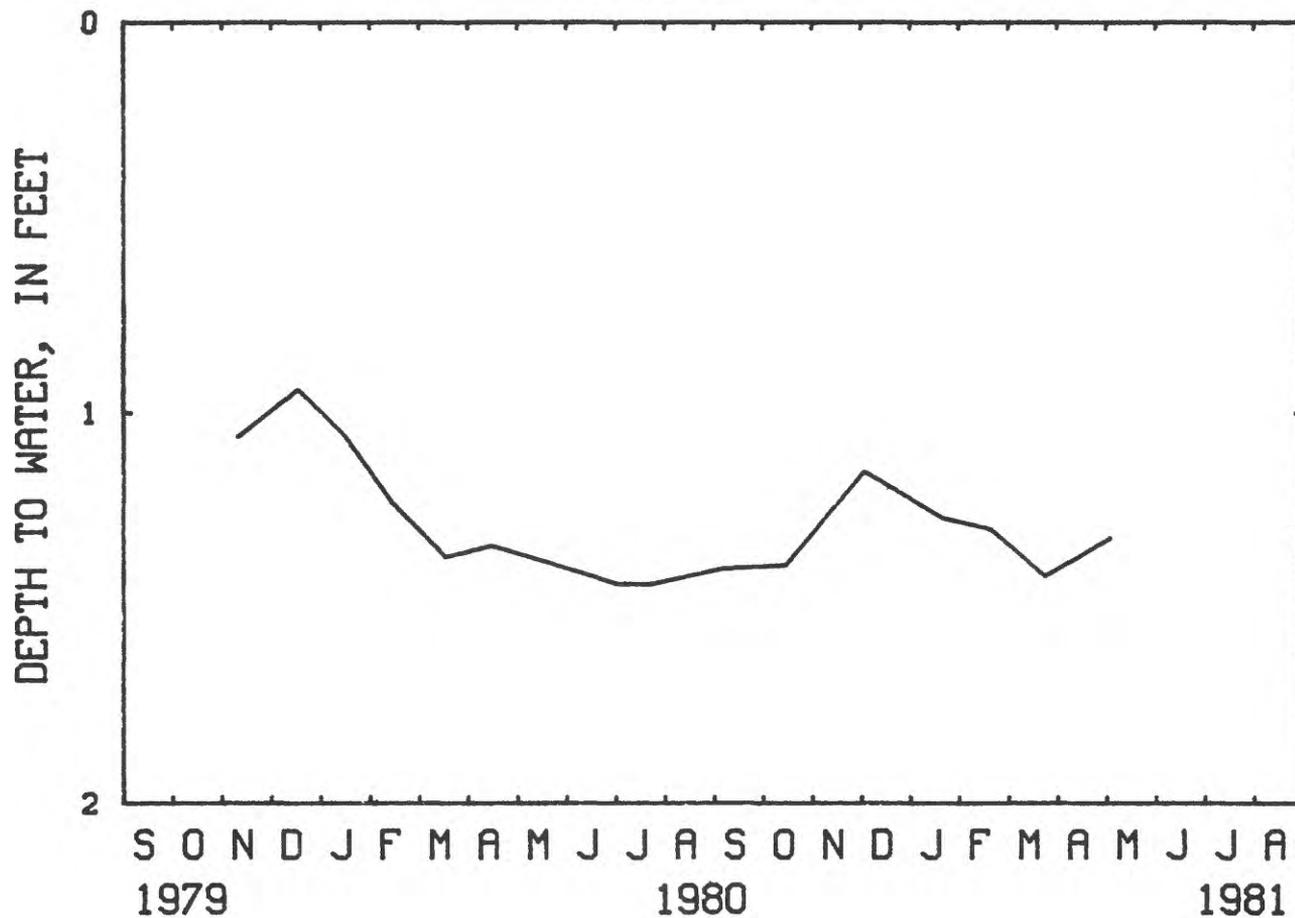
ALTITUDE = 3710.09

SITE DESCRIPTION AND LOCATION

A 7 FOOT SECTION OF PVC PIPE WITH HOLES DRILLED IN THE BOTTOM FEW INCHES WAS DRIVEN INTO THE BOTTOM SEDIMENTS OF THE POOL WHICH IS THE SLOUGH ORIGIN BY THE USGS IN 1979. THE LOCAL WELL NUMBER IS 10-49-15 CDA2. THE MP IS THE TOP OF CASING AT ITS HIGHEST POINT ON THE WEST SIDE.



# SITE 3



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	10	79	1.06	*****	*****	*****	****	*****	
12	17	79	.94	*****	*****	*****	****	*****	
1	15	80	1.06	*****	*****	*****	****	*****	
2	13	80	1.23	*****	*****	*****	****	*****	
3	18	80	1.37	*****	*****	*****	****	*****	
4	15	80	1.34	*****	*****	*****	****	*****	
7	1	80	1.44	*****	*****	*****	****	*****	
7	22	80	1.44	*****	*****	*****	****	*****	
9	4	80	1.40	*****	*****	*****	****	*****	
10	15	80	1.39	*****	*****	*****	****	*****	
12	2	80	1.15	*****	*****	*****	****	*****	
1	20	81	1.27	*****	*****	*****	****	*****	
2	19	81	1.30	*****	*****	*****	****	*****	
3	24	81	1.42	*****	*****	*****	****	*****	
5	4	81	1.32	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 4

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS WELL

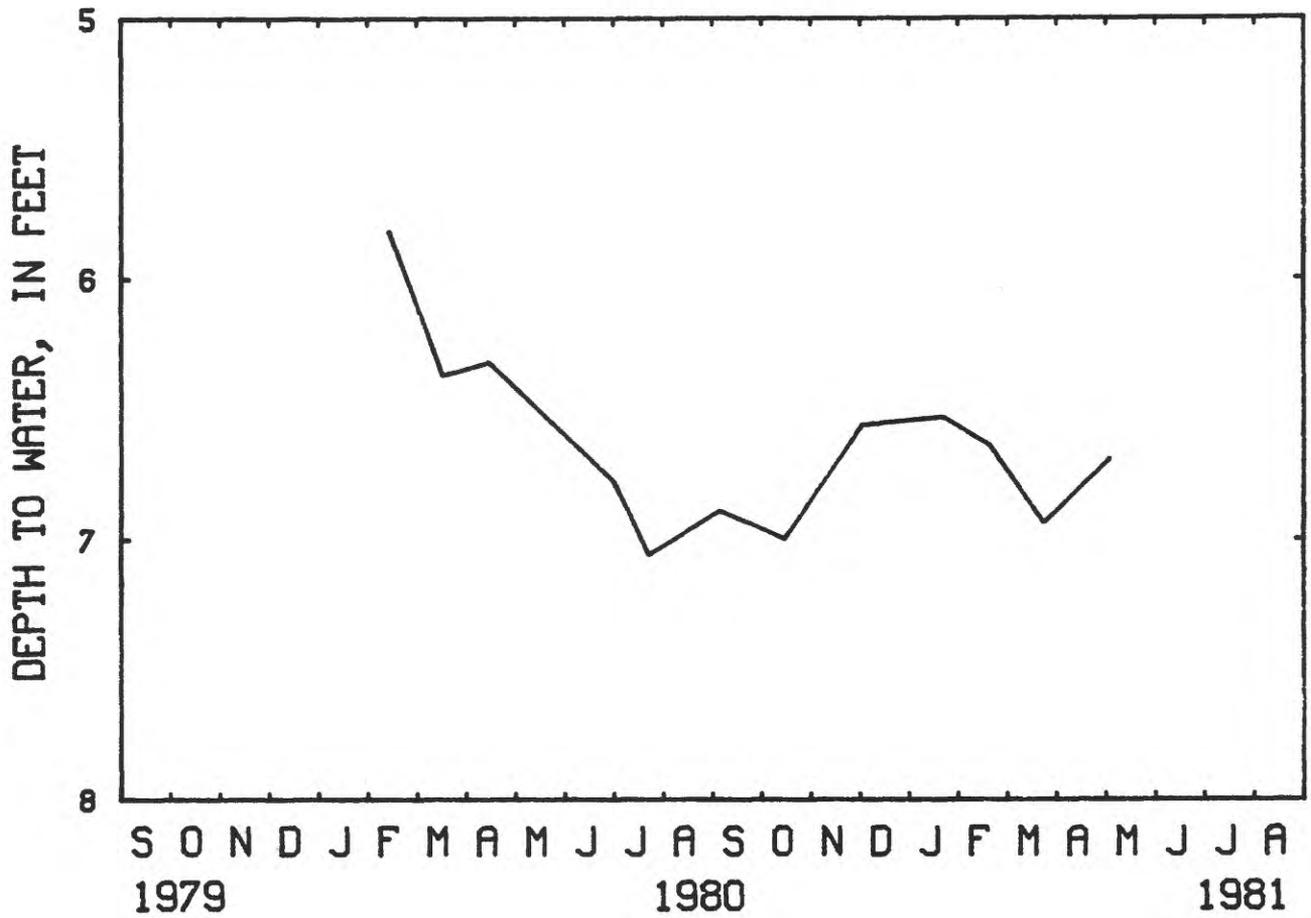
ALTITUDE = 3715.97

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1980 BY THE USGS TO A DEPTH OF 15 FEET. A 7 FOOT PIPE CONNECTED TO A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 70 FEET NORTHNORTHWEST OF THE POOL WHICH IS THE SLOUGH ORIGIN. THE LOCAL WELL NUMBER IS 10-49-15 CDA3. THE MP IS THE TOP OF CASING AT ITS LOWEST POINT ON THE WEST SIDE.



# SITE 4



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
2	13	80	5.82	*****	*****	*****	8.0	1150.	
3	18	80	6.37	*****	*****	*****	10.0	1300.	
4	15	80	6.32	*****	*****	*****	8.0	1400.	
7	1	80	6.78	*****	*****	*****	22.0	800.	
7	22	80	7.06	*****	*****	*****	18.5	880.	
9	4	80	6.89	*****	*****	*****	17.0	1010.	
10	15	80	7.00	*****	*****	*****	15.0	1140.	
12	2	80	6.56	*****	*****	*****	11.0	1200.	
1	20	81	6.53	*****	*****	*****	10.0	1270.	
2	19	81	6.64	*****	*****	*****	9.5	1350.	
3	24	81	6.94	*****	*****	*****	9.5	1265.	
5	4	81	6.69	*****	*****	*****	13.5	1310.	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 5

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS WELL

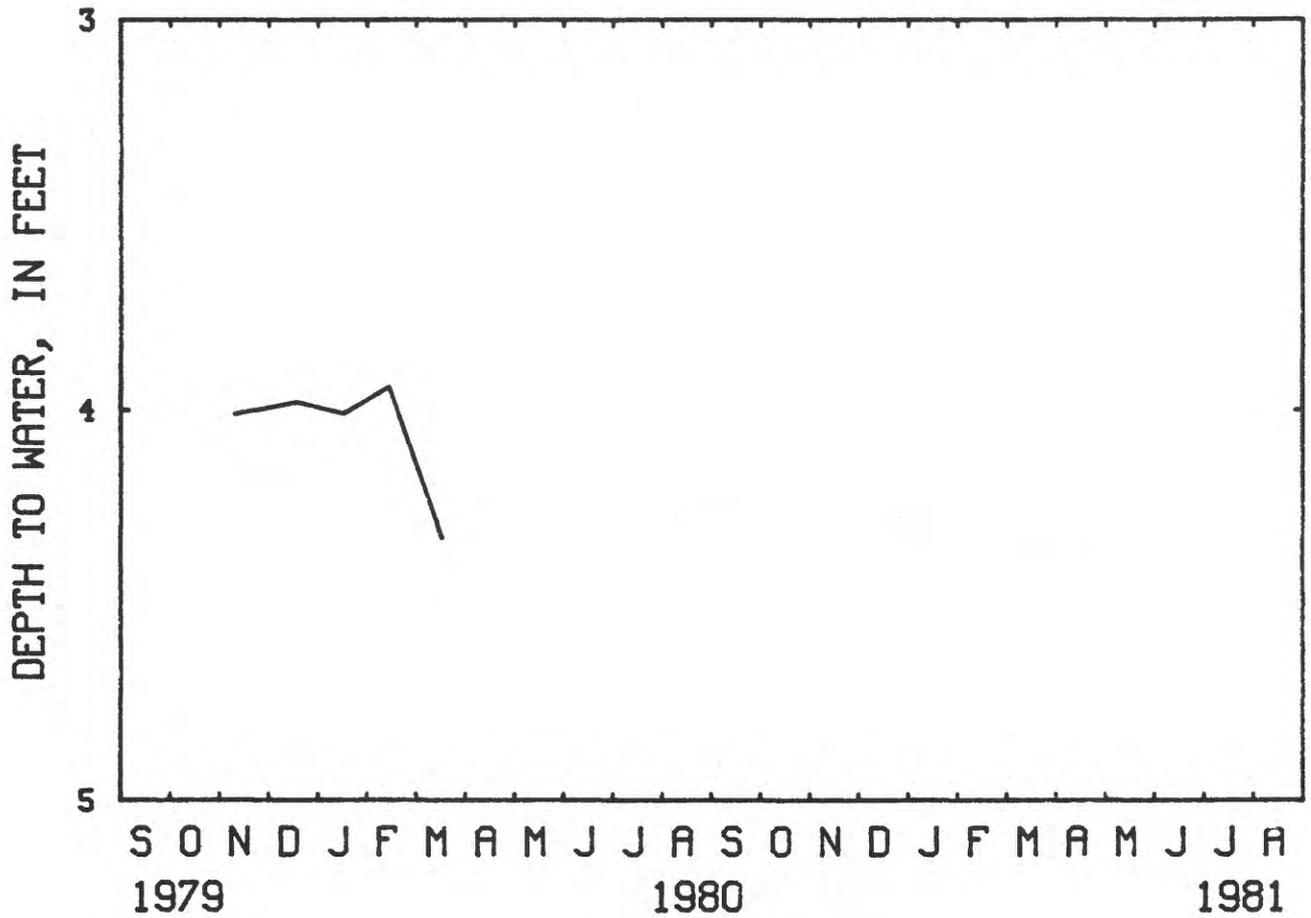
ALTITUDE =\*\*\*\*\*

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1979 BY THE USGS TO A DEPTH OF 10 FEET. A 3 FOOT PIPE CONNECTED TO A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 100 FEET NORTHEAST OF THE POOL WHICH IS THE SLOUGH ORIGIN. THE LOCAL WELL NUMBER IS 10-49-15 CDA4. THE MP IS THE TOP OF CASING ON THE EAST SIDE.



# SITE 5



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	10	79	4.01	*****	*****	*****	****	*****	
12	17	79	3.98	*****	*****	*****	****	*****	
1	15	80	4.01	*****	*****	*****	****	*****	
2	13	80	3.94	*****	*****	*****	****	*****	
3	18	80	4.33	*****	*****	*****	****	*****	
4	15	80	*****	*****	*****	*****	****	*****	WELL DESTROYED

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 6

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS SLOUGH

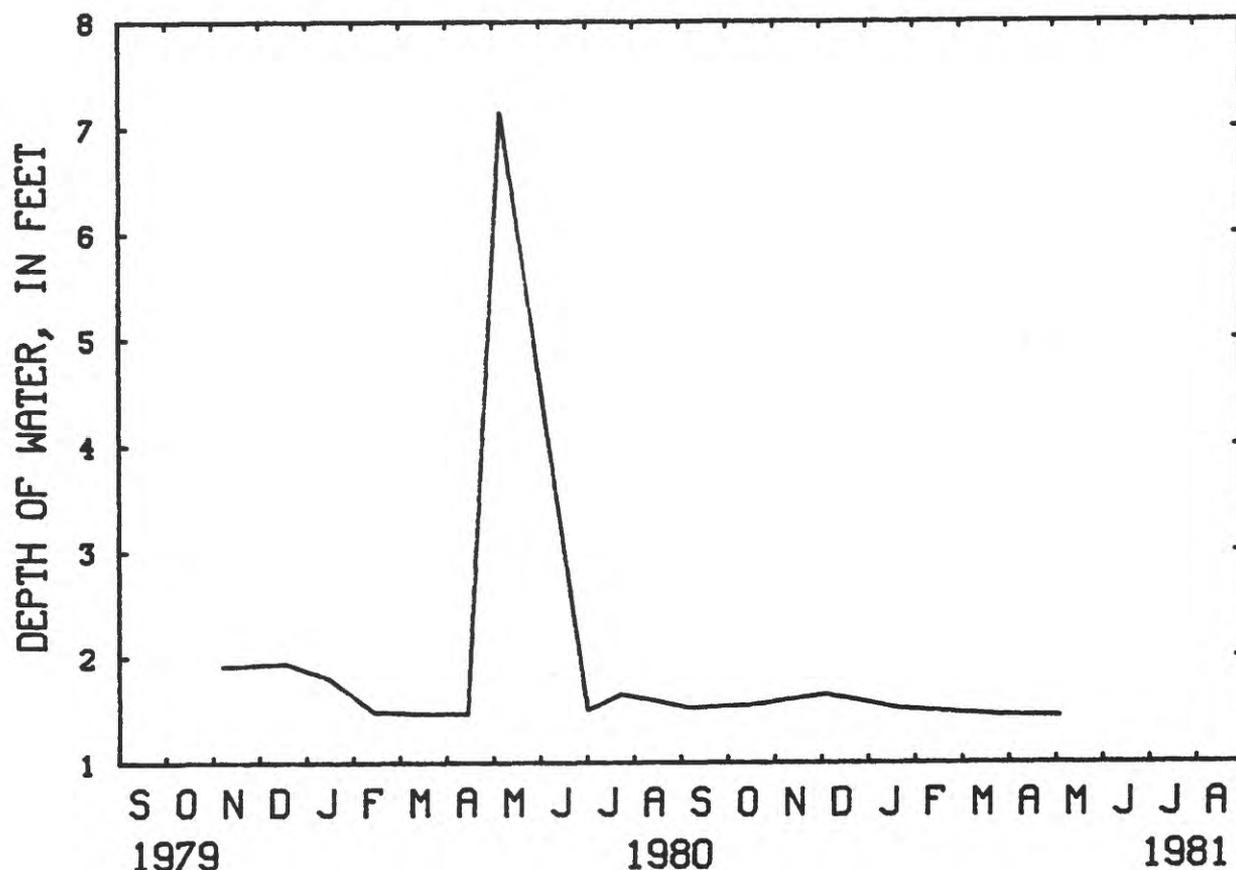
ALTITUDE = 3706.89

SITE DESCRIPTION AND LOCATION

A STAFF GAGE WAS INSTALLED BY THE USGS IN 1979 IN THE POOL WHICH IS THE SLOUGH ORIGIN. DISCHARGE, TEMPERATURE, AND SPECIFIC CONDUCTANCE ARE MEASURED IN RIFFLE AREAS ABOVE OR BELOW THE POOL.



# SITE 6



MONTH	DAY	YEAR	TIME	DEPTH OF WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC CONU	REMARKS
7	23	79	1300	*****	*****	*****	*****	*****	****	19.5	*****	
9	4	79	1515	*****	*****	*****	*****	*****	23.5	17.5	750.	
9	5	79	930	*****	*****	*****	*****	*****	****	15.0	800.	
10	12	79	1500	*****	*****	*****	*****	*****	****	14.5	840.	POOL COVERED WITH ALGAE
10	29	79	1635	*****	*****	*****	*****	*****	****	12.5	*****	
11	7	79	1520	1.91	*****	*****	*****	*****	****	13.0	750.	
11	14	79	1500	*****	*****	*****	*****	*****	****	12.0	700.	
12	17	79	1205	1.94	*****	*****	*****	*****	****	11.0	770.	
1	15	80	1320	1.79	*****	*****	*****	*****	****	13.0	810.	
2	13	80	1150	1.48	*****	*****	*****	*****	****	3.0	9.0	1080.
3	18	80	945	1.46	*****	*****	*****	*****	****	9.0	1000.	
4	15	80	1405	1.46	*****	*****	*****	.28	21.0	10.5	750.	
5	7	80	730	7.15	*****	*****	*****	*****	****	15.0	710.	FLOODING RIVER IN SLOUGH
7	1	80	1140	1.50	*****	*****	*****	*****	****	26.0	17.0	1100.
7	22	80	1405	1.65	*****	*****	*****	*****	****	23.0	1000.	
9	4	80	1130	1.52	*****	*****	*****	*****	****	17.0	1100.	
10	15	80	1350	1.55	*****	*****	*****	*****	****	20.0	15.0	1080.
12	2	80	925	1.65	*****	*****	*****	*****	****	4.0	9.5	1050.
1	20	81	1255	1.51	*****	*****	*****	*****	****	10.5	1100.	
2	19	81	1155	1.48	*****	*****	*****	*****	****	23.5	10.5	1320.
3	24	81	1445	1.45	*****	*****	*****	*****	****	7.0	1250.	
5	4	81	1330	1.44	*****	*****	*****	*****	****	13.5	11.5	1275.

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 7

SITE SETTING IS RIVER BOTTOM

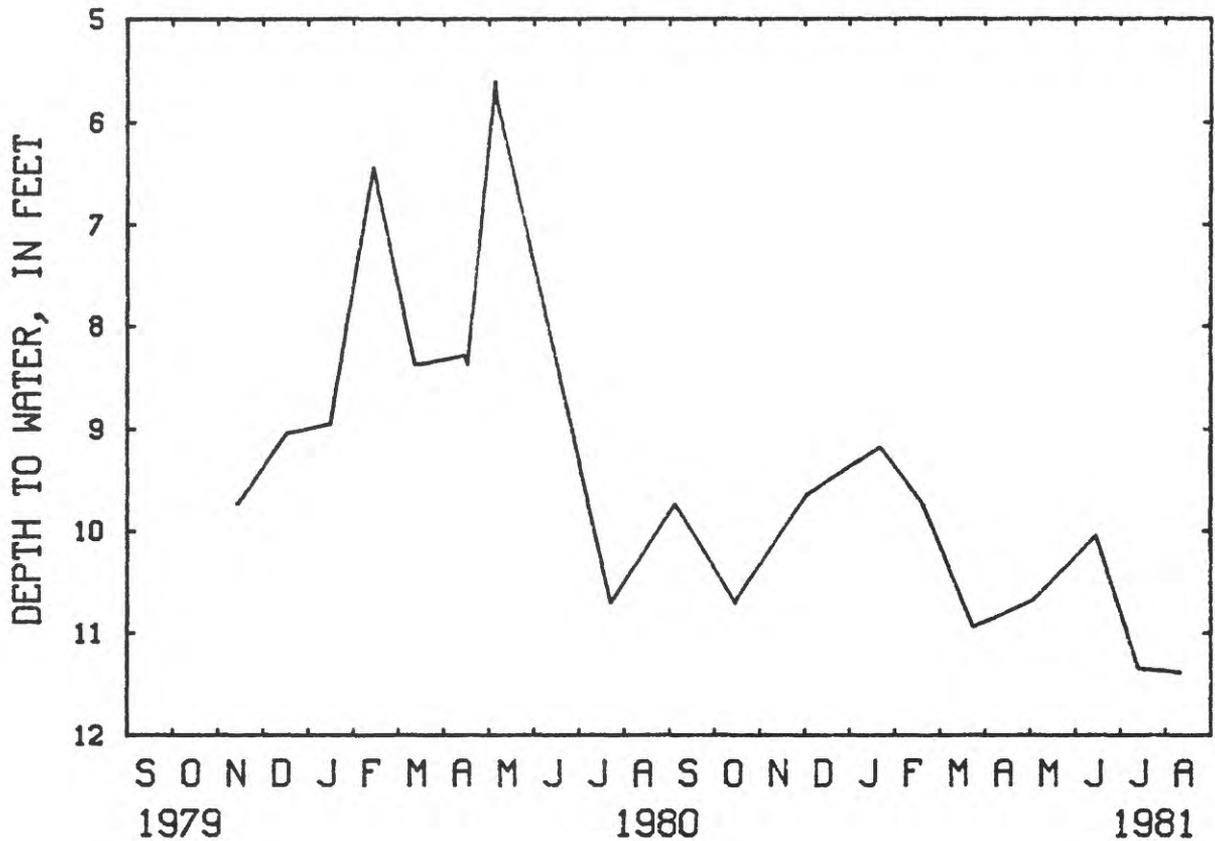
SITE TYPE IS RIVER

ALTITUDE = 3712.61

SITE DESCRIPTION AND LOCATION

SECOND CHANNEL (FROM THE NORTH, 4TH FROM THE SOUTH) OF THE SOUTH PLATTE RIVER AT THE CROOK BRIDGE. IT IS THE MAIN CHANNEL OF THE RIVER (AT LEAST AT LOWER FLOWS) THERE ARE 3 MP'S TO MEASURE WATER LEVELS - S1 (LABELED BR4,F3) IS ON THE 2ND RAIL POST FROM THE SOUTH, S2 (LABELED BR4,F2) ON THE 6TH RAIL POST, AND S3 (LABELED BR4,F1) ON THE 14TH RAIL POST.





MONTH	DAY	YEAR	TIME	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
7	23	79	1300	*****	*****	*****	*****	*****	****	28.5	*****	
9	4	79	1445	*****	*****	*****	*****	*****	25.0	26.0	1550.	
9	4	79	1910	*****	*****	*****	*****	*****	***	25.5	1700.	
9	5	79	955	*****	*****	*****	*****	*****	****	20.5	1750.	
9	5	79	1900	*****	*****	*****	*****	*****	****	21.0	24.0	1750.
9	6	79	830	*****	*****	*****	*****	*****	****	18.0	1750.	
9	7	79	800	*****	*****	*****	*****	*****	20.0	18.5	1800.	
9	26	79	1835	*****	*****	*****	*****	*****	****	21.0	1900.	
10	11	79	1825	*****	*****	*****	*****	*****	16.5	17.5	2000.	DISSOLVED OXYGEN = 12.4
10	29	79	1620	*****	*****	*****	*****	*****	7.5	9.5	*****	
10	30	79	1030	*****	*****	*****	*****	*****	2.0	4.5	1700.	
11	9	79	1200	*****	*****	*****	*****	*****	****	6.0	1650.	
11	14	79	1330	9.73	9.68	9.72	9.80	*****	12.5	5.5	1700.	
12	17	79	1135	9.04	9.00	9.06	9.05	*****	7.0	.0	920.	FLOWING BUT FULL OF ICE
1	15	80	1150	8.95	8.95	8.98	8.91	*****	10.5	2.5	1500.	
2	13	80	1055	6.44	*****	*****	6.44	*****	1.5	.0	1520.	SOLID ICE EXCEPT FOR SMALL AREA ON NORTH
3	13	80	1300	8.38	8.34	8.38	8.42	*****	11.0	6.0	1600.	
4	15	80	1100	8.28	8.24	8.30	8.31	*****	23.0	10.5	1500.	
4	17	80	1150	8.38	8.32	8.42	8.40	1490.00	****	****	*****	
5	6	80	1035	5.60	5.59	5.58	5.63	*****	22.0	16.5	700.	
5	7	80	1645	5.79	5.81	5.76	5.60	4080.00	****	****	*****	
7	1	80	1045	9.33	9.29	9.33	9.36	*****	25.0	21.5	1270.	
7	2	80	1320	9.42	9.38	9.39	9.49	546.00	****	****	*****	
7	22	80	1610	10.71	10.64	*****	10.77	*****	32.5	30.0	1600.	
9	4	80	1045	9.74	9.70	9.71	9.80	*****	24.0	18.0	1700.	
10	15	80	1255	10.72	10.68	10.75	*****	*****	20.5	17.0	1825.	
10	15	80	1630	10.64	10.65	10.71	*****	*****	11.0	14.5	1690.	SAMPLE TAKEN FOLLOWING RAIN AND MAIL RIVER IS SLUSHY ICE
12	2	80	735	9.63	9.60	9.64	9.66	*****	12.0	.0	1700.	SHORE ICE+ LITTLE FLOATING SNOW
1	20	81	1040	9.18	9.22	9.19	9.12	*****	.0	.5	1560.	
2	19	81	1030	9.76	9.74	9.75	9.78	*****	16.0	6.5	1675.	
3	24	81	1545	10.94	*****	10.94	10.94	*****	12.0	8.5	1680.	
5	4	81	1145	10.67	10.74	10.52	10.76	*****	13.0	13.5	1740.	
6	15	81	1315	10.44	10.01	10.01	10.11	*****	25.0	19.0	1500.	
7	13	81	1415	11.36	11.36	11.33	*****	*****	33.5	33.0	1530.	
8	11	81	1045	11.39	11.39	*****	*****	*****	23.0	24.0	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 8

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS WELL

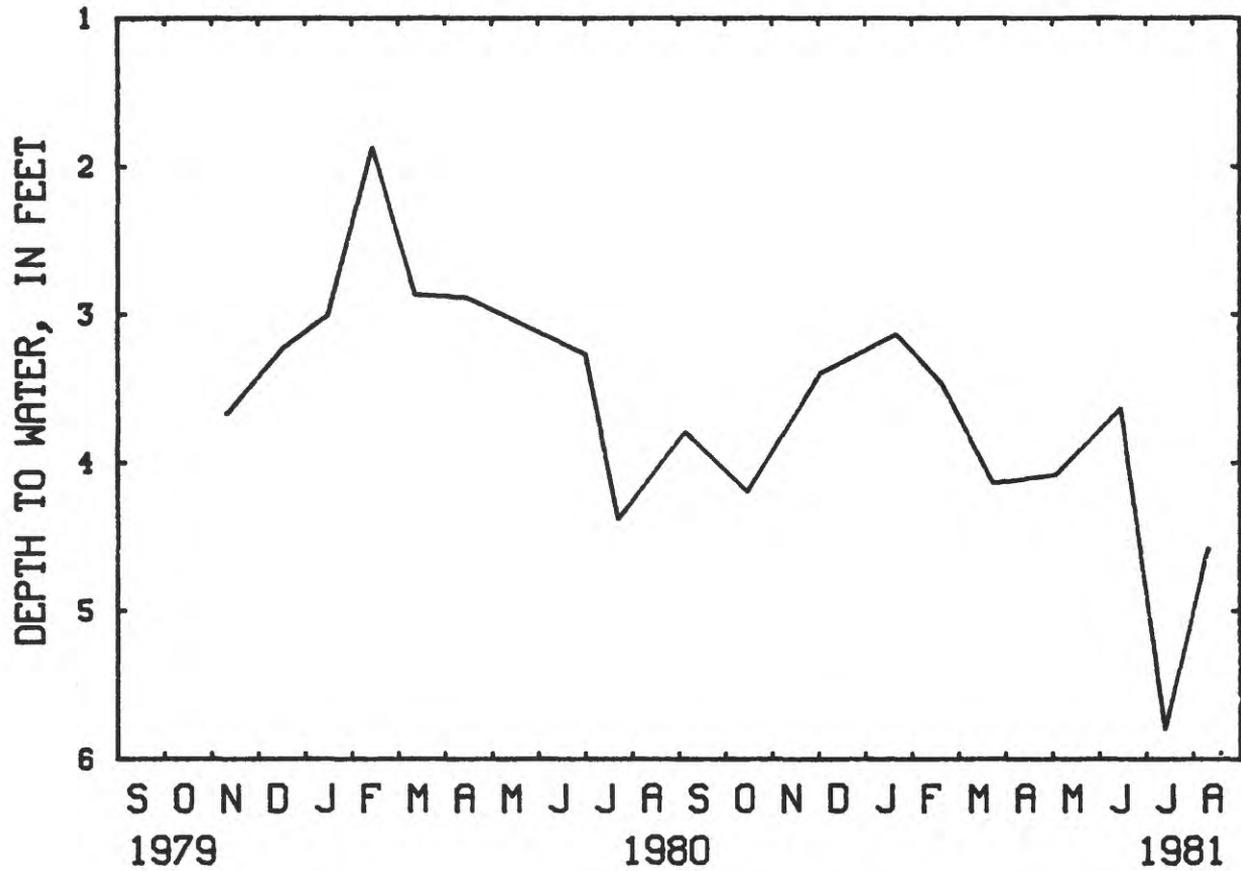
ALTITUDE = 3709.49

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1979 BY THE USGS TO A DEPTH OF 9 FEET. A 3 FOOT PIPE CONNECTED TO A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED 1 FOOT WEST OF THE FENCE ON THE WEST SIDE OF THE CROOK BRIDGE ROAD ABOUT 70 FEET NORTH OF THE 3RD CHANNEL. THE LOCAL WELL NUMBER IS 10-49-15 DAD. THE MP IS THE TOP OF CASING.



# SITE 8



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	10	79	3.67	*****	*****	*****	****	*****	
12	17	79	3.22	*****	*****	*****	8.0	1625.	
1	15	80	3.00	*****	*****	*****	6.0	1700.	
2	13	80	1.87	*****	*****	*****	****	*****	DEPTH TO ICE, WATER IN WELL WAS FROZEN
3	13	80	2.87	*****	*****	*****	4.0	1600.	
4	15	80	2.89	*****	*****	*****	4.0	1650.	
5	6	80	*****	*****	*****	*****	****	*****	FLOODING RIVER WAS 0.71 FEET ABOVE MP
7	1	80	3.27	*****	*****	*****	18.0	920.	
7	22	80	4.38	*****	*****	*****	17.5	1080.	
9	4	80	3.79	*****	*****	*****	19.0	1100.	
10	15	80	4.20	*****	*****	*****	15.5	1250.	
12	2	80	3.39	*****	*****	*****	8.0	980.	
1	20	81	3.13	*****	*****	*****	5.0	1220.	
2	19	81	3.47	*****	*****	*****	5.0	1180.	
3	24	81	4.14	*****	*****	*****	6.5	1285.	
5	4	81	4.08	*****	*****	*****	11.5	1330.	
6	15	81	3.63	*****	*****	*****	****	*****	
7	13	81	5.80	*****	*****	*****	****	*****	
8	11	81	4.58	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 9

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS RIVER

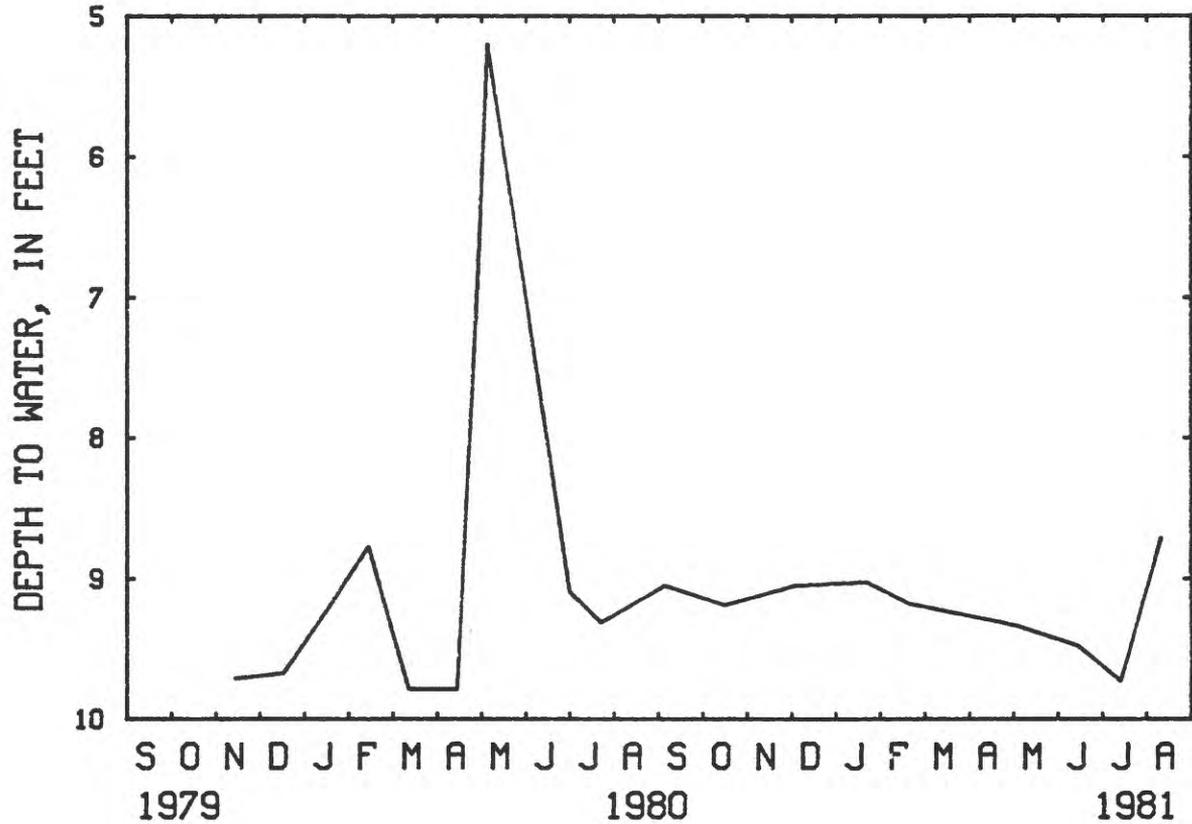
ALTITUDE = 3715.14

SITE DESCRIPTION AND LOCATION

FOURTH CHANNEL (FROM THE NORTH, 2ND FROM THE SOUTH) OF THE SOUTH PLATTE RIVER AT THE CROOK BRIDGE. FROM AERIAL PHOTOS IT APPEARS THAT THIS CHANNEL IS DIRECTLY FED BY THE RIVER. THERE IS ONE MP TO MEASURE WATER LEVELS (LABELED BR2) ON THE 3RD RAIL POST FROM THE SOUTH.



# SITE 9



MONTH	DAY	YEAR	TIME	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
9	6	79	1000	*****	*****	*****	*****	*****	****	15.0	1550.	
9	7	79	830	*****	*****	*****	*****	*****	****	15.0	1500.	
10	11	79	1830	*****	*****	*****	*****	*****	****	16.0	1400.	
10	12	79	1430	*****	*****	*****	*****	*****	****	16.0	1400.	
10	30	79	1010	*****	*****	*****	*****	*****	3.5	6.0	1550.	
11	7	79	1230	*****	*****	*****	*****	*****	4.5	7.0	1650.	
11	14	79	1330	9.71	*****	*****	*****	8.50	****	6.5	1600.	
12	17	79	1125	9.67	*****	*****	*****	*****	8.0	3.0	1550.	
1	15	80	1215	9.23	*****	*****	*****	27.40	14.0	3.5	1550.	
2	13	80	1110	8.77	*****	*****	*****	*****	1.0	1.0	1570.	ICE ON EDGES - APPEARS HAD BEEN FOOT UP
3	13	80	1330	9.79	*****	*****	*****	*****	13.0	9.5	1600.	
4	15	80	1135	9.79	*****	*****	*****	9.20	23.0	11.5	1600.	
4	29	80	1855	6.93	*****	*****	*****	*****	****	****	*****	
5	6	80	1055	5.20	*****	*****	*****	*****	22.0	17.0	740.	
5	7	80	1500	5.28	*****	*****	*****	1520.00	****	****	*****	
7	1	80	1100	9.10	*****	*****	*****	*****	24.0	20.5	1220.	
7	22	80	1710	9.31	*****	*****	*****	*****	30.5	24.5	800.	
9	4	80	1110	9.05	*****	*****	*****	*****	25.0	17.0	1630.	
10	15	80	1320	9.19	*****	*****	*****	*****	22.5	15.0	1200.	
12	2	80	400	9.05	*****	*****	*****	*****	11.0	.0	1680.	THIN ICE FILM DEVELOPING
1	20	81	1100	9.02	*****	*****	*****	*****	.0	1.0	1520.	
2	19	81	1050	9.14	*****	*****	*****	*****	17.0	6.0	1600.	
3	24	81	1540	*****	*****	*****	*****	*****	9.0	9.0	1570.	
5	4	81	1205	9.34	*****	*****	*****	*****	14.0	12.0	1380.	
6	15	81	1345	9.48	*****	*****	*****	*****	21.0	18.0	1120.	
7	13	81	1440	9.73	*****	*****	*****	*****	33.0	29.0	1450.	
8	11	81	1110	8.71	*****	*****	*****	*****	25.5	24.0	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 10

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS WELL

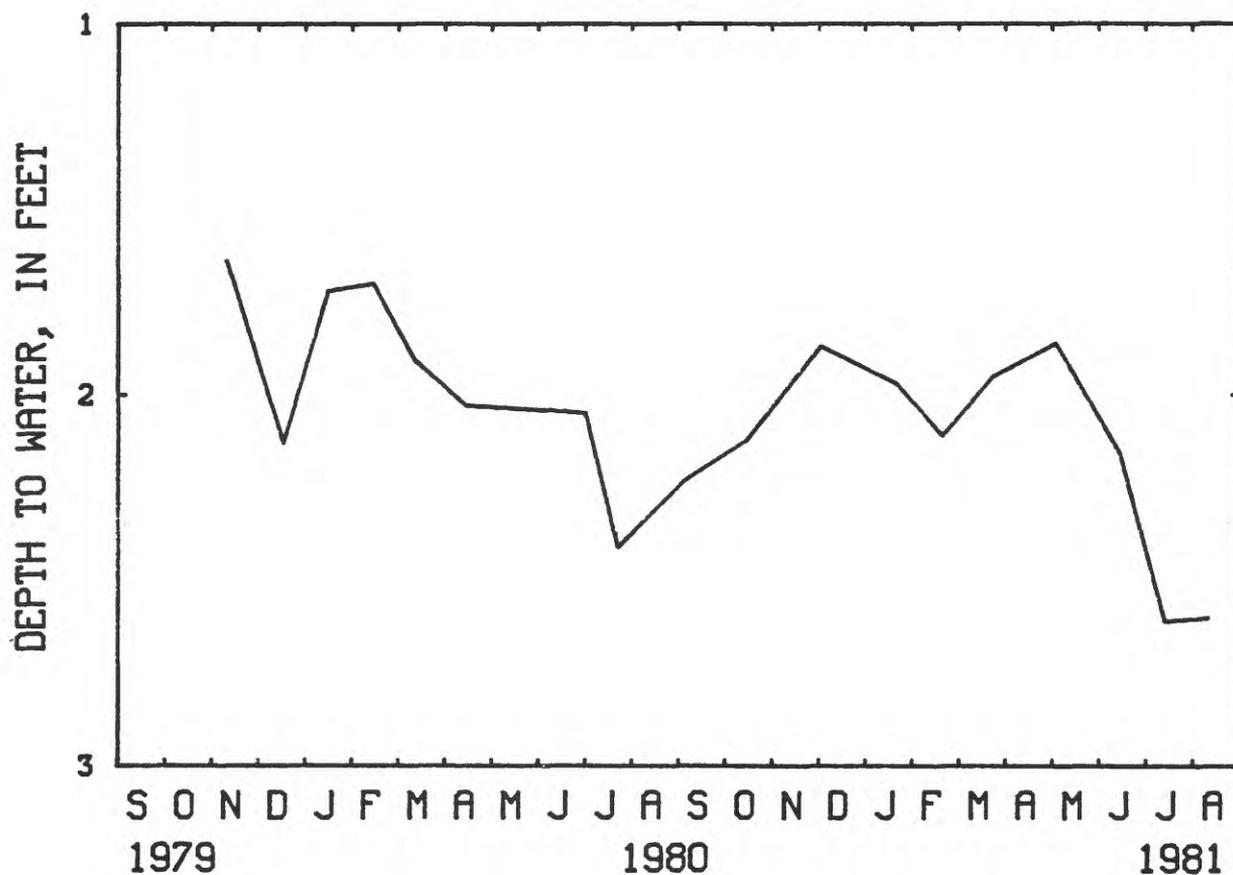
ALTITUDE = 3708.37

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1979 BY THE USGS TO A DEPTH OF 5 FEET. A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED 15 FEET WEST OF THE CROOK BRIDGE ROAD, 15 FEET SOUTH OF THE WILDLIFE AREA ACCESS ROAD, AND ABOUT 100 FEET NORTH OF THE SLOUGH IN THE FURTHEREST SOUTH CHANNEL. THE LOCAL WELL NUMBER IS 10-49-15 DDD2. THE MP IS THE TOP OF CASING.



# SITE 10



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	10	79	1.64	*****	*****	*****	****	*****	
12	17	79	2.13	*****	*****	*****	****	*****	
1	15	80	1.72	*****	*****	*****	****	*****	
2	13	80	1.70	*****	*****	*****	****	*****	
3	13	80	1.91	*****	*****	*****	****	*****	
4	15	80	2.03	*****	*****	*****	****	*****	
5	6	80	*****	*****	*****	*****	****	*****	
7	1	80	2.05	*****	*****	*****	****	*****	
7	22	80	2.41	*****	*****	*****	****	*****	
9	4	80	2.23	*****	*****	*****	****	*****	
10	15	80	2.12	*****	*****	*****	****	*****	
12	2	80	1.87	*****	*****	*****	****	*****	
1	20	81	1.97	*****	*****	*****	****	*****	
2	19	81	2.11	*****	*****	*****	****	*****	
3	24	81	1.95	*****	*****	*****	****	*****	
5	4	81	1.86	*****	*****	*****	****	*****	
6	15	81	2.16	*****	*****	*****	****	*****	
7	13	81	2.61	*****	*****	*****	****	*****	
8	11	81	2.60	*****	*****	*****	****	*****	

FLOODING RIVER WAS 1.65 FEET ABOVE MP

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 11

SITE SETTING IS RIVER BOTTOM

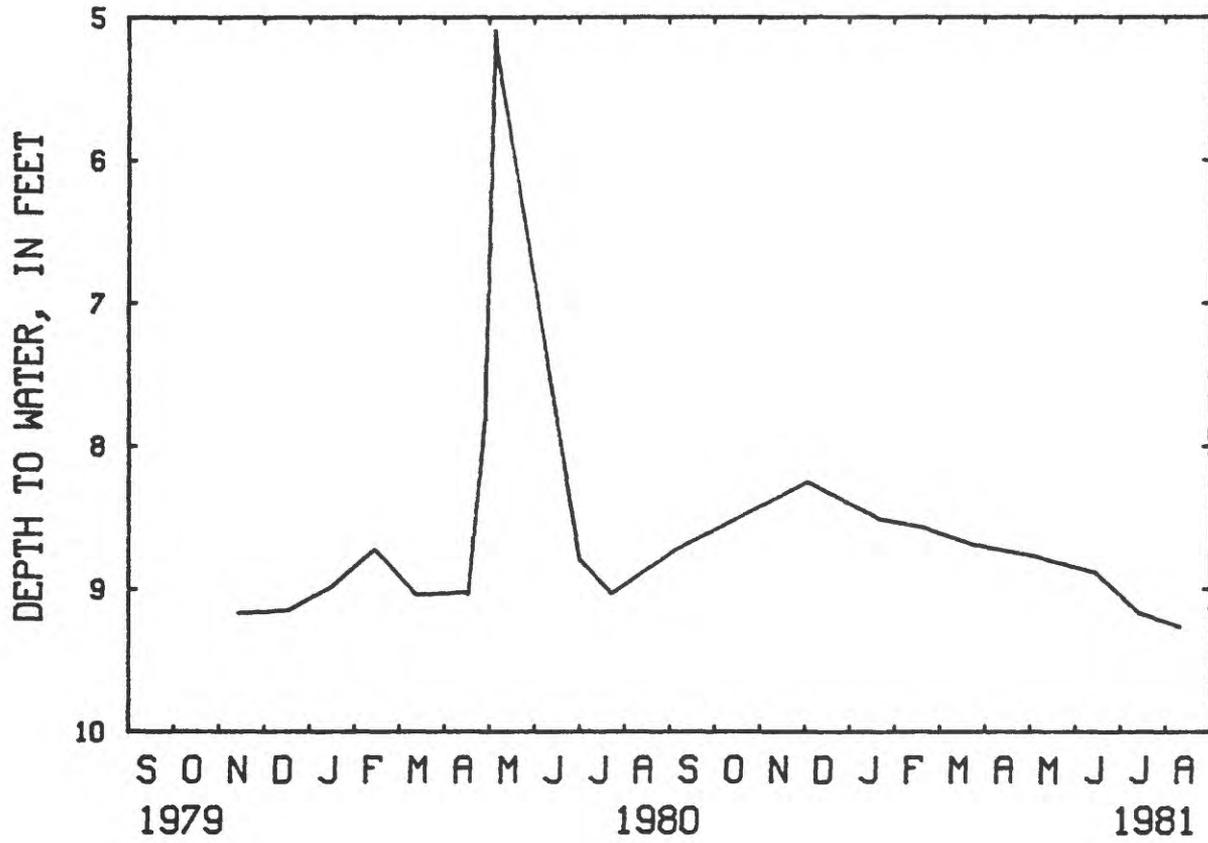
SITE TYPE IS SLOUGH

ALTITUDE = 3714.99

SITE DESCRIPTION AND LOCATION

FIFTH CHANNEL (FROM THE NORTH, 1ST FROM THE SOUTH) OF THE SOUTH PLATTE RIVER AT THE CROOK BRIDGE. THIS CHANNEL IS THE PRIMARY SLOUGH OF THE STUDY AND IS ENTIRELY GROUNDWATER FED. THERE IS ONE MP TO MEASURE WATER LEVELS (LABELED BRI) ON THE 3RD RAIL POST FROM THE NORTH.





MONTH	DAY	YEAR	TIME	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
9	4	79	1600	*****	*****	*****	*****	*****	****	22.5	460.	
9	4	79	1905	*****	*****	*****	*****	*****	****	21.0	460.	
9	5	79	855	*****	*****	*****	*****	*****	****	17.0	440.	
9	5	79	1855	*****	*****	*****	*****	*****	****	21.0	470.	
9	6	79	1020	*****	*****	*****	*****	*****	****	16.5	460.	
9	7	79	830	*****	*****	*****	*****	*****	****	16.5	440.	
9	28	79	1830	*****	*****	*****	*****	*****	****	18.0	420.	
10	11	79	1900	*****	*****	*****	*****	*****	****	15.5	430.	
10	12	79	1400	*****	*****	*****	*****	*****	****	17.0	420.	
10	29	79	1625	*****	*****	*****	*****	*****	****	10.5	*****	DISSOLVED OXYGEN = 14.4
10	30	79	1005	*****	*****	*****	*****	*****	****	7.0	430.	
11	7	79	1230	*****	*****	*****	*****	*****	****	8.5	450.	
11	14	79	1400	9.17	*****	*****	*****	*****	****	7.5	460.	
12	17	79	1120	9.15	*****	*****	*****	*****	6.0	5.0	460.	ICE IN PONDED AREA BELOW BRIDGE
1	15	80	1225	8.98	*****	*****	*****	*****	14.0	9.0	490.	
2	13	80	1125	8.72	*****	*****	*****	*****	3.0	7.0	590.	
3	13	80	655	*****	*****	*****	*****	*****	****	4.5	*****	
3	13	80	1345	9.04	*****	*****	*****	*****	13.0	10.5	590.	
4	15	80	1140	9.02	*****	*****	*****	*****	24.0	11.0	550.	
4	17	80	910	9.04	*****	*****	*****	*****	****	****	*****	MEASUREMENT MADE ABOUT 400 YARDS UPSTREAM
4	29	80	1855	7.82	*****	*****	*****	*****	****	****	*****	
5	6	80	1115	5.09	*****	*****	*****	*****	22.0	17.0	740.	
5	7	80	1355	5.24	*****	*****	*****	1210.00	****	****	*****	
7	1	80	1115	8.80	*****	*****	*****	*****	1.49	24.0	18.0	640.
7	22	80	1900	9.03	*****	*****	*****	*****	29.5	23.0	560.	MEASUREMENT MADE ABOUT 400 YARDS UPSTREAM
9	4	80	1115	8.72	*****	*****	*****	*****	23.5	17.5	705.	
12	2	80	810	8.25	*****	*****	*****	*****	8.5	3.0	635.	PART OF POOL FROZEN OVER
1	20	81	1110	8.51	*****	*****	*****	*****	3.0	7.0	650.	
2	14	81	1055	8.57	*****	*****	*****	*****	18.0	9.5	650.	
3	24	81	1540	8.69	*****	*****	*****	*****	10.0	10.0	567.	
5	4	81	1215	8.77	*****	*****	*****	*****	13.5	12.5	620.	
6	13	81	1405	8.84	*****	*****	*****	*****	20.5	18.5	650.	
7	13	81	1500	9.17	*****	*****	*****	*****	34.0	29.0	360.	
8	14	81	1155	9.27	*****	*****	*****	*****	32.0	22.0	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 12

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

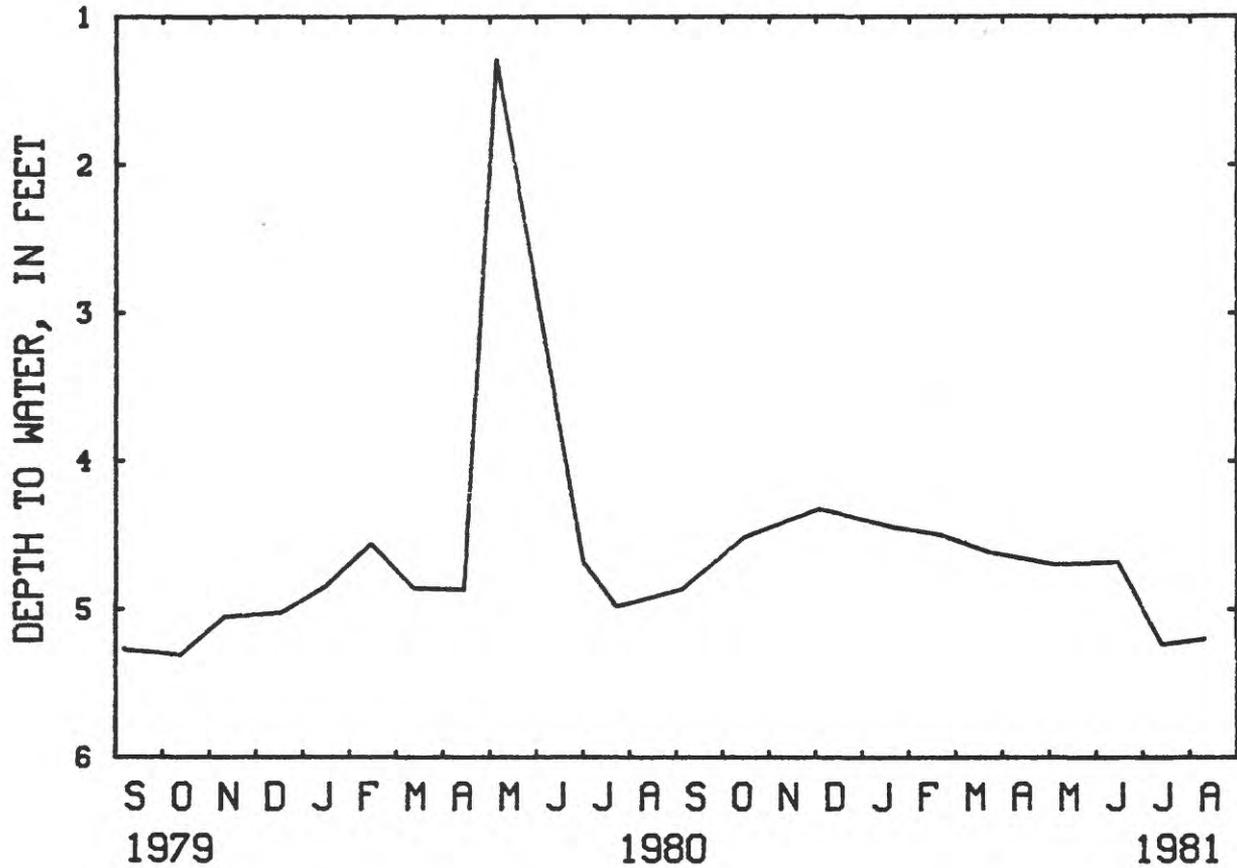
ALTITUDE = 3711.09

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1967 BY THE USGS TO A DEPTH OF 17 FEET. A 13 FOOT PIPE WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED 2 FEET WEST OF THE FENCE, 25 FEET SOUTH OF THE FENCE, ABOUT 100 FEET SOUTH OF THE SLOUGH IN THE FURTHEREST SOUTH CHANNEL ON THE WEST SIDE OF THE CROOK BRIDGE ROAD THE LOCAL WELL NUMBER IS 10-49-15 DDD. THE MP IS THE TOP OF CASING, WEST SIDE.



# SITE 12



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	6	79	5.27	*****	*****	*****	****	*****	
9	7	79	5.28	*****	*****	*****	****	*****	WELL HAD BEEN FLATTENED-STRAIGHTENED IT
10	12	79	5.31	*****	*****	*****	****	*****	
11	10	79	5.05	*****	*****	*****	****	*****	
12	17	79	5.02	*****	*****	*****	****	*****	
1	15	80	4.84	*****	*****	*****	****	*****	
2	13	80	4.56	*****	*****	*****	****	*****	
3	13	80	4.86	*****	*****	*****	****	*****	
4	15	80	4.87	*****	*****	*****	****	*****	
5	6	80	1.29	*****	*****	*****	****	*****	FLOOD WATER OUTSIDE .7 FEET FROM TOP
7	1	80	4.69	*****	*****	*****	****	*****	
7	22	80	4.98	*****	*****	*****	****	*****	
9	4	80	4.86	*****	*****	*****	****	*****	
10	15	80	4.51	*****	*****	*****	****	*****	
12	2	80	4.32	*****	*****	*****	****	*****	
1	20	81	4.45	*****	*****	*****	****	*****	
2	19	81	4.50	*****	*****	*****	****	*****	
3	24	81	4.62	*****	*****	*****	****	*****	
5	4	81	4.70	*****	*****	*****	****	*****	
6	15	81	4.68	*****	*****	*****	****	*****	
7	13	81	5.24	*****	*****	*****	****	*****	
8	11	81	5.20	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 13

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS SLOUGH

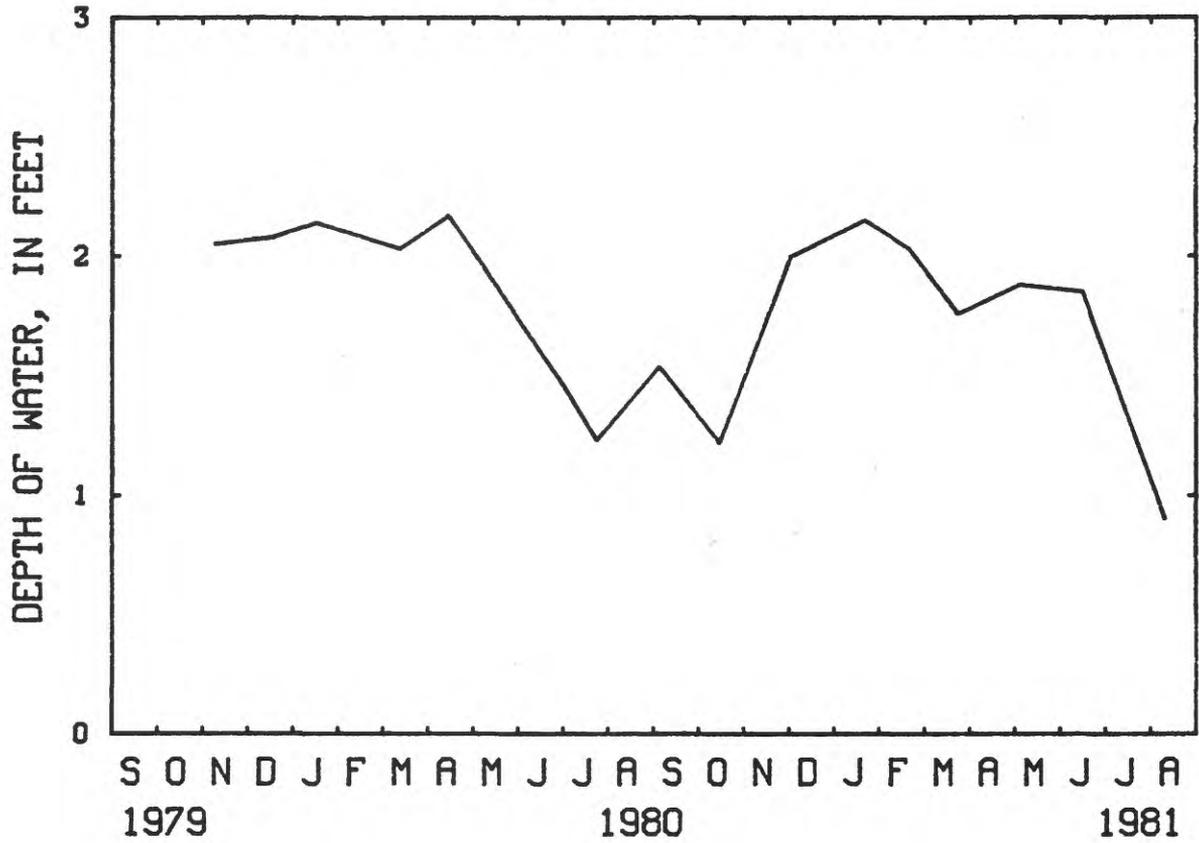
ALTITUDE = 3704.84

SITE DESCRIPTION AND LOCATION

A STAFF GAGE WAS INSTALLED BY THE USGS IN 1979 ON THE HEADGATE CONTROL OF THE TAMARACK DITCH. THE POOLED WATER SEEMS TO COME FROM THE COMBINED SOURCES OF THE 2 SOUTHERN CHANNELS AT THE CROOK BRIDGE.



# SITE 13



MONTH	DAY	YEAR	TIME	DEPTH OF WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
9	4	79	1700	.....	.....	.....	.....	.....	.....	23.0	1400.	
11	9	79	1000	2.05	.....	.....	.....	.....	.....	.....	.....	
12	17	79	1340	2.08	.....	.....	.....	.....	.....	.5	.....	SOLID ICE 3 INCHES THICK
1	15	80	1240	2.14	.....	.....	.....	.....	9.0	1.5	1400.	SOLID ICE 2 INCHES THICK
3	13	80	1405	2.03	.....	.....	.....	.....	13.0	7.0	1350.	
4	15	80	1300	2.17	.....	.....	.....	.....	23.0	11.0	1340.	
7	1	80	1345	1.46	.....	.....	.....	.....	.....	23.0	1180.	
7	23	80	940	1.23	.....	.....	.....	.....	26.0	21.5	1050.	FLOOD BROKE OPEN A CHANNEL TO THE SLOUGH
9	4	80	1230	1.54	.....	.....	.....	.....	23.0	19.0	1600.	
10	15	80	1335	1.22	.....	.....	.....	.....	19.0	14.0	1050.	
12	2	80	955	2.00	.....	.....	.....	.....	5.0	5.0	1470.	.5 INCH OF ICE AT 2.16 - BROKE THRU
1	20	81	1325	2.15	.....	.....	.....	.....	3.0	.5	1400.	CHOPPED THRU 4 INCHES OF ICE
2	14	81	1235	2.33	.....	.....	.....	.....	19.0	5.5	1420.	SOME ICE IN POOL
3	24	81	1555	1.76	.....	.....	.....	.....	.....	9.0	1080.	
5	4	81	1225	1.88	.....	.....	.....	.....	14.5	15.0	1190.	
6	16	81	1440	1.85	.....	.....	.....	.....	.....	.....	.....	
7	14	81	1210	.....	.....	.....	.....	.....	.....	31.5	1050.	WATER LEVEL BELOW STAFF GAGE
8	11	81	1210	.90	.....	.....	.....	.....	.....	.....	.....	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 14

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

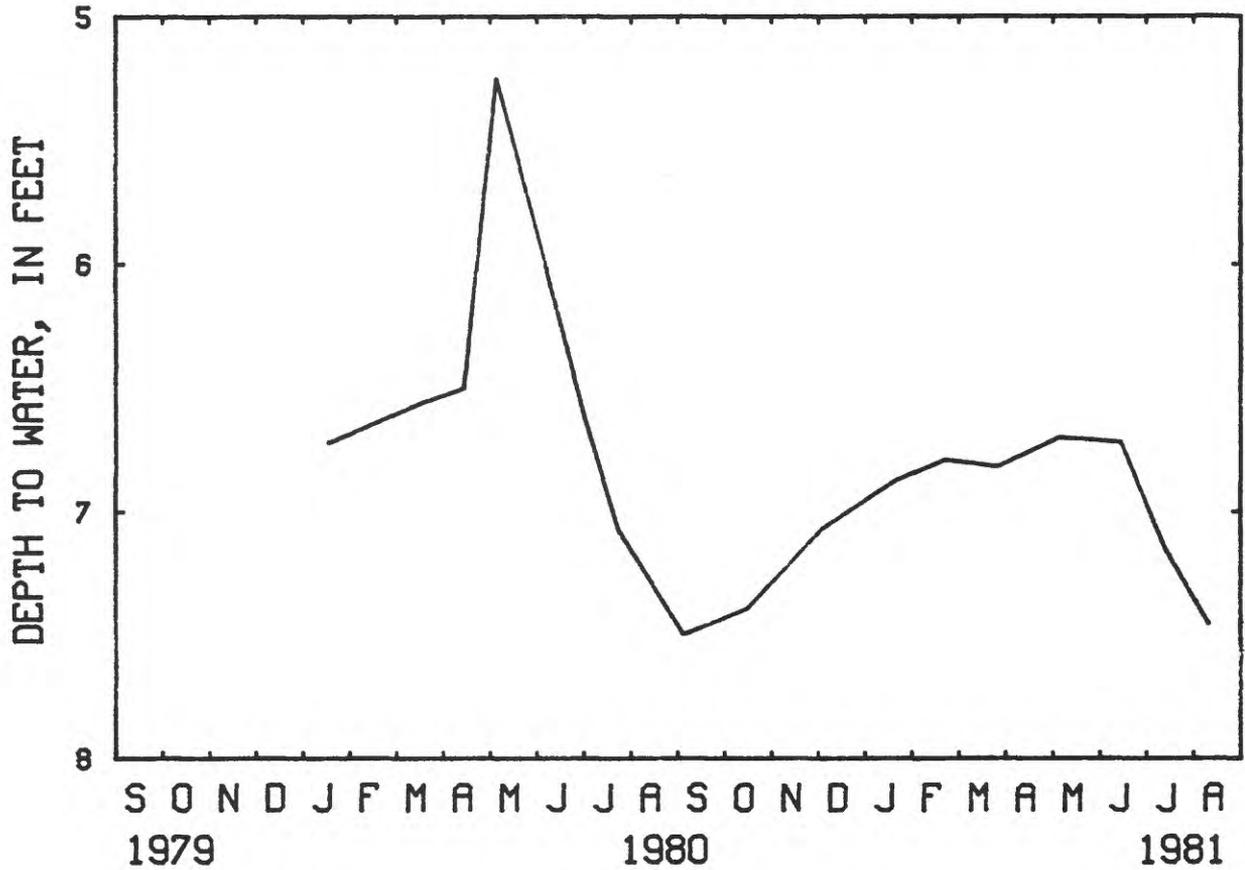
ALTITUDE = 3716.84

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1980 BY THE USGS TO A DEPTH OF 12 FEET. A 6 FOOT PIPE CONNECTED TO A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED JUST SOUTH OF THE FENCE ALONG A TRUCK PATH ALONG A COW PASTURE NEAR A SMALL ENCLOSURE FOR STACKING HAY. THE LOCAL WELL NUMBER IS 10-49-22 ABB. THE MP IS THE TOP OF CASING, SOUTH SIDE.



# SITE 14



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
1	17	80	6.72	*****	*****	*****	****	*****	10.78 FROM ORIGINAL MP
3	18	80	6.56	*****	*****	*****	****	*****	10.62 FROM ORIGINAL MP-REINSTALLED WELL
4	15	80	6.50	*****	*****	*****	8.0	610.	
5	6	80	5.25	*****	*****	*****	11.0	345.	
7	2	80	6.63	*****	*****	*****	16.5	700.	
7	23	80	7.08	*****	*****	*****	18.0	610.	
9	4	80	7.50	*****	*****	*****	18.0	310.	
10	16	80	7.39	*****	*****	*****	16.0	350.	
12	3	80	7.07	*****	*****	*****	13.0	350.	
1	24	81	6.87	*****	*****	*****	9.5	350.	
2	20	81	6.79	*****	*****	*****	9.5	345.	
3	20	81	6.82	*****	*****	*****	11.0	365.	
5	5	81	6.70	*****	*****	*****	13.5	340.	
6	15	81	6.72	*****	*****	*****	****	*****	
7	13	81	7.16	*****	*****	*****	19.5	390.	WATER WAS BLACK
8	11	81	7.46	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 15

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

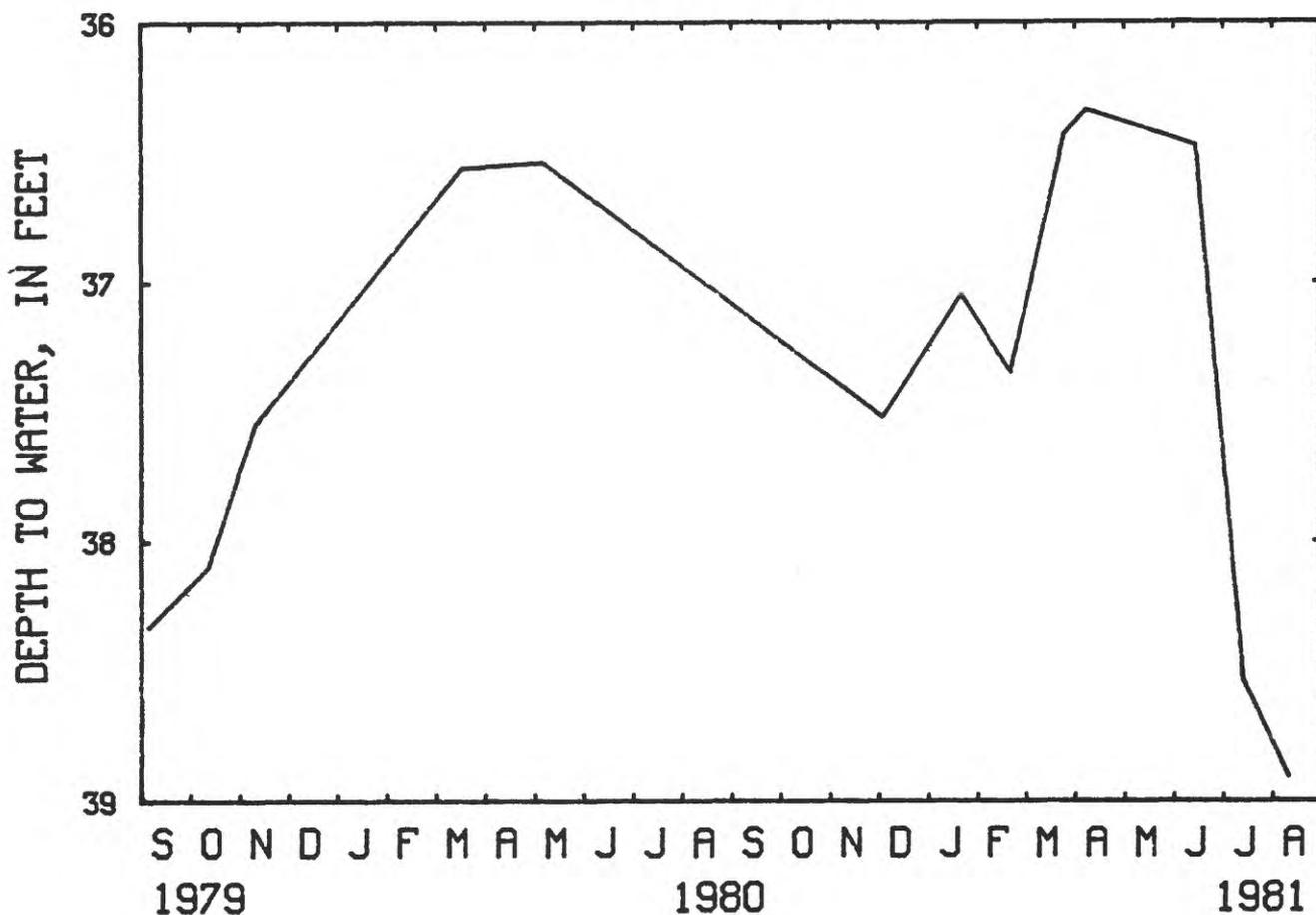
ALTITUDE = 3749.61

SITE DESCRIPTION AND LOCATION

A STOCK WELL IN THE WESTERN HALF OF THE EAST MOST CENTER PIVOT FIELD OWNED BY WILLIAM CONDON. THE LOCAL WELL NUMBER IS 10-49-22 DBD. THE MP IS THE TOP OF THE WELL CASING AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE NORTH SIDE.



# SITE 15



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	5	79	38.33	*****	*****	*****	****	*****	
10	12	79	38.10	*****	*****	*****	***	*****	
11	10	79	37.54	*****	*****	*****	***	*****	
3	18	80	36.56	*****	*****	*****	***	*****	
5	6	80	36.54	*****	*****	*****	***	*****	
12	3	80	37.52	*****	*****	*****	***	*****	
1	20	81	37.05	*****	*****	*****	***	*****	
2	20	81	37.35	*****	*****	*****	***	*****	
3	26	81	36.43	*****	*****	*****	***	*****	
4	8	81	36.34	*****	*****	*****	***	*****	
6	15	81	36.48	*****	*****	*****	***	*****	
7	13	81	36.54	*****	*****	*****	***	*****	
8	11	81	38.91	*****	*****	*****	***	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 16

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

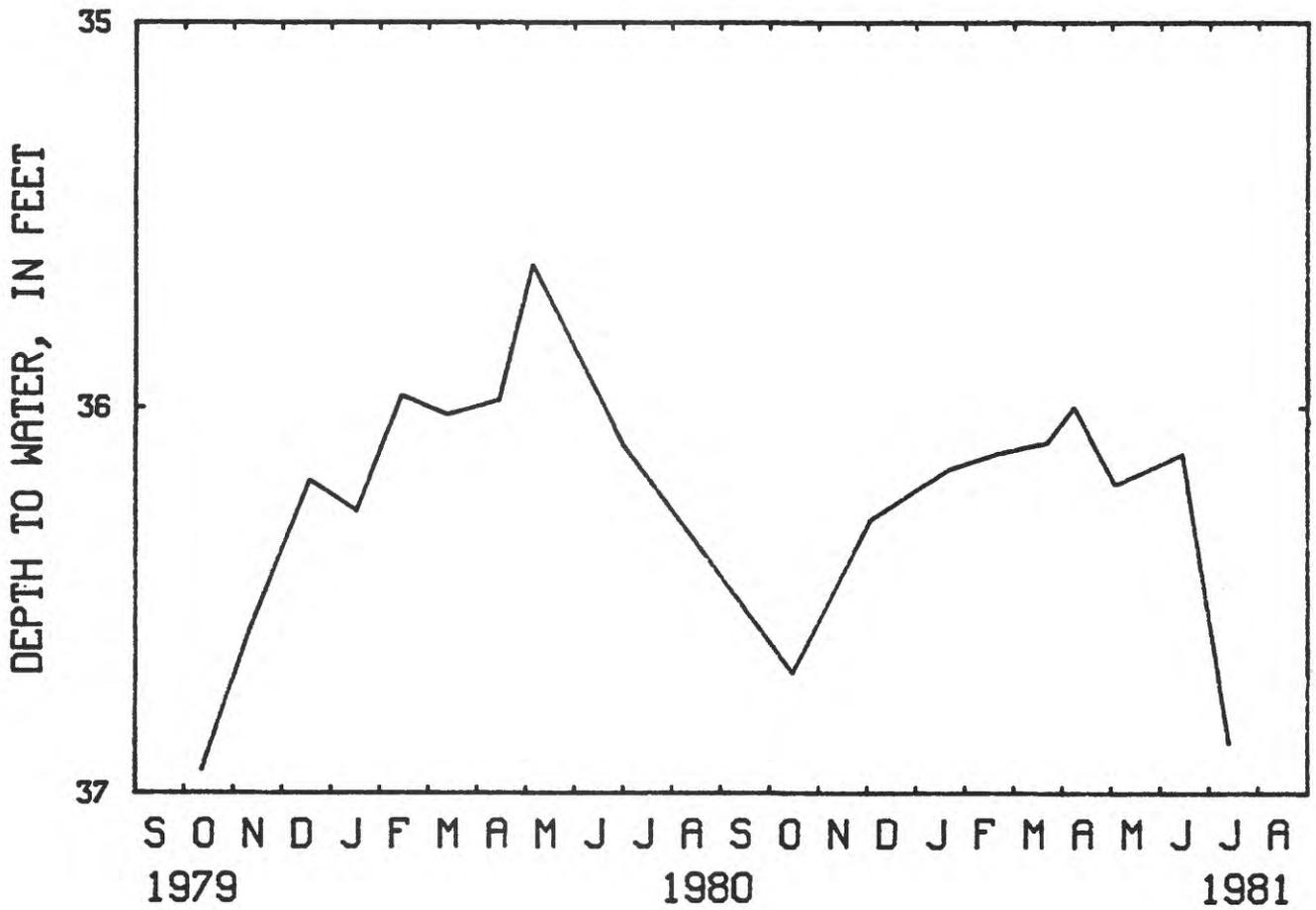
ALTITUDE = 3743.83

SITE DESCRIPTION AND LOCATION

A DOMESTIC WELL FOR THE WILDLIFE AREA INFORMATION CENTER, LOCATED ON THE EAST SIDE OF THE BUILDING. SAMPLES ARE COLLECTED FROM THE NOZZLE AT THE PUMP HANDLE. THE LOCAL WELL NUMBER IS 10-49-16 BBC. THE MP IS THE TOP OF CASING, WEST SIDE AND MEASUREMENT IS MADE BY PULLING OFF THE CAP.



# SITE 16



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	6	79	36.94	*****	*****	*****	16.0	290.	
10	12	79	36.58	*****	*****	*****	****	*****	
11	10	79	36.58	*****	*****	*****	****	*****	
12	18	79	36.19	*****	*****	*****	13.0	280.	
1	16	80	36.27	*****	*****	*****	11.0	250.	
2	13	80	35.97	*****	*****	*****	7.0	255.	
3	13	80	36.02	*****	*****	*****	10.5	245.	
4	15	80	35.98	*****	*****	*****	9.5	250.	
5	6	80	35.63	*****	*****	*****	12.5	245.	
7	1	80	36.10	*****	*****	*****	15.0	260.	
7	22	80	36.29	*****	*****	*****	15.0	260.	
9	4	80	36.16	*****	*****	*****	14.5	265.	
10	15	80	36.69	*****	*****	*****	15.0	255.	
12	3	80	36.29	*****	*****	*****	14.5	240.	
1	20	81	36.16	*****	*****	*****	12.0	250.	
2	19	81	36.12	*****	*****	*****	****	*****	
3	23	81	36.09	*****	*****	*****	****	*****	
4	8	81	36.00	*****	*****	*****	****	*****	
5	4	81	36.20	*****	*****	*****	****	*****	
6	15	81	36.12	*****	*****	*****	16.0	220.	
7	13	81	36.87	*****	*****	*****	17.0	270.	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 17

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

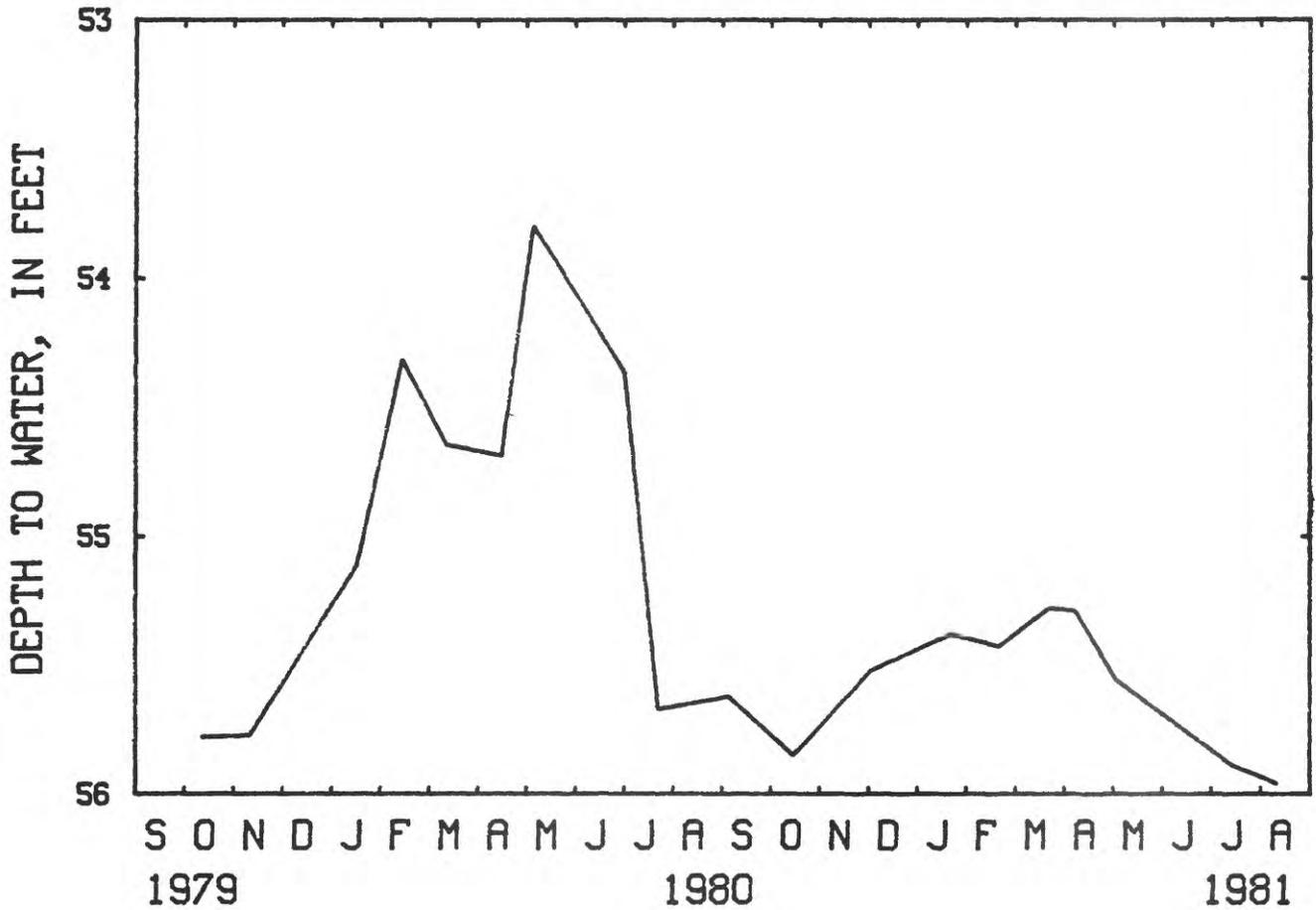
ALTITUDE = 3757.24

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ABOUT 100 YARDS NORTH OF THE WILDLIFE AREA ROAD. THE LOCAL WELL NUMBER IS 10-49-23 AAA. THE MP IS THE TOP OF CASING AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE NORTHEAST SIDE (MAY HAVE TO SHIFT THE PUMP BASE TO GAIN ACCESS).



# SITE 17



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	5	79	*****	*****	*****	*****	16.0	300.	
10	12	79	55.78	*****	*****	*****	****	*****	
11	10	79	55.77	*****	*****	*****	14.0	240.	
1	16	80	55.11	*****	*****	*****	****	*****	
2	13	80	54.32	*****	*****	*****	****	*****	
3	13	80	54.65	*****	*****	*****	14.0	250.	
4	16	80	54.69	*****	*****	*****	13.5	250.	
5	6	80	53.80	*****	*****	*****	14.5	270.	
7	1	80	54.37	*****	*****	*****	****	*****	
7	22	80	55.67	*****	*****	*****	15.5	260.	
9	4	80	55.62	*****	*****	*****	****	*****	
10	15	80	55.85	*****	*****	*****	14.5	255.	
12	2	80	55.52	*****	*****	*****	****	*****	
1	20	81	55.38	*****	*****	*****	****	*****	
2	19	81	55.43	*****	*****	*****	****	*****	
3	23	81	55.28	*****	*****	*****	15.0	250.	
4	8	81	55.29	*****	*****	*****	****	*****	
5	4	81	55.56	*****	*****	*****	14.0	220.	
7	14	81	55.89	*****	*****	*****	****	*****	
8	11	81	55.96	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 18

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS SLOUGH

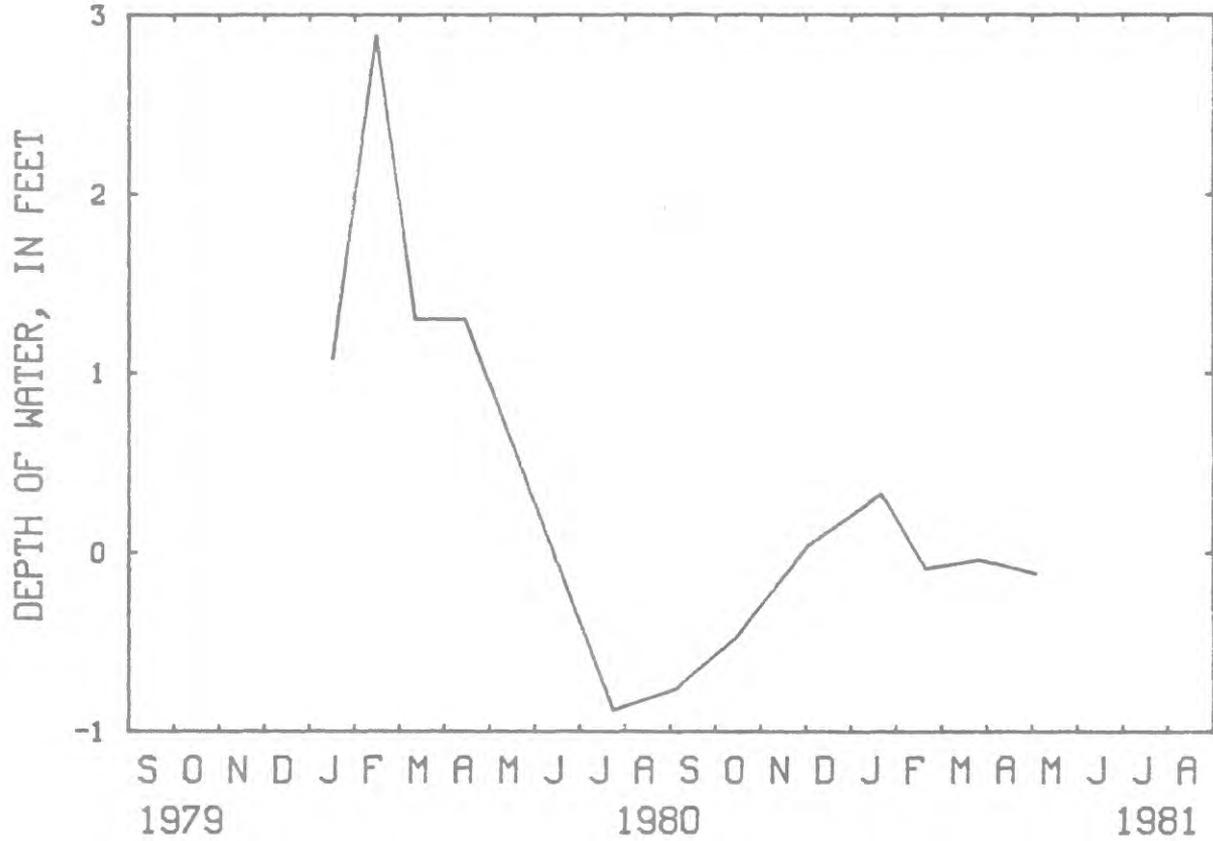
ALTITUDE = 3695.26

SITE DESCRIPTION AND LOCATION

A STAFF GAGE WAS INSTALLED BY THE USGS IN 1980 IN THE SLOUGH NEAR WILDLIFE AREA DESIGNATED PARKING #1E WHICH IS AT THE NORTH END OF THE WEST MOST TREELINE.



# SITE 18



MONTH	DAY	YEAR	TIME	DEPTH OF WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
7	23	79	1130	*****	*****	*****	*****	*****	****	20.5	*****	
9	4	79	1850	*****	*****	*****	*****	*****	****	21.0	1250.	
9	6	79	1200	*****	*****	*****	*****	*****	****	18.5	1400.	
12	17	79	1415	*****	*****	*****	*****	*****	****	3.5	1150.	
1	16	80	850	1.0d	*****	*****	*****	*****	3.0	3.0	1420.	
2	14	80	1310	2.8d	*****	*****	*****	*****	.0	.5	1500.	
3	13	80	1145	1.30	*****	*****	*****	*****	10.5	6.0	1470.	
4	15	80	1500	1.30	*****	*****	*****	59.80	21.5	12.5	1440.	
5	6	80	1135	*****	*****	*****	*****	*****	25.0	17.0	750.	FLOOD ABOVE GAGE - SET HI WATER STAKE
7	1	80	1420	*****	*****	*****	*****	*****	28.5	23.5	920.	STAFF GAGE AND STAKE WASHED AWAY
7	23	80	1425	-.8d	*****	*****	*****	*****	3.2	2.5	880.	SET FENCE POST AT 2.62, D/W=42 INCHES
9	4	80	1355	-.7d	*****	*****	*****	*****	****	21.0	1400.	D/W= 40.5 INCHES
10	15	80	1135	-.47	*****	*****	*****	*****	19.0	13.0	790.	D/W= 37.125 INCHES
12	2	80	1345	.04	*****	*****	*****	*****	5.0	3.5	1350.	THIN ICE COVER IN SPOTS, D/W= 31 INCHES
1	20	81	1500	.33	*****	*****	*****	*****	1.5	3.5	1400.	D/W= 27.5 INCHES
2	19	81	1325	-.09	*****	*****	*****	*****	21.0	10.0	1300.	D/W= 32.5 INCHES
3	26	81	1020	-.04	*****	*****	*****	*****	14.5	10.0	1000.	D/W = 32 INCHES
5	4	81	1430	-.12	*****	*****	*****	*****	17.5	14.5	1100.	D/W = 32 15/16 INCHES
6	15	81	1835	*****	*****	*****	*****	*****	****	****	*****	FENCE POST WASHED AWAY

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 19

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

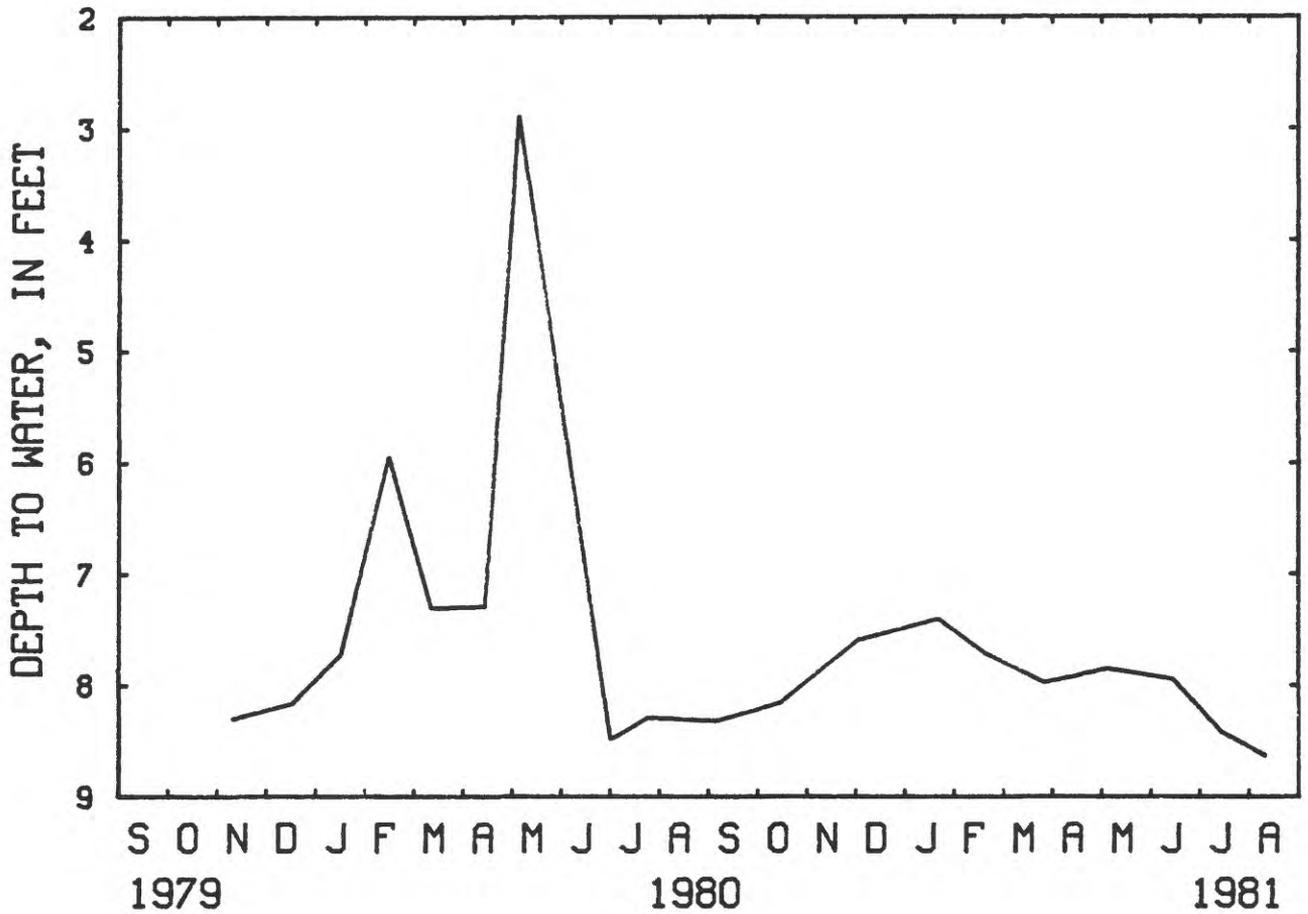
ALTITUDE = 3703.28

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1979 BY THE USGS TO A DEPTH OF 15 FEET. A 10 FOOT PIPE CONNECTED TO A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED AT THE NORTH END OF THE WEST MOST TREELINE, ABOUT 100 FEET SOUTH OF THE SLOUGH. THE LOCAL WELL NUMBER IS 10-49-13 CAA. THE MP IS THE TOP OF CASING ON THE WEST SIDE.



# SITE 19



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	10	79	8.30	*****	*****	*****	****	*****	
12	17	79	8.16	*****	*****	*****	11.0	880.	
1	16	80	7.72	*****	*****	*****	9.5	690.	
2	14	80	5.95	*****	*****	*****	7.5	490.	
3	13	80	7.31	*****	*****	*****	9.0	480.	
4	15	80	7.29	*****	*****	*****	8.5	450.	
5	6	80	2.89	*****	*****	*****	11.0	415.	
7	1	80	8.48	*****	*****	*****	15.0	335.	
7	23	80	8.29	*****	*****	*****	15.5	375.	
9	4	80	8.32	*****	*****	*****	15.5	360.	
10	15	80	8.15	*****	*****	*****	15.0	330.	
12	2	80	7.59	*****	*****	*****	13.0	330.	
1	20	81	7.40	*****	*****	*****	10.5	365.	
2	19	81	7.72	*****	*****	*****	10.0	360.	
3	27	81	7.98	*****	*****	*****	11.0	1000.	DITCH HAD BEEN RUNNING WATER
5	4	81	7.85	*****	*****	*****	10.5	1350.	
6	15	81	7.95	*****	*****	*****	12.0	1400.	
7	14	81	8.42	*****	*****	*****	14.5	1500.	
8	11	81	8.63	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 20

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

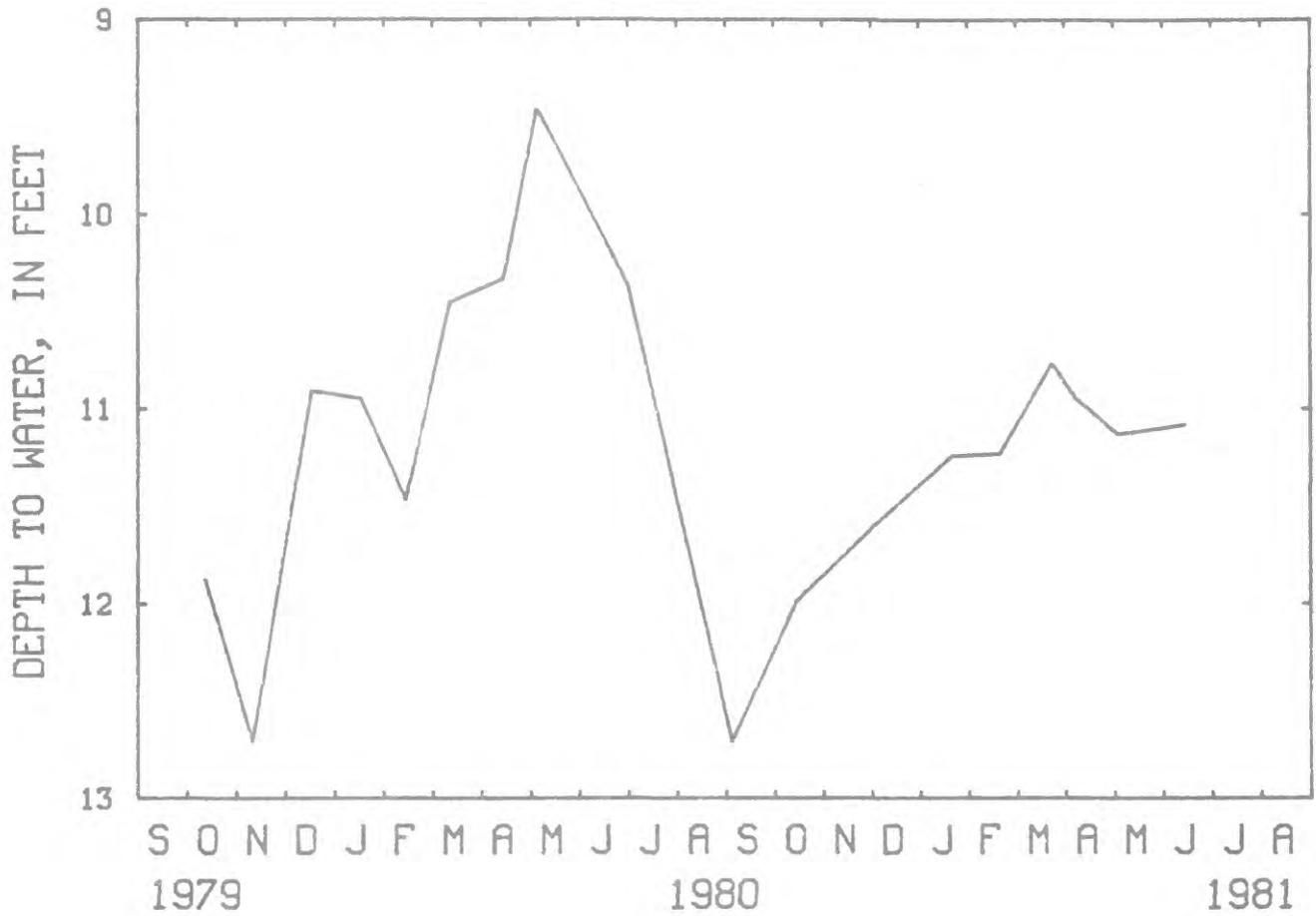
ALTITUDE = 3703.93

SITE DESCRIPTION AND LOCATION

AN IRRIGATION WELL LOCATED JUST NORTH OF THE WILDLIFE AREA ROAD. THE LOCAL WELL NUMBER IS 10-49-13 DAD. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE SOUTHWEST SIDE.



# SITE 20



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	5	79	*****	*****	*****	*****	15.0	480.	
10	12	79	11.88	*****	*****	*****	****	*****	
11	10	79	12.71	*****	*****	*****	****	*****	
12	17	79	10.91	*****	*****	*****	****	*****	
1	16	80	10.95	*****	*****	*****	****	*****	
2	13	80	11.47	*****	*****	*****	****	*****	
3	13	80	10.45	*****	*****	8341.	****	*****	
4	15	80	10.33	*****	*****	8341.	14.0	260.	
5	6	80	9.46	*****	*****	8341.	15.0	290.	
7	1	80	10.37	*****	*****	8341.	****	*****	
7	22	80	*****	*****	*****	*****	14.5	330.	
9	4	80	12.71	*****	*****	9386.	15.0	300.	OIL ON SURFACE
10	15	80	11.98	*****	*****	9402.	****	*****	
12	2	80	11.60	*****	*****	9402.	****	*****	
1	20	81	11.24	*****	*****	9402.	****	*****	
2	19	81	11.23	*****	*****	9402.	****	*****	
3	24	81	10.77	*****	*****	*****	****	*****	
4	8	81	10.95	*****	*****	*****	****	*****	
5	4	81	11.13	*****	*****	9402.	****	*****	
6	15	81	11.08	*****	*****	*****	****	*****	
7	15	81	*****	*****	*****	9501.	****	*****	
8	11	81	*****	*****	*****	9500.	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 21

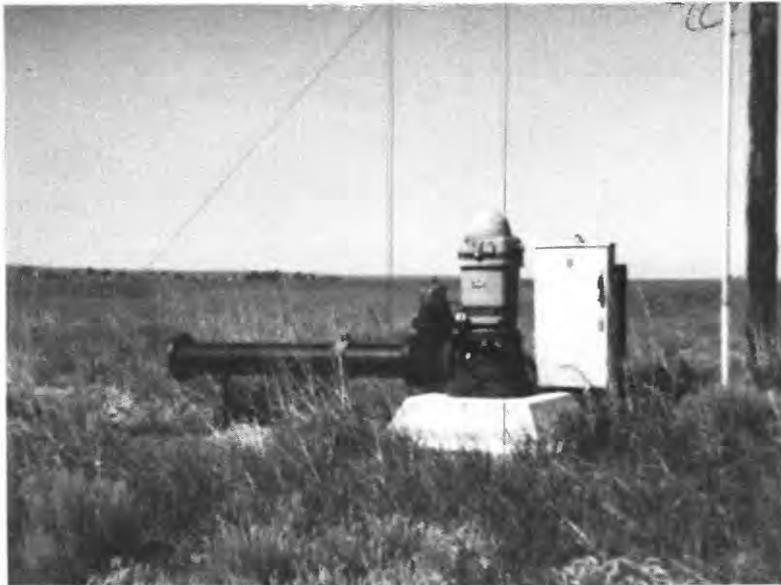
SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

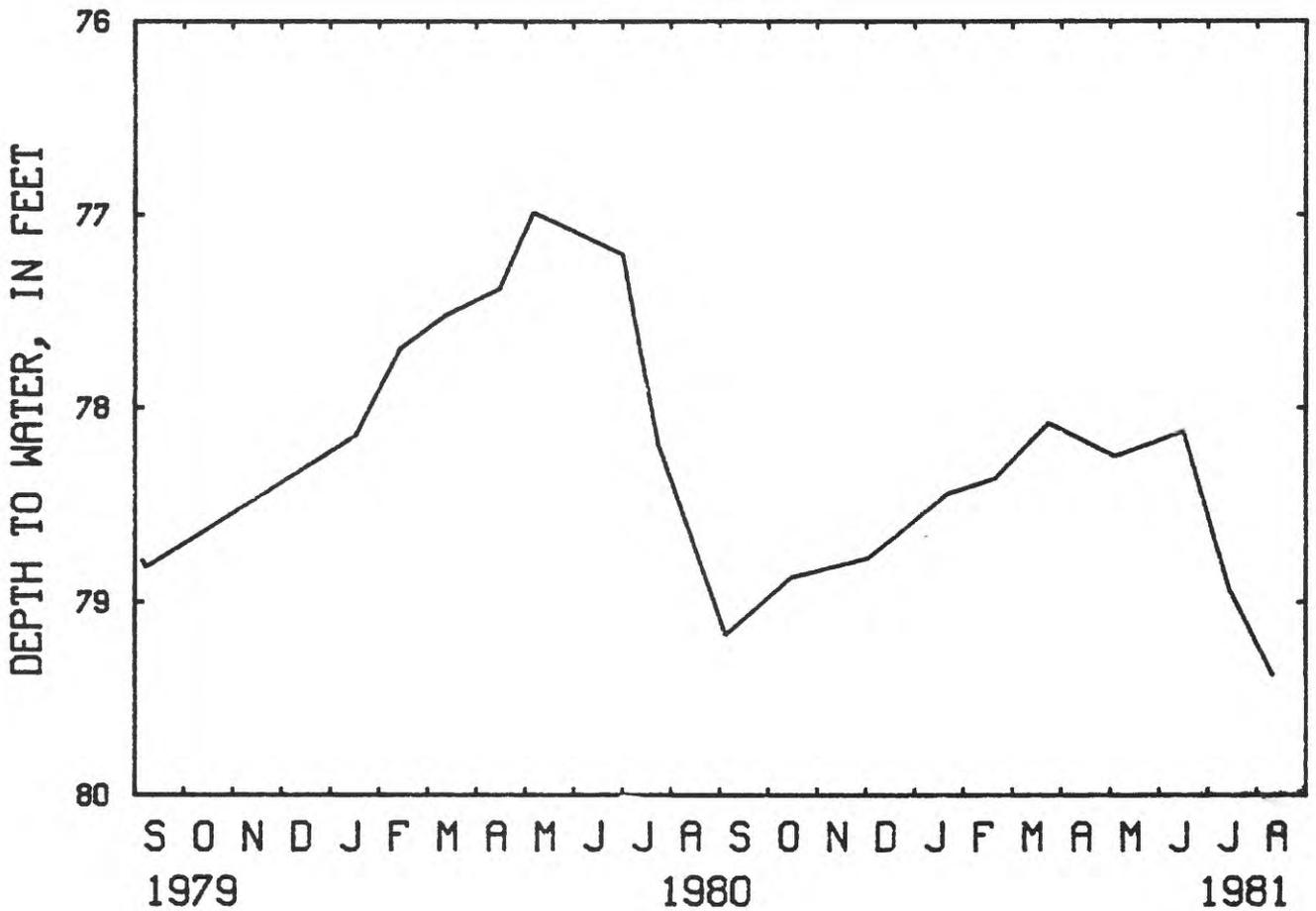
ALTITUDE = 3769.84

SITE DESCRIPTION AND LOCATION

A NEW IRRIGATION WELL DESIGNATED BY THE WILDLIFE AREA AS #4. THE LOCAL WELL NUMBER IS 10-48-18 CBD. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE NORTHEAST SIDE.



# SITE 21



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
7	23	79	****	2000.	18.9593	****	14.5	****	
9	5	79	78.79	****	18.9636	5185.	****	****	
9	7	79	78.82	2000.	19.0027	****	14.5	340.	
1	10	80	78.14	2080.	19.0266	5185.	14.5	310.	
2	13	80	77.69	2020.	19.0386	5185.	14.5	310.	OIL ON SURFACE
3	13	80	77.52	1990.	19.0526	5185.	14.0	305.	
4	16	80	77.38	2050.	19.0765	5185.	14.5	305.	
5	7	80	76.99	****	19.0995	5185.	14.5	305.	
7	1	80	77.21	2150.	19.1290	5185.	15.0	320.	
7	23	80	78.19	2150.	19.1422	5185.	14.5	235.	
9	4	80	79.17	1990.	19.1553	5185.	14.5	315.	
10	15	80	78.87	1960.	19.1965	5185.	14.5	320.	
12	2	80	78.77	1960.	19.2521	5185.	14.5	300.	
1	20	81	78.44	1990.	19.2690	5185.	14.5	295.	
2	19	81	78.36	1960.	19.2835	5185.	15.0	305.	
3	24	81	78.08	2020.	19.3085	5185.	15.0	292.	
5	4	81	78.25	2020.	19.3145	5185.	15.0	305.	
6	16	81	78.12	2085.	19.3400	****	15.5	300.	
7	14	81	78.94	2085.	19.3632	****	15.0	310.	
8	11	81	79.38	1694.	19.3641	****	****	****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 22

SITE SETTING IS SAND HILLS

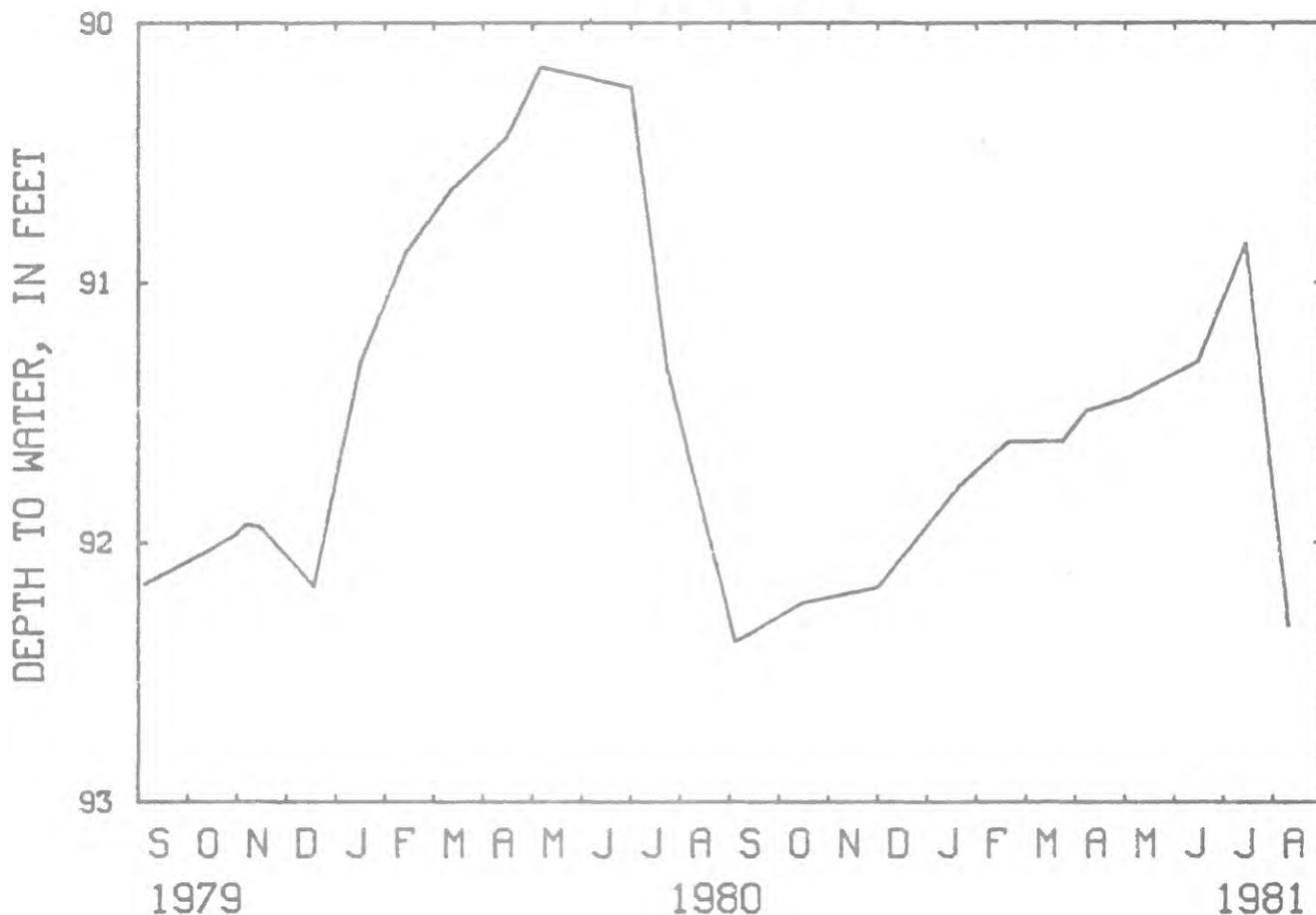
SITE TYPE IS WELL

ALTITUDE = 3777.58

SITE DESCRIPTION AND LOCATION

A NEW IRRIGATION WELL DESIGNATED BY THE WILDLIFE AREA AS #5. THE LOCAL WELL NUMBER IS 10-48-18 DAA. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE SOUTHEAST SIDE.

# SITE 22



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLUM METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	5	79	92.16	*****	20.6610	1614.	****	*****	
9	7	79	92.15	2400.	*****	*****	15.0	250.	
10	11	79	92.04	*****	*****	*****	****	*****	
10	30	79	91.97	*****	*****	*****	****	*****	
11	6	79	91.93	*****	*****	*****	****	*****	
11	14	79	91.94	*****	*****	*****	****	*****	
12	18	79	92.17	2400.	20.7190	1614.	14.5	245.	
1	16	80	91.30	2350.	20.7320	1614.	14.5	240.	
2	13	80	90.88	2400.	20.7450	1614.	14.5	240.	
3	13	80	90.64	2400.	20.7600	1614.	14.0	240.	
4	10	80	90.44	2400.	20.7790	1614.	14.0	245.	
5	7	80	90.17	2400.	20.8080	1614.	14.5	250.	
7	1	80	90.25	2400.	20.8220	1614.	15.0	260.	
7	23	80	91.33	2400.	20.8370	1614.	15.5	255.	
9	4	80	92.38	2350.	20.8550	1614.	15.0	265.	
10	15	80	92.23	2400.	20.8730	1614.	14.5	225.	
12	1	80	92.17	2500.	20.8920	1614.	14.0	250.	
1	20	81	91.78	2350.	20.9090	1614.	14.0	240.	
2	19	81	91.61	2350.	20.9280	1614.	15.0	245.	
3	24	81	91.61	2400.	20.9370	1614.	15.0	238.	
4	8	81	91.49	*****	*****	*****	****	*****	
5	4	81	91.44	2350.	20.9560	1614.	15.0	240.	
6	16	81	91.30	*****	20.9710	*****	15.5	180.	
7	14	81	90.85	2400.	20.9820	*****	13.0	260.	
8	11	81	92.32	2400.	20.9890	1614.	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 23

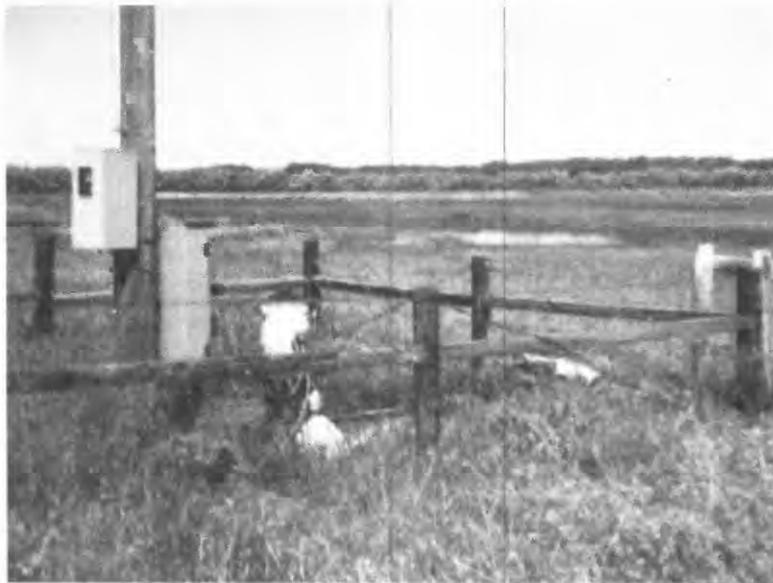
SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

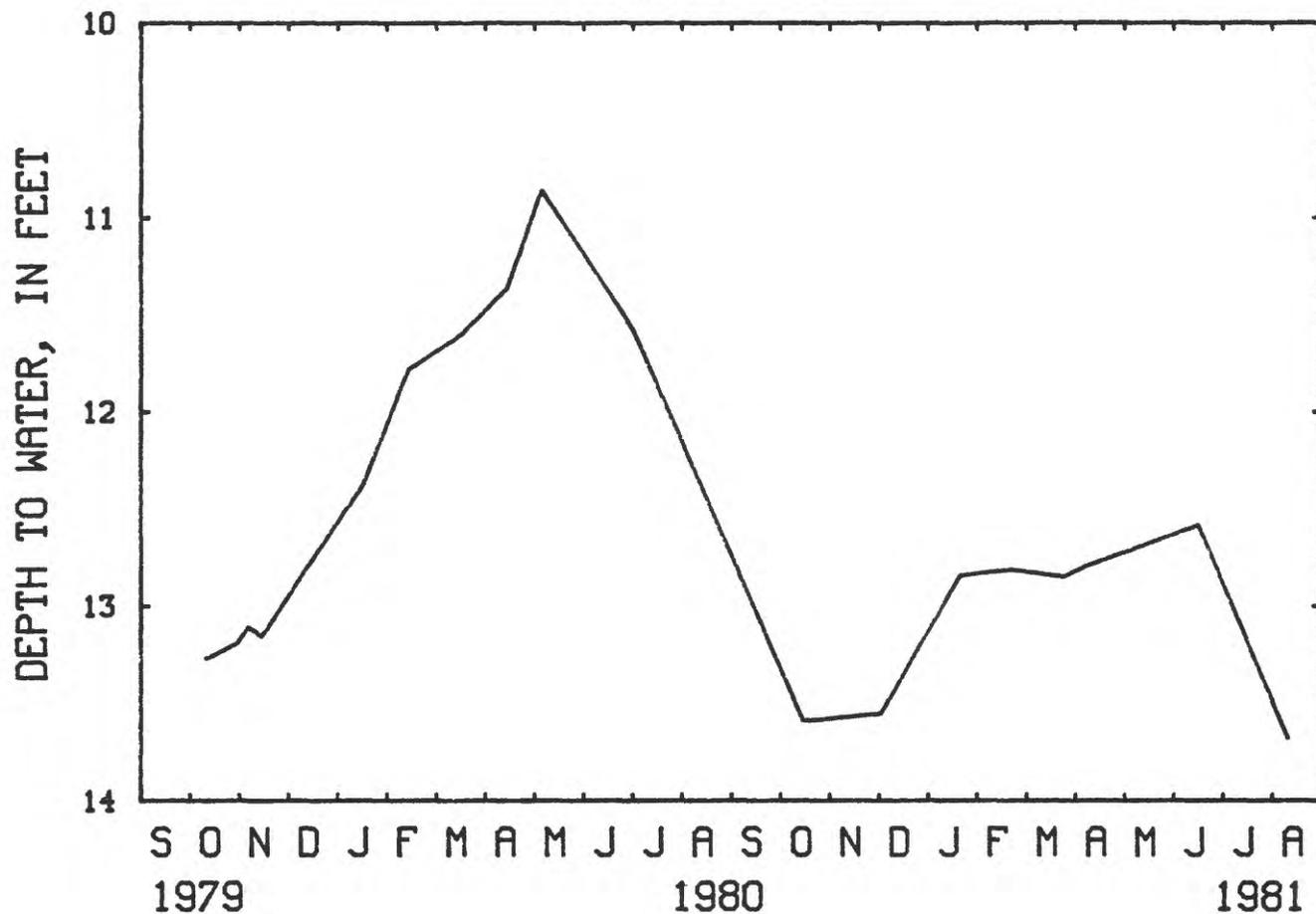
ALTITUDE = 3696.93

SITE DESCRIPTION AND LOCATION

AN IRRIGATION WELL LOCATED JUST NORTH OF THE WILDLIFE AREA ROAD. THE LOCAL WELL NUMBER IS 10-48-18 ADA. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE SOUTHWEST SIDE.



# SITE 23



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	5	79	*****	*****	*****	*****	15.5	310.	
10	11	79	13.27	*****	*****	*****	****	*****	
10	30	79	13.19	*****	*****	*****	****	*****	
11	0	79	13.11	*****	*****	*****	****	*****	
11	14	79	13.16	*****	*****	*****	****	*****	
12	17	79	12.74	*****	*****	*****	****	*****	
1	16	80	12.37	*****	*****	*****	****	*****	
2	13	80	11.78	*****	*****	*****	****	*****	
3	18	80	11.60	*****	*****	7373.	14.0	295.	
4	15	80	11.36	*****	*****	7373.	14.0	350.	
5	6	80	10.86	*****	*****	7373.	15.0	290.	
7	1	80	11.58	*****	*****	7373.	15.0	350.	
7	23	80	*****	*****	*****	*****	15.0	325.	
9	4	80	*****	*****	*****	8487.	15.0	315.	
10	15	80	13.59	*****	*****	8505.	14.0	290.	
12	2	80	13.55	*****	*****	8505.	14.5	290.	
1	20	81	12.84	*****	*****	8505.	14.5	280.	
2	19	81	12.81	*****	*****	8505.	15.0	285.	
3	29	81	12.85	*****	*****	8505.	15.0	276.	
4	8	81	12.79	*****	*****	*****	****	*****	
6	16	81	12.58	*****	*****	*****	16.0	285.	
7	15	81	*****	*****	*****	8602.	****	*****	
8	11	81	13.68	*****	*****	8770.	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 24

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

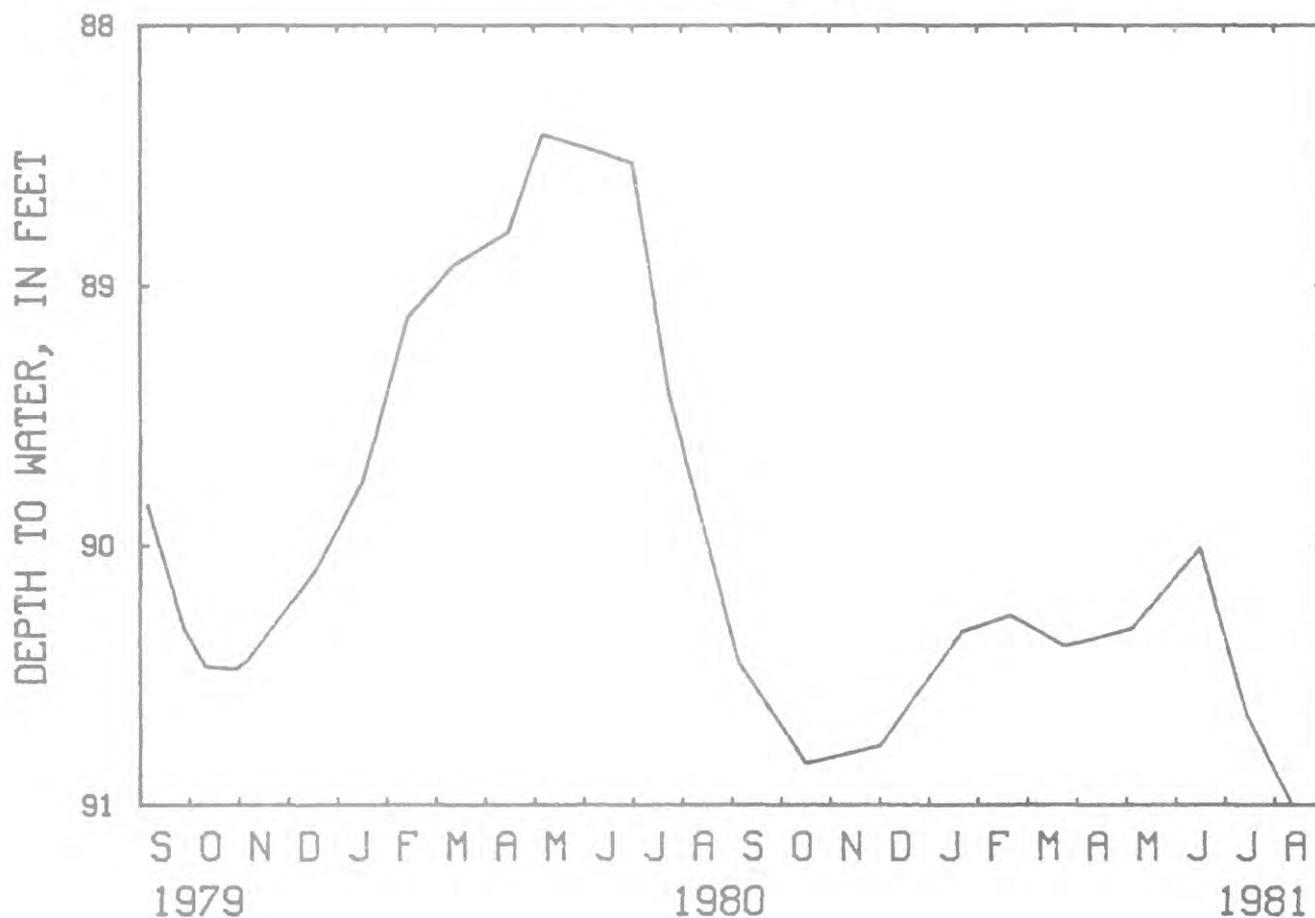
ALTITUDE = 3769.85

SITE DESCRIPTION AND LOCATION

A NEW IRRIGATION WELL DESIGNATED BY THE WILDLIFE AREA AS #6. THE LOCAL WELL NUMBER IS 10-48-17 BDA1. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE NORTHEAST SIDE.



# SITE 24



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	5	79	89.85	*****	16.2100	3316.	****	*****	
9	28	79	90.33	*****	*****	*****	****	*****	
10	11	79	90.47	*****	16.2042	*****	****	*****	
10	12	79	*****	1770.	16.2883	*****	14.0	280.	
10	29	79	90.48	*****	*****	*****	14.5	*****	
11	6	79	90.44	*****	*****	*****	****	*****	
11	13	79	*****	800.	40.8560	3361.	14.5	260.	END OF 7 DAY AQUIFER TEST
12	18	79	90.09	1400.	40.8741	3361.	14.5	270.	
1	18	80	89.75	1530.	40.8750	3361.	14.5	265.	
2	13	80	89.12	1470.	40.8925	3361.	14.0	255.	
3	13	80	88.92	1210.	40.8994	3361.	14.0	265.	
4	16	80	88.79	1340.	40.9070	3361.	14.0	265.	
5	7	80	88.42	*****	40.9048	3361.	14.5	270.	
7	1	80	88.53	1075.	40.9107	3361.	15.0	280.	
7	23	80	89.42	*****	40.9224	3361.	14.5	280.	
9	5	80	90.46	*****	40.9233	3361.	14.5	290.	
10	16	80	90.84	1110.	40.9308	3361.	14.0	265.	
12	1	80	90.77	*****	*****	*****	14.5	260.	
1	21	81	90.33	1240.	40.9820	3361.	14.5	265.	
2	18	81	90.27	1170.	41.0064	3362.	15.0	250.	
3	26	81	90.39	*****	41.0068	3362.	****	*****	
4	8	81	*****	1270.	15.0027	3456.	15.0	260.	END OF 14 DAY PUMP TEST; FLOW METER +100
5	5	81	90.32	1240.	15.0105	3456.	14.5	275.	
6	16	81	90.01	815.	15.0343	*****	16.0	260.	
7	14	81	90.66	1040.	15.0422	*****	15.0	300.	
8	11	81	90.99	*****	15.0321	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 25

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

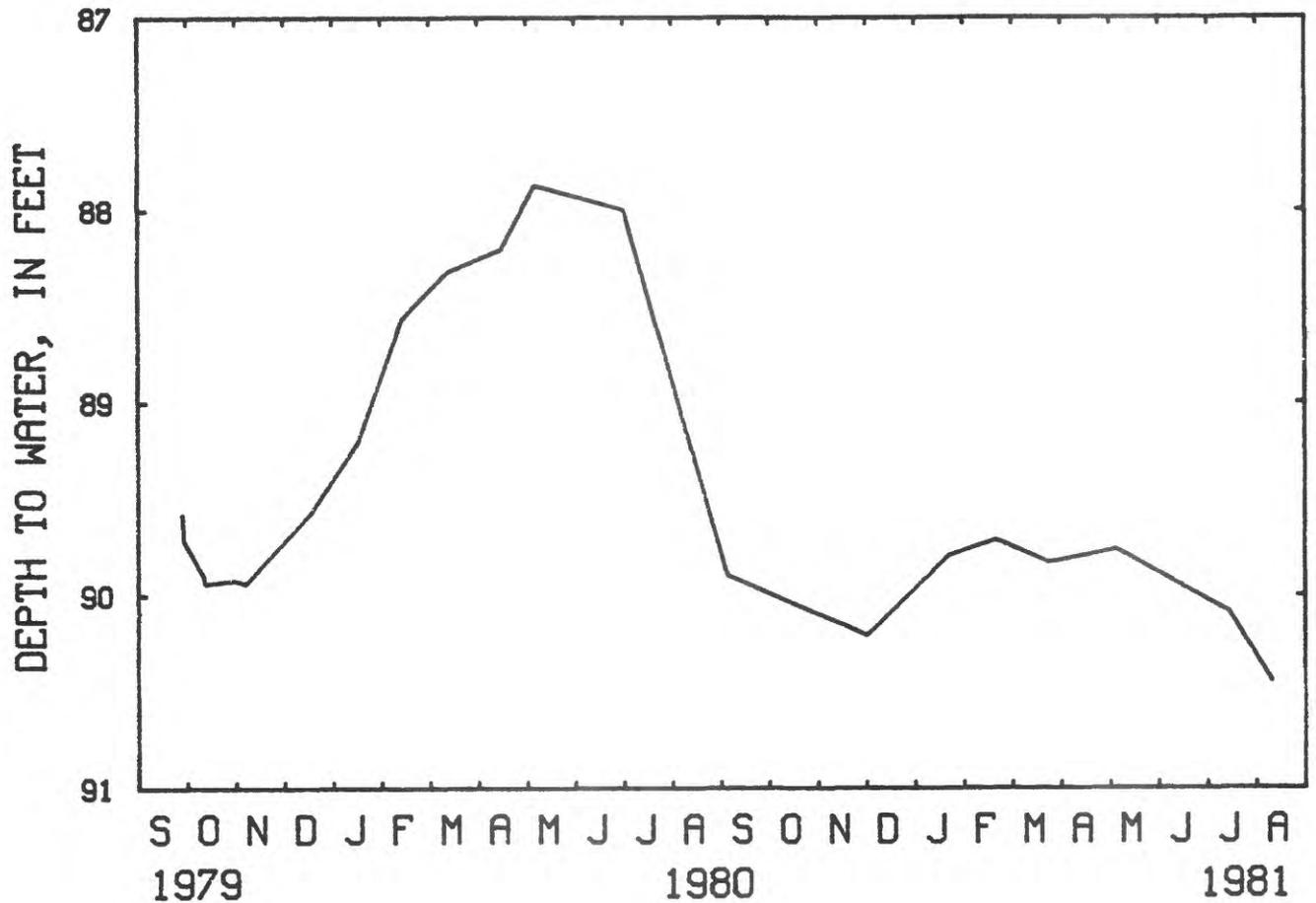
ALTITUDE = 3769.09

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1979 BY THE USGS TO A DEPTH OF 105 FEET. A 100 FOOT PVC PIPE, WITH AN OPEN BOTTOM AND 20 FOOT PERFORATED SECTION, WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED 13.5 FEET EAST OF NEW IRRIGATION WELL #6. THE LOCAL WELL NUMBER IS 10-48-17 BDA2. THE MP IS THE TOP OF CASING ON THE WEST SIDE.



# SITE 25



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	28	79	89.58	*****	*****	*****	***	*****	
9	29	79	89.72	*****	*****	*****	***	*****	
10	11	79	89.90	*****	*****	*****	***	*****	
10	12	79	89.94	*****	*****	*****	***	*****	
10	29	79	89.92	*****	*****	*****	***	*****	
11	6	79	89.94	*****	*****	*****	***	*****	
12	18	79	89.56	*****	*****	*****	***	*****	
1	16	80	89.20	*****	*****	*****	***	*****	
2	13	80	88.56	*****	*****	*****	***	*****	
3	13	80	88.32	*****	*****	*****	***	*****	
4	16	80	88.20	*****	*****	*****	***	*****	
5	7	80	87.87	*****	*****	*****	***	*****	
7	1	80	88.00	*****	*****	*****	***	*****	
9	5	80	89.90	*****	*****	*****	***	*****	
12	1	80	90.21	*****	*****	*****	***	*****	
1	21	81	89.79	*****	*****	*****	***	*****	
2	19	81	89.71	*****	*****	*****	***	*****	
3	24	81	89.83	*****	*****	*****	***	*****	
5	5	81	89.76	*****	*****	*****	***	*****	
7	14	81	90.09	*****	*****	*****	***	*****	
8	11	81	90.45	*****	*****	*****	***	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 26

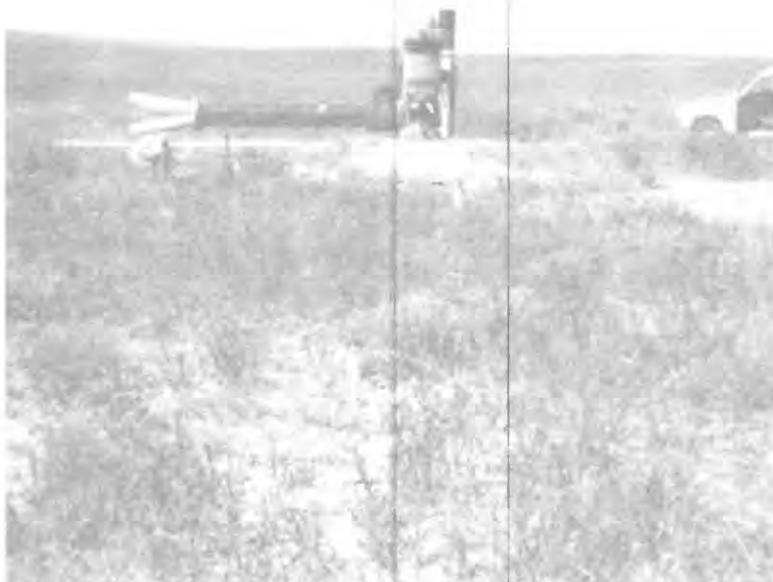
SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

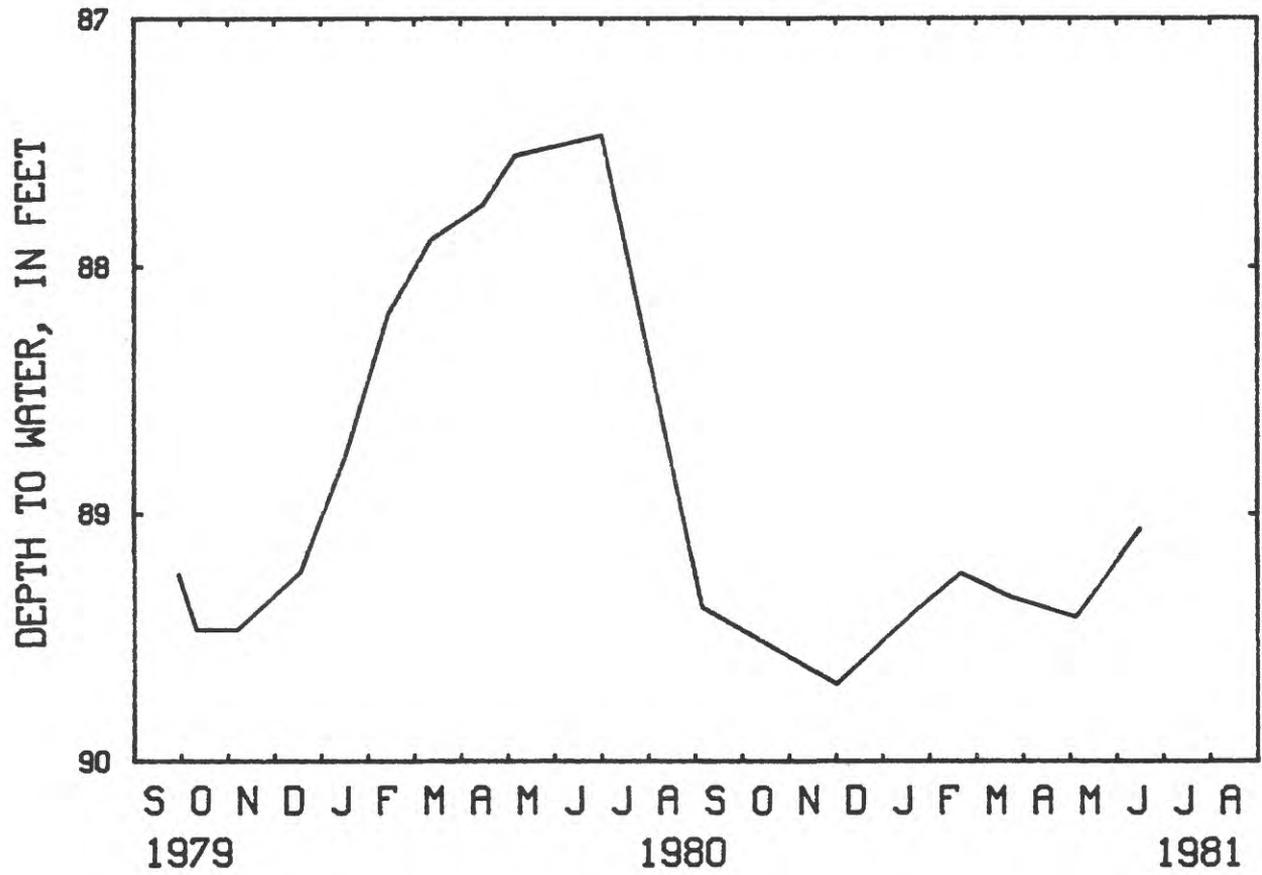
ALTITUDE = 3768.65

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1979 BY THE USGS TO A DEPTH OF 105 FEET. A 100 FOOT PVC PIPE, WITH AN OPEN BOTTOM AND 20 FOOT PERFORATED SECTION, WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED 37 FEET EAST OF NEW IRRIGATION WELL #6. THE LOCAL WELL NUMBER IS 10-48-17 BDA2. THE MP IS THE TOP OF CASING ON THE WEST SIDE.



# SITE 26



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	29	79	89.25	*****	*****	*****	****	*****	
10	11	79	89.47	*****	*****	*****	****	*****	
10	30	79	89.47	*****	*****	*****	****	*****	
11	6	79	89.47	*****	*****	*****	****	*****	
12	16	79	89.23	*****	*****	*****	****	*****	
1	16	80	88.77	*****	*****	*****	****	*****	
2	13	80	88.19	*****	*****	*****	****	*****	
3	13	80	87.89	*****	*****	*****	****	*****	
4	16	80	87.75	*****	*****	*****	****	*****	
5	7	80	87.55	*****	*****	*****	****	*****	
7	1	80	87.47	*****	*****	*****	****	*****	
9	5	80	89.38	*****	*****	*****	****	*****	
12	1	80	89.69	*****	*****	*****	****	*****	
1	21	81	89.39	*****	*****	*****	****	*****	
2	19	81	89.24	*****	*****	*****	****	*****	
3	24	81	89.34	*****	*****	*****	****	*****	
5	5	81	89.42	*****	*****	*****	****	*****	
6	16	81	89.06	*****	*****	*****	****	*****	

PRIOR READINGS ADJUSTED 2.07 TO NEW MP

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 27

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

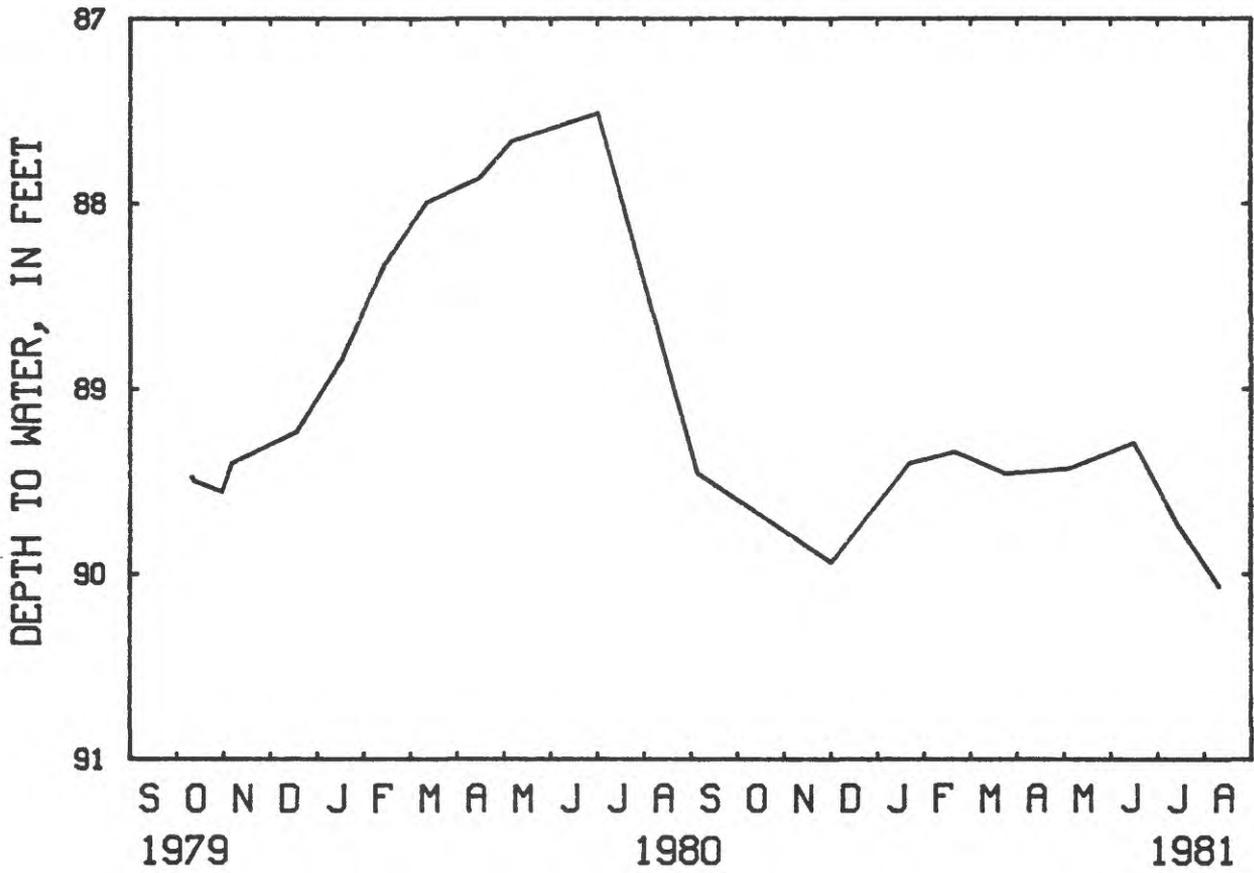
ALTITUDE = 3768.52

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1979 BY THE USGS TO A DEPTH OF 105 FEET. A 100 FOOT PVC PIPE, WITH AN OPEN BOTTOM AND 20 FOOT PERFORATED SECTION, WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED 105 FEET EAST OF NEW IRRIGATION WELL #6. THE LOCAL WELL NUMBER IS 10-48-17 BDA3. THE MP IS THE TOP OF CASING ON THE WEST SIDE.



# SITE 27



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
10	11	79	89.48	*****	*****	*****	****	*****	
10	12	79	89.50	*****	*****	*****	****	*****	
10	30	79	89.56	*****	*****	*****	****	*****	
11	6	79	89.40	*****	*****	*****	****	*****	
12	18	79	89.23	*****	*****	*****	****	*****	
1	16	80	88.84	*****	*****	*****	****	*****	
2	13	80	88.33	*****	*****	*****	****	*****	
3	13	80	87.99	*****	*****	*****	****	*****	
4	16	80	87.86	*****	*****	*****	****	*****	
5	7	80	87.66	*****	*****	*****	****	*****	
7	1	80	87.51	*****	*****	*****	****	*****	
9	5	80	89.46	*****	*****	*****	****	*****	
12	1	80	89.94	*****	*****	*****	****	*****	
1	21	81	89.40	*****	*****	*****	****	*****	
2	19	81	89.34	*****	*****	*****	****	*****	
3	24	81	89.46	*****	*****	*****	****	*****	
5	5	81	89.43	*****	*****	*****	****	*****	
6	16	81	89.29	*****	*****	*****	****	*****	
7	14	81	89.74	*****	*****	*****	****	*****	
8	11	81	90.07	*****	*****	*****	****	*****	

PRIOR READINGS ADJUSTED 1.74 TO NEW HP

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 28

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

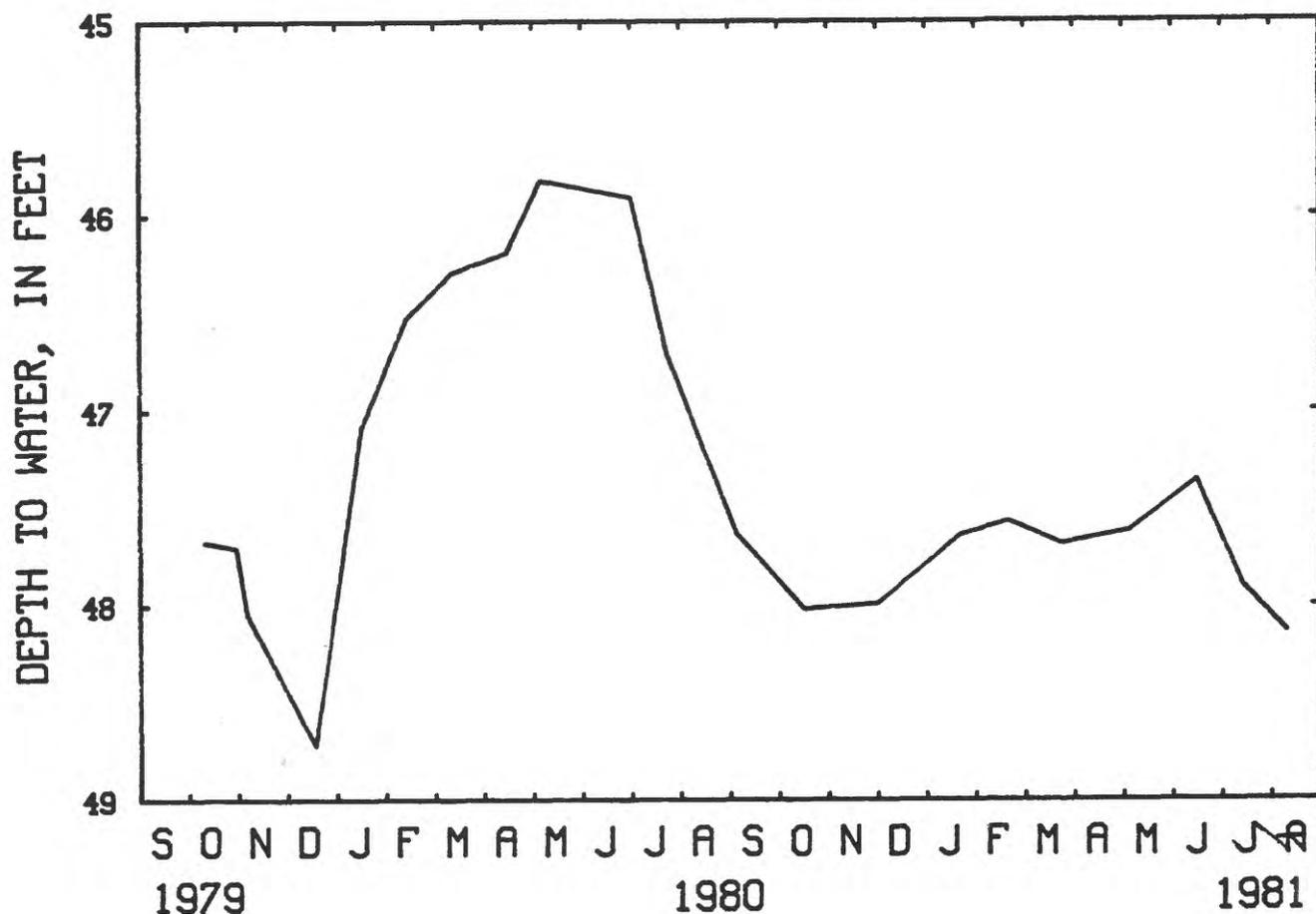
ALTITUDE = 3726.72

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ABOUT 740 FEET SOUTH OF NEW IRRIGATION WELL #6. THE LOCAL WELL NUMBER IS 10-48-17 ACC. THE MP IS THE TOP OF CASING AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE WEST SIDE.



# SITE 28



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
10	11	79	47.68	*****	*****	*****	***	*****	
10	30	79	47.71	*****	*****	*****	***	*****	
11	6	79	48.05	*****	*****	*****	***	*****	
12	18	79	48.72	*****	*****	*****	***	*****	
1	10	80	47.08	*****	*****	*****	***	*****	
2	13	80	46.52	*****	*****	*****	***	*****	
3	13	80	46.29	*****	*****	*****	***	*****	
4	16	80	46.19	*****	*****	*****	***	*****	
5	7	80	45.82	*****	*****	*****	***	*****	
7	1	80	45.91	*****	*****	*****	***	*****	
7	23	80	46.71	*****	*****	*****	***	*****	
9	5	80	47.64	*****	*****	*****	***	*****	
10	10	80	48.02	*****	*****	*****	***	*****	
12	1	80	47.99	*****	*****	*****	***	*****	
1	21	81	47.64	*****	*****	*****	***	*****	
2	19	81	47.57	*****	*****	*****	***	*****	
3	24	81	47.69	*****	*****	*****	***	*****	
5	5	81	47.62	*****	*****	*****	***	*****	
6	10	81	47.36	*****	*****	*****	***	*****	
7	14	81	47.91	*****	*****	*****	***	*****	
8	11	81	48.14	*****	*****	*****	***	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 29

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

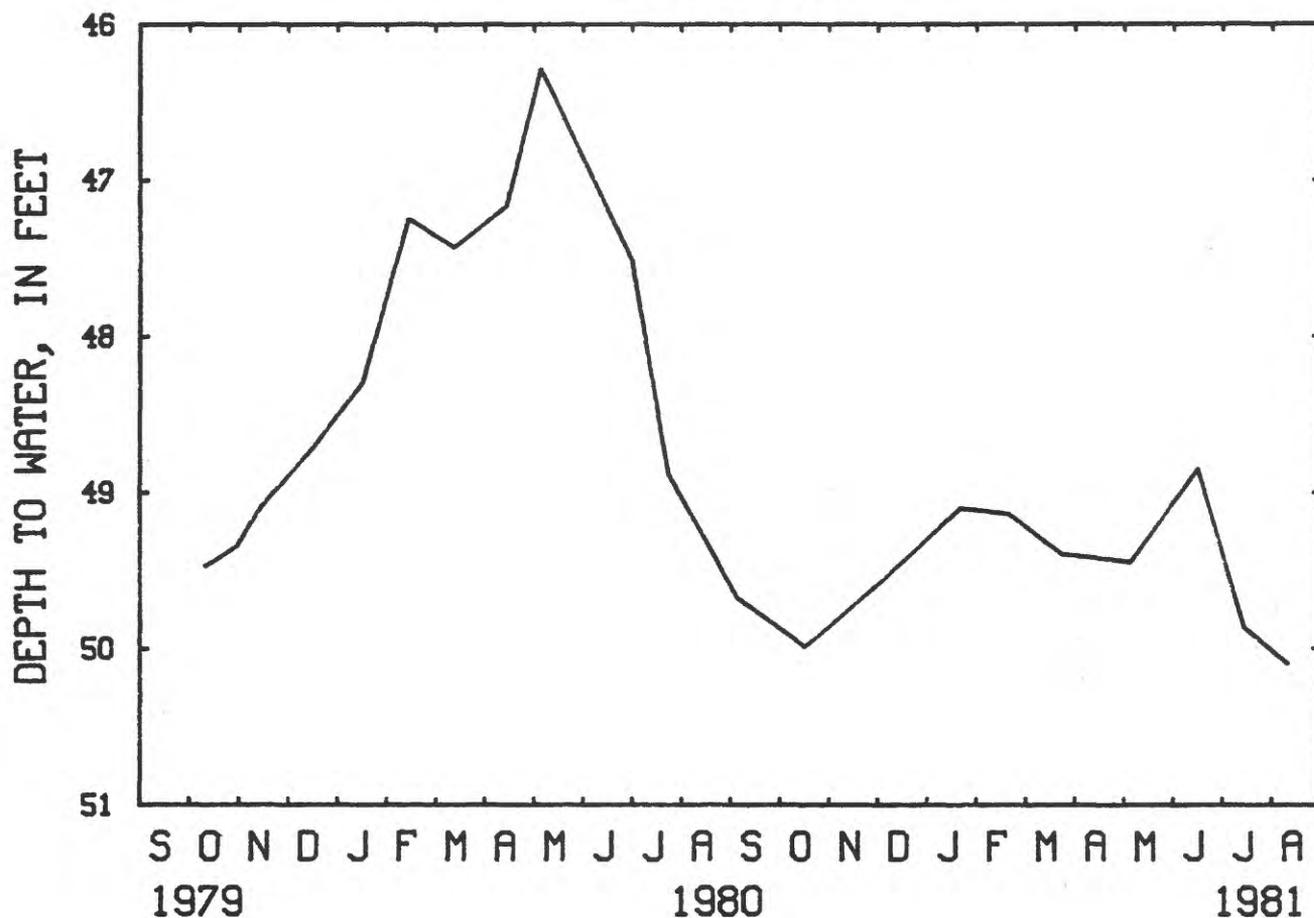
ALTITUDE = 3725.30

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED DUE SOUTH OF THE HEADQUARTERS AND ABOUT 100 YARDS SOUTH OF THE WILDLIFE AREA ROAD. THE LOCAL WELL NUMBER IS 10-48-17 ABA. THE MP IS THE TOP OF CASING ON THE SOUTH SIDE.



# SITE 29



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
10	11	79	49.47	*****	*****	*****	****	*****	
10	30	79	49.34	*****	*****	*****	****	*****	
11	6	79	49.22	*****	*****	*****	****	*****	
11	14	79	49.09	*****	*****	*****	****	*****	
12	17	79	48.70	*****	*****	*****	****	*****	
1	16	80	48.29	*****	*****	*****	****	*****	
2	13	80	47.25	*****	*****	*****	****	*****	
3	13	80	47.43	*****	*****	*****	****	*****	
4	15	80	47.16	*****	*****	*****	****	*****	
5	6	80	46.29	*****	*****	*****	****	*****	
7	1	80	47.52	*****	*****	*****	****	*****	
7	23	80	48.89	*****	*****	*****	****	*****	
9	5	80	49.68	*****	*****	*****	****	*****	
10	16	80	49.99	*****	*****	*****	****	*****	
12	2	80	49.57	*****	*****	*****	****	*****	
1	20	81	49.10	*****	*****	*****	****	*****	
2	19	81	49.14	*****	*****	*****	****	*****	
3	24	81	49.40	*****	*****	*****	****	*****	
5	5	81	49.45	*****	*****	*****	****	*****	
6	16	81	48.85	*****	*****	*****	****	*****	
7	14	81	49.87	*****	*****	*****	****	*****	
8	11	81	50.10	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 30

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

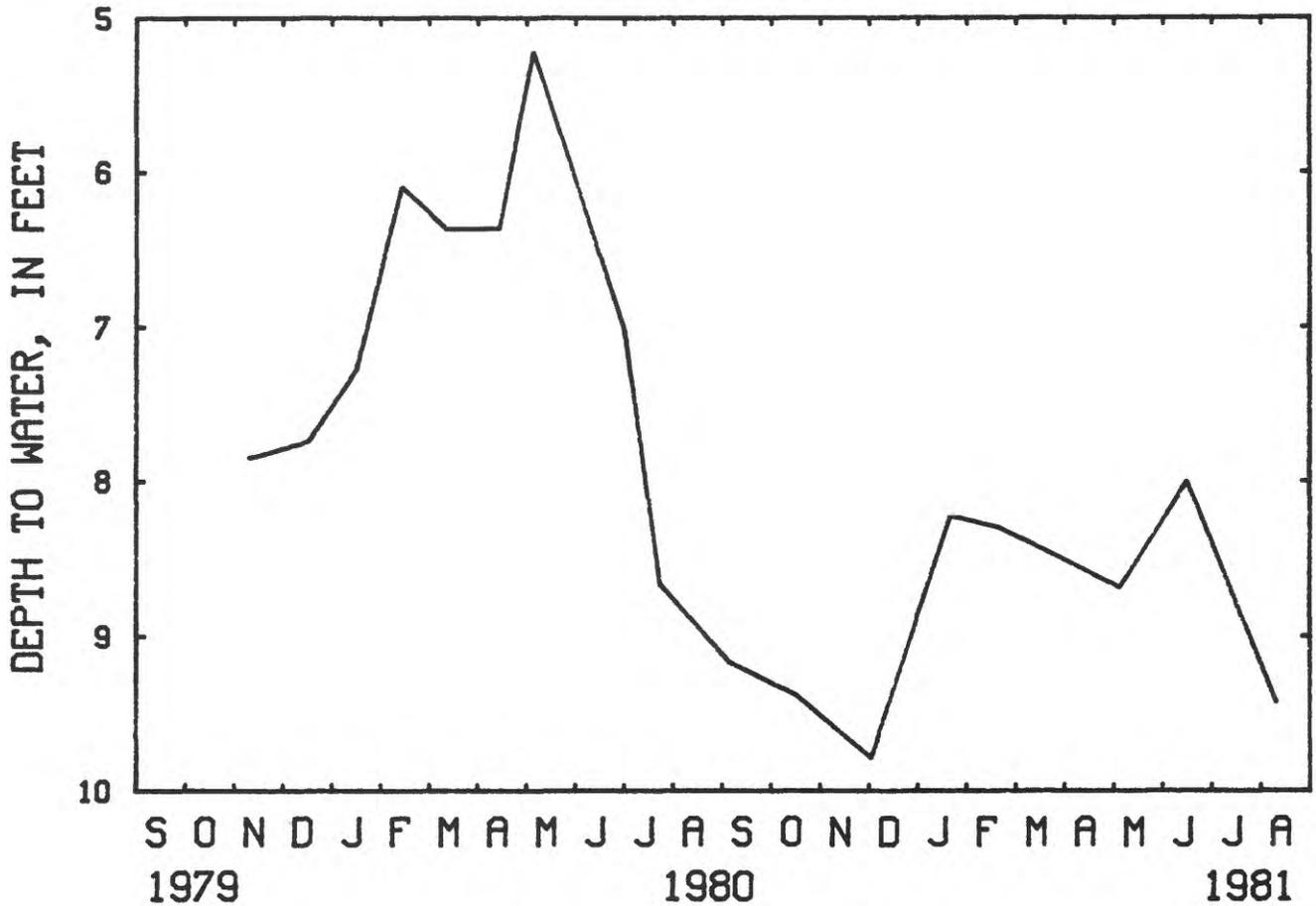
ALTITUDE = 3684.29

SITE DESCRIPTION AND LOCATION

A DOMESTIC WELL FOR LAWN IRRIGATION AT THE HEADQUARTERS, LOCATED BETWEEN THE HOUSE AND GARAGE. SAMPLES ARE COLLECTED AT THE SPIGOT OR THE END OF THE HOSE. THE LOCAL WELL NUMBER IS 10-48-08 DCC. THE MP IS THE TOP OF THE INSIDE EDGE OF A CEMENT FORM WHERE A MANHOLE COVERS SETS, ON THE WEST SIDE. MEASUREMENT IS MADE BY REMOVING THE COVER AND DROPPING THE TAPE DOWN INTO THE WELL CASING BELOW



# SITE 30



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	7	79	7.85	*****	*****	*****	16.5	440.	
11	10	79	7.85	*****	*****	*****	****	*****	
12	17	79	7.74	*****	*****	*****	****	*****	
1	16	80	7.27	*****	*****	*****	****	*****	
2	13	80	6.10	*****	*****	*****	****	*****	
3	13	80	6.37	*****	*****	*****	****	*****	
4	15	80	6.36	*****	*****	*****	13.0	320.	
5	6	80	5.22	*****	*****	*****	12.5	310.	
7	1	80	7.02	*****	*****	*****	13.0	345.	
7	23	80	8.67	*****	*****	*****	13.0	400.	
9	5	80	9.17	*****	*****	*****	****	*****	
10	16	80	9.38	*****	*****	*****	****	*****	
12	2	80	9.79	*****	*****	*****	15.5	315.	PUMPING
1	20	81	8.22	*****	*****	*****	****	*****	
2	19	81	8.30	*****	*****	*****	****	*****	
3	27	81	8.30	*****	*****	*****	15.0	340.	PUMPING
5	5	81	8.69	*****	*****	*****	****	*****	
6	16	81	8.00	*****	*****	*****	****	*****	
7	14	81	8.00	*****	*****	*****	16.0	420.	PUMPING
8	11	81	9.43	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 31

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS RIVER

ALTITUDE =\*\*\*\*\*

SITE DESCRIPTION AND LOCATION

MAIN CHANNEL OF THE SOUTH PLATTE RIVER AT THE END OF A TRUCK  
PATH DUE NORTH OF THE HEADQUARTERS. THERE IS NO MP.



MONTH	DAY	YEAR	TIME	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
9	4	79	1730	*****	*****	*****	*****	*****	****	27.0	1750.	
12	17	79	1500	*****	*****	*****	*****	*****	****	.0	1270.	RIVER FULL OF SNOW AND ICE
1	16	80	1130	*****	*****	*****	*****	*****	8.5	4.0	1525.	
3	13	80	1120	*****	*****	*****	*****	*****	7.0	4.5	1580.	INTERMEDIATE CHANNEL WT=6.0,SC=850
4	15	80	1530	*****	*****	*****	*****	*****	23.0	12.0	1500.	INTERMEDIATE CHANNEL WT=13.5,SC=950
7	1	80	1650	*****	*****	*****	*****	*****	30.5	26.0	1250.	
9	5	80	920	*****	*****	*****	*****	*****	****	17.5	1560.	
12	3	80	930	*****	*****	*****	*****	*****	9.5	.5	1700.	
1	20	81	1645	*****	*****	*****	*****	*****	1.0	1.5	1440.	
2	19	81	1520	*****	*****	*****	*****	*****	22.5	10.0	1600.	
5	5	81	1030	*****	*****	*****	*****	*****	17.0	15.5	1400.	
7	14	81	1055	*****	*****	*****	*****	*****	****	26.0	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 32

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

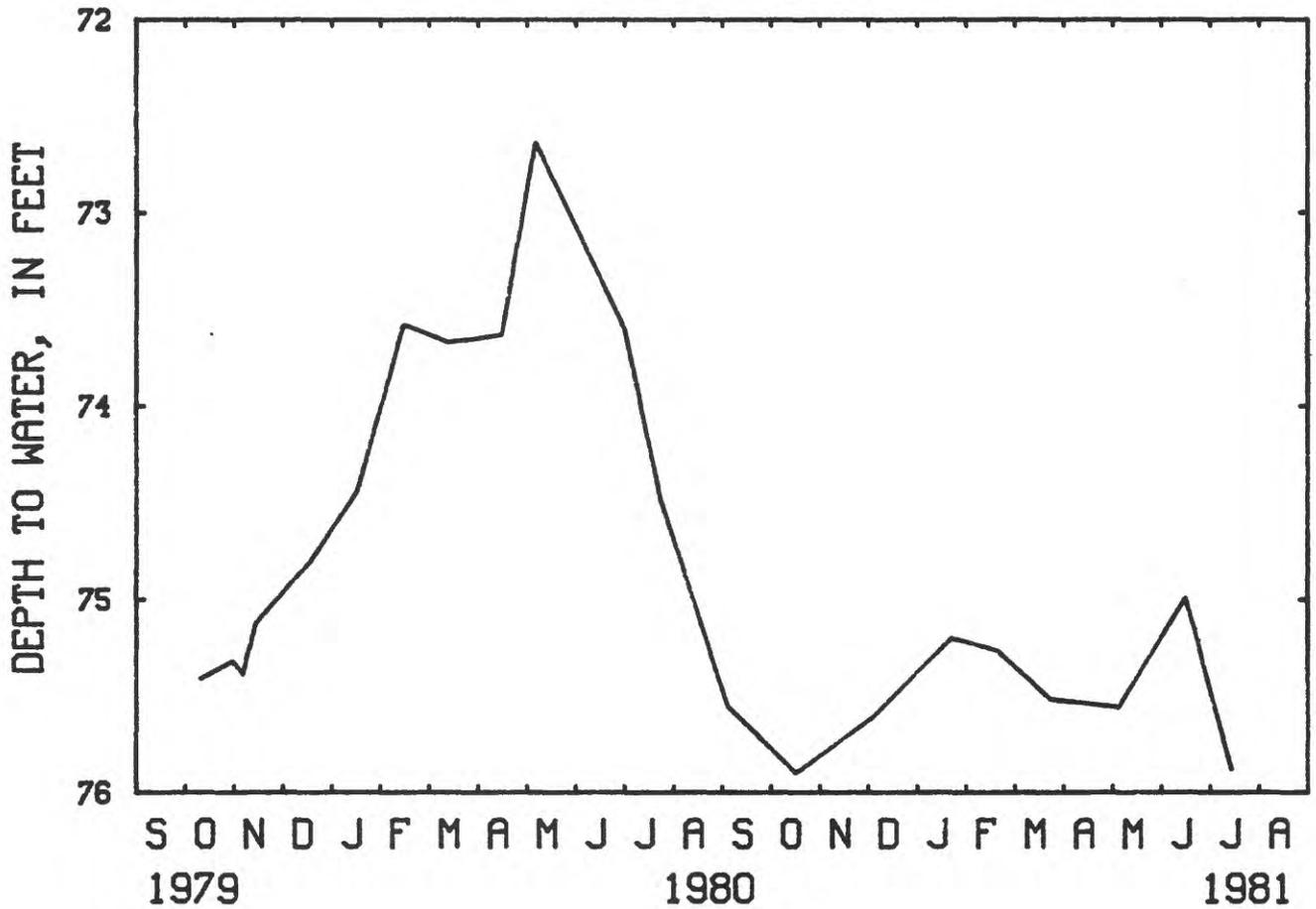
ALTITUDE = 3750.29

SITE DESCRIPTION AND LOCATION

A NEW IRRIGATION WELL DESIGNATED BY THE WILDLIFE AREA AS #7. THE LOCAL WELL NUMBER IS 10-48-17 AAC. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE NORTHEAST SIDE.



# SITE 32



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
10	11	79	75.41	*****	*****	*****	****	*****	
10	30	79	75.32	*****	*****	*****	****	*****	
11	6	79	75.39	*****	*****	*****	****	*****	
11	14	79	75.12	*****	*****	*****	****	*****	
12	18	79	74.80	2350.	21.4490	3618.	14.5	240.	
1	16	80	74.44	2400.	21.4460	3618.	14.5	240.	
2	14	80	73.58	2450.	21.4830	3618.	14.0	240.	
3	13	80	73.67	2350.	21.5010	3618.	14.0	240.	
4	16	80	73.63	2350.	21.5190	3618.	14.0	245.	
5	7	80	72.64	2350.	21.5390	3618.	15.0	245.	
7	1	80	73.61	2400.	21.5560	3618.	15.0	275.	
7	23	80	74.49	2450.	21.5750	3618.	14.0	280.	
9	4	80	75.56	2350.	21.5940	3618.	14.0	275.	
10	16	80	75.90	2400.	21.6040	3618.	14.0	255.	
12	3	80	75.61	2350.	21.6180	3618.	14.5	245.	
1	21	81	75.20	2300.	21.6390	3618.	14.5	240.	
2	19	81	75.27	2350.	21.6530	3618.	15.0	245.	
3	24	81	75.52	2400.	21.6550	3618.	14.0	246.	
5	5	81	75.56	2350.	21.6770	3618.	15.0	250.	
6	16	81	74.99	2500.	21.6940	*****	16.0	180.	
7	14	81	75.88	2500.	21.7080	*****	15.0	200.	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 33

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

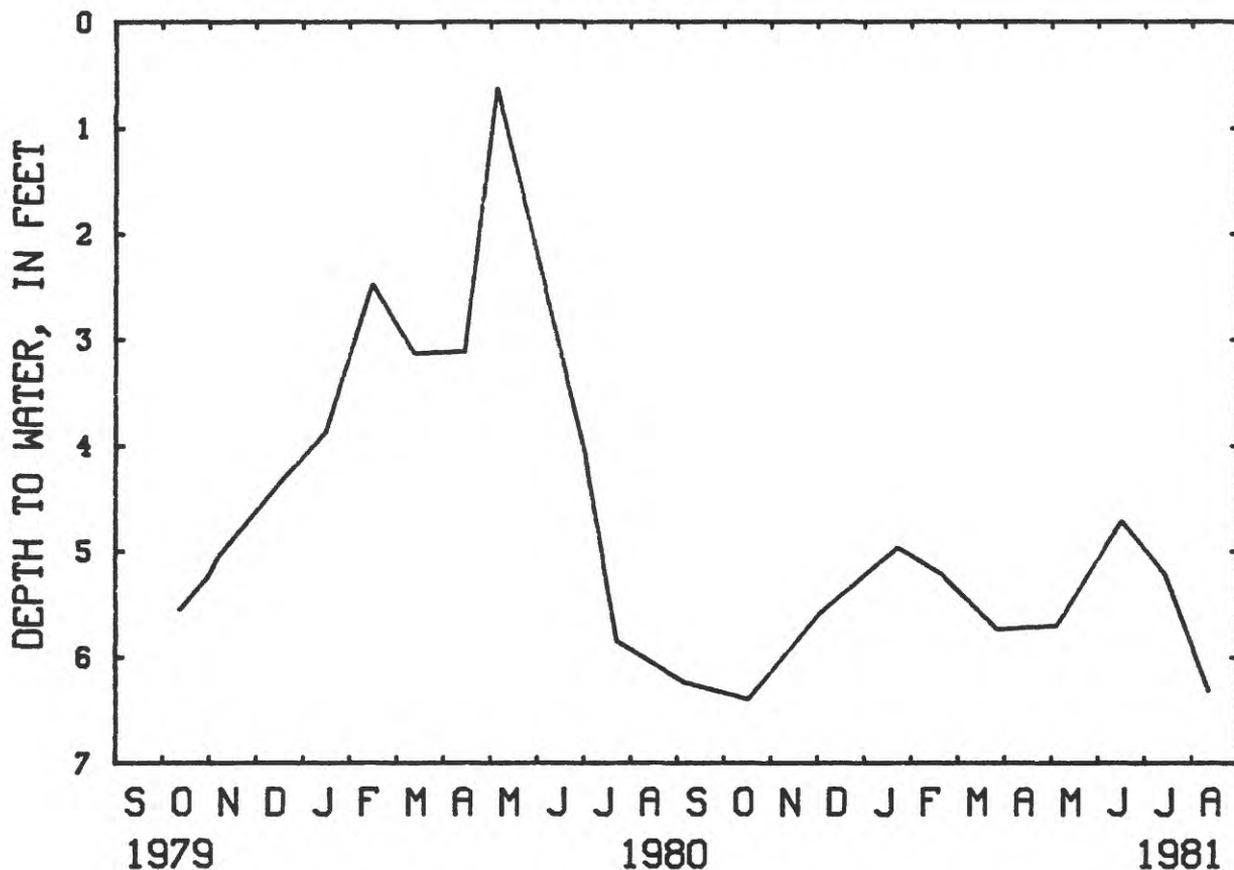
ALTITUDE = 3676.71

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1979 BY THE USGS TO A DEPTH OF 12 FEET. A 5 FOOT PIPE CONNECTED TO A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 100 FEET SOUTH OF THE POND WHICH IS ABOUT ONE-HALF MILE EAST OF THE HEADQUARTERS. THE LOCAL WELL NUMBER IS 10-48-09 CCA1. THE MP IS THE TOP OF CASING ON A FLAT EDGE ON THE EAST SIDE.



# SITE 33



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
10	12	79	5.55	*****	*****	*****	16.0	710.	
10	30	79	5.25	*****	*****	*****	***	*****	
11	7	79	5.03	*****	*****	*****	12.5	680.	
12	18	79	4.32	*****	*****	*****	9.0	950.	
1	15	80	3.86	*****	*****	*****	7.0	930.	
2	14	80	2.48	*****	*****	*****	5.0	780.	
3	13	80	3.13	*****	*****	*****	5.0	670.	
4	15	80	3.11	*****	*****	*****	6.0	950.	
5	6	80	.63	*****	*****	*****	9.0	1150.	FLOOD WATER .56 FROM TOP WT=18.5,SC=1020
7	1	80	4.05	*****	*****	*****	15.5	850.	
7	22	80	5.85	*****	*****	*****	16.5	1200.	
9	5	80	6.24	*****	*****	*****	17.0	1350.	
10	16	80	6.40	*****	*****	*****	15.5	900.	
12	2	80	5.58	*****	*****	*****	11.5	895.	
1	21	81	4.97	*****	*****	*****	9.0	940.	
2	19	81	5.22	*****	*****	*****	8.0	910.	
3	27	81	5.74	*****	*****	*****	10.0	850.	
5	5	81	5.70	*****	*****	*****	12.5	860.	
6	16	81	4.72	*****	*****	*****	16.0	1200.	
7	14	81	5.23	*****	*****	*****	18.0	1300.	
8	12	81	6.32	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 34

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS POND

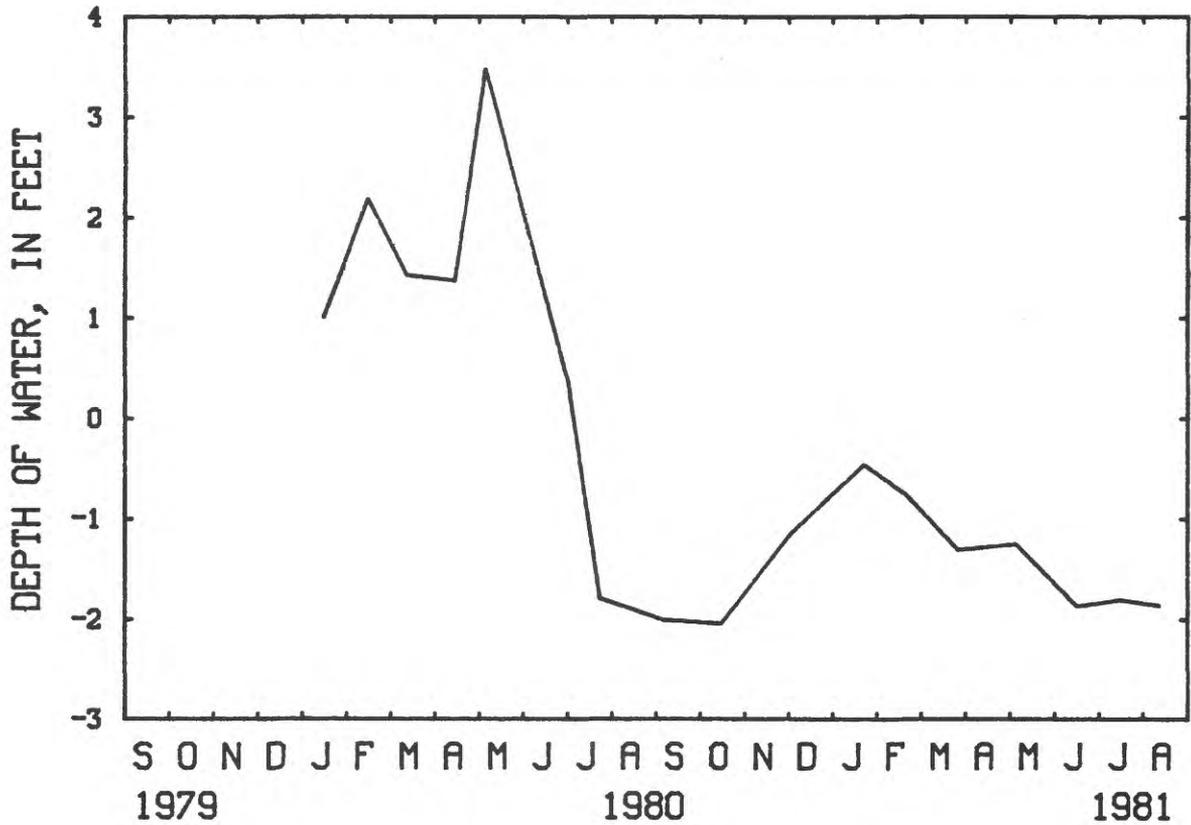
ALTITUDE = 3671.98

SITE DESCRIPTION AND LOCATION

A STAFF GAGE WAS INSTALLED BY THE USGS IN 1979 IN THE POND ABOUT ONE-HALF MILE EAST OF THE HEADQUARTERS AND ABOUT 200 YARDS NORTH OF THE WILDLIFE AREA ROAD. THE POND IS DIKED ALL AROUND AND THUS APPEARS MANMADE.



# SITE 34



MONTH	DAY	YEAR	TIME	DEPTH OF WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
9	5	79	1245	*****	*****	*****	*****	*****	****	24.5	650.	
10	12	79	****	*****	*****	*****	*****	*****	****	16.0	860.	DISSOLVED OXYGEN = 14.6
10	30	79	1105	*****	*****	*****	*****	*****	4.0	10.0	610.	
11	9	79	900	*****	*****	*****	*****	*****	5.0	7.0	600.	
12	17	79	1530	*****	*****	*****	*****	*****	6.0	3.5	620.	ICE COVER 2 INCHES THICK
1	15	80	1445	1.01	*****	*****	*****	*****	15.5	5.0	600.	THIN ICE COVER
2	14	80	1020	2.18	*****	*****	*****	*****	-1.0	1.0	650.	ICE COVER 4 INCHES THICK
3	13	80	1000	1.42	*****	*****	*****	*****	5.0	5.0	660.	
4	15	80	1625	1.37	*****	*****	*****	*****	21.0	9.5	660.	
5	6	80	1330	3.48	*****	*****	*****	*****	23.5	17.5	650.	
7	1	80	1730	.37	*****	*****	*****	*****	26.5	26.5	630.	
7	23	80	750	-1.80	*****	*****	*****	*****	23.5	24.0	620.	SET FENCE POST AT 2.30, D/W= 49.25 IN.
9	5	80	830	-2.01	*****	*****	*****	*****	17.0	20.0	620.	D/W= 51.75 INCHES
10	15	80	1550	-2.05	*****	*****	*****	*****	11.0	14.0	610.	D/W= 52.25 INCHES
12	2	80	1505	-1.14	*****	*****	*****	*****	5.5	3.0	605.	CHOPPED THRU 1 IN. OF ICE, D/W=41.25 IN.
1	21	81	1020	-.46	*****	*****	*****	*****	6.0	4.0	615.	CHOPPED THRU .5 IN. OF ICE, D/W=33.12 IN.
2	19	81	1520	-.76	*****	*****	*****	*****	21.5	6.5	540.	THIN ICE IN POND MIDDLE, D/W=36.75 IN.
3	27	81	1035	-1.31	*****	*****	*****	*****	19.5	11.0	520.	D/W=43 3/8 INCHES
5	5	81	1100	-1.25	*****	*****	*****	*****	18.0	17.5	500.	D/W = 42 5/8 INCHES
6	16	81	1410	-1.87	*****	*****	*****	*****	****	****	****	D/W=50 INCHES
7	14	81	1220	-1.81	*****	*****	*****	*****	****	****	****	D/W=49.32 INCHES
8	14	81	1430	-1.87	*****	*****	*****	*****	****	****	****	D/W=50.0 INCHES

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 35

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

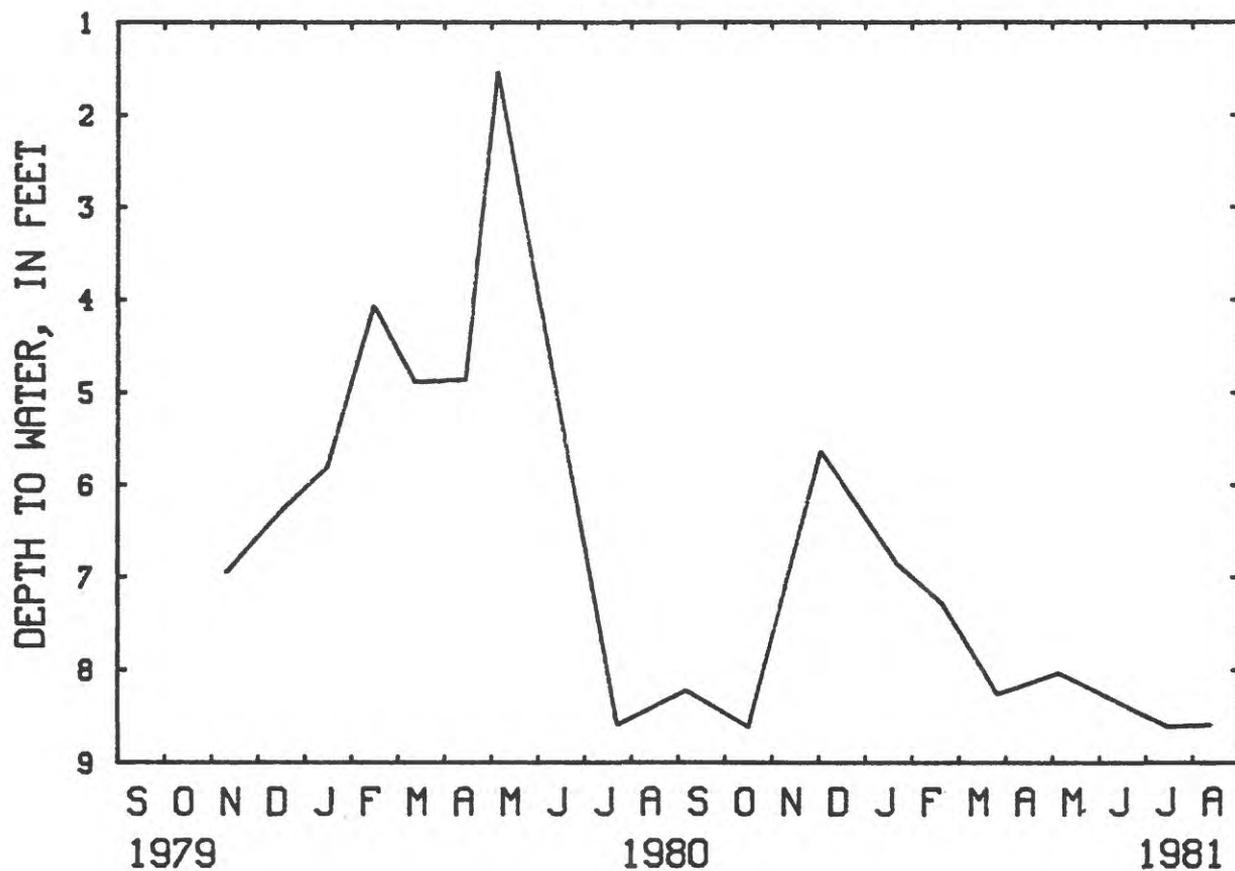
ALTITUDE = 3678.03

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS HAND AUGERED IN 1979 BY THE USGS TO A DEPTH OF 14 FEET. A 9 FOOT PIPE CONNECTED TO A 4 FOOT WELL POINT WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 200 FEET EASTNORTHEAST OF THE POND WHICH IS ABOUT ONE-HALF MILE EAST OF THE HEADQUARTERS. THE LOCAL WELL NUMBER IS 10-48-09 CCA2. THE MP IS THE TOP OF CASING, A COUPLER CONNECTION, ON THE WEST.



# SITE 35



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	10	79	6.95	*****	*****	*****	13.0	670.	
12	17	79	6.26	*****	*****	*****	9.0	700.	
1	15	80	5.80	*****	*****	*****	9.0	690.	
2	14	80	4.07	*****	*****	*****	7.0	620.	
3	13	80	4.89	*****	*****	*****	7.0	810.	
4	15	80	4.86	*****	*****	*****	9.0	1000.	
5	6	80	1.54	*****	*****	*****	11.5	1360.	FLOOD WATER 1.41 FROM TOP WT=19,SC=700
7	1	80	6.69	*****	*****	*****	16.5	1430.	
7	22	80	8.59	*****	*****	*****	****	*****	
9	5	80	8.22	*****	*****	*****	16.5	1300.	
10	16	80	8.62	*****	*****	*****	****	*****	
12	2	80	5.64	*****	*****	*****	11.5	925.	
1	21	81	6.87	*****	*****	*****	10.0	750.	
2	19	81	7.29	*****	*****	*****	10.0	680.	
3	27	81	8.26	*****	*****	*****	****	*****	
5	5	81	8.03	*****	*****	*****	13.5	660.	
7	14	81	8.61	*****	*****	*****	21.0	850.	
8	12	81	8.59	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 36

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS RIVER

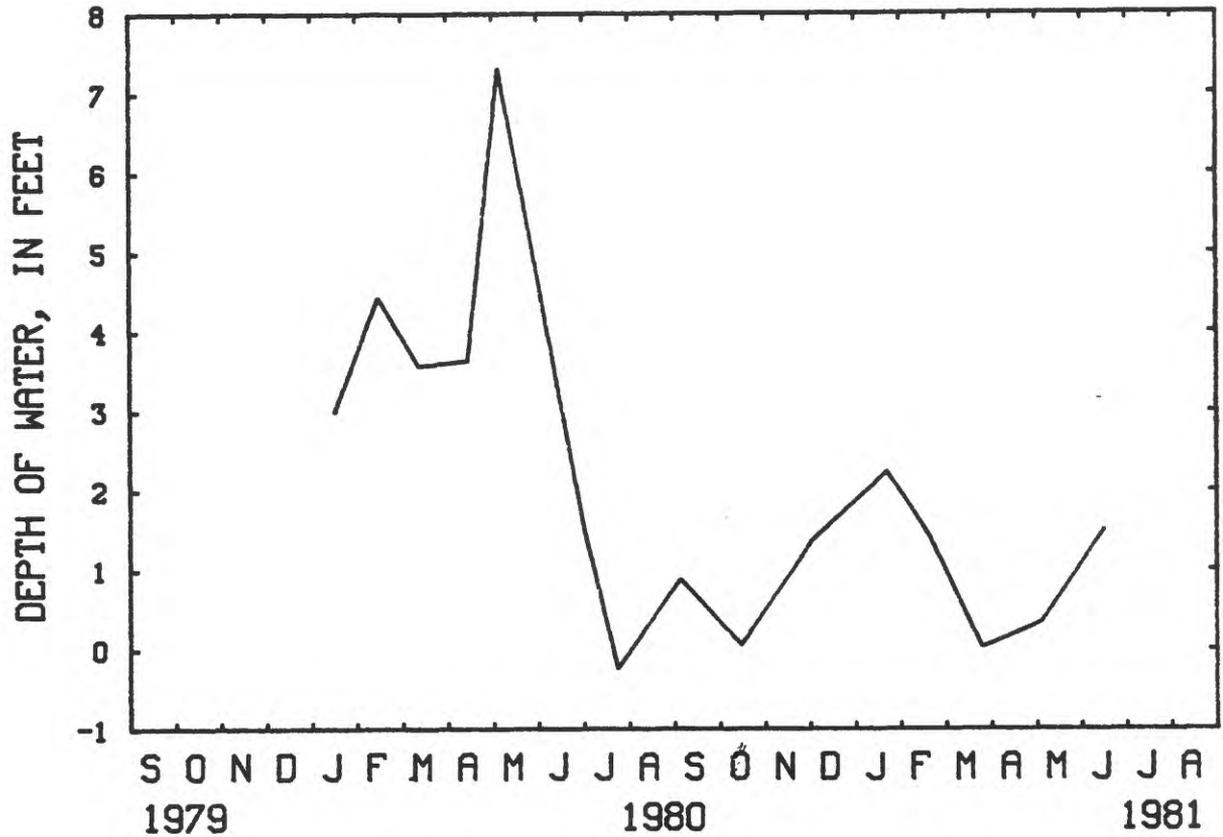
ALTITUDE = 3666.38

SITE DESCRIPTION AND LOCATION

A CANTILEVER GAGE WAS INSTALLED BY THE USGS IN 1979 ON THE SOUTHERN CHANNEL OF THE SOUTH PLATTE RIVER NEAR A BIG WOOD PILE ABOUT ONE MILE EAST OF THE HEADQUARTERS AND 100 YARDS NORTH OF THE WILDLIFE AREA ROAD.



# SITE 36



MONTH	DAY	YEAR	TIME	DEPTH OF WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
9	5	79	1205	*****	*****	*****	*****	*****	24.0	22.5	1725.	
9	6	79	1620	*****	*****	*****	*****	*****	26.0	24.5	1800.	
12	17	79	1550	*****	*****	*****	*****	*****	***	.0	1600.	SNOW AND ICE IN WATER
1	16	80	1410	3.00	*****	*****	*****	*****	16.5	3.5	1450.	
2	14	80	1055	4.43	*****	*****	*****	*****	1.0	.0	1500.	SHORE ICE ONLY
3	13	80	930	3.57	*****	*****	*****	*****	9.0	3.5	1500.	
4	15	80	1610	3.64	*****	*****	*****	*****	22.0	12.0	1300.	
5	6	80	1430	7.31	*****	*****	*****	*****	19.5	18.5	700.	
7	1	80	1815	1.53	*****	*****	*****	*****	26.0	26.0	1225.	
7	23	80	645	-1.24	*****	*****	*****	*****	19.5	17.0	1450.	
9	4	80	1750	.88	*****	*****	*****	*****	26.5	23.0	1600.	
10	15	80	1530	.05	*****	*****	*****	*****	9.0	12.5	1525.	
12	2	80	1530	1.37	*****	*****	*****	*****	1.0	.0	1560.	SHORE ICE - SLUSH
1	21	81	1000	2.23	*****	*****	*****	*****	3.5	.0	1500.	SHORE ICE, FLOATING SLUSH
2	19	81	1630	1.41	*****	*****	*****	*****	19.5	10.0	1600.	
3	26	81	950	.02	*****	*****	*****	*****	16.0	11.0	1380.	
5	5	81	1155	.34	*****	*****	*****	*****	19.0	18.5	1560.	
6	16	81	****	1.50	*****	*****	*****	*****	25.0	23.5	1520.	GAGE READING WAS BETWEEN 1 AND 2 FT

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 37

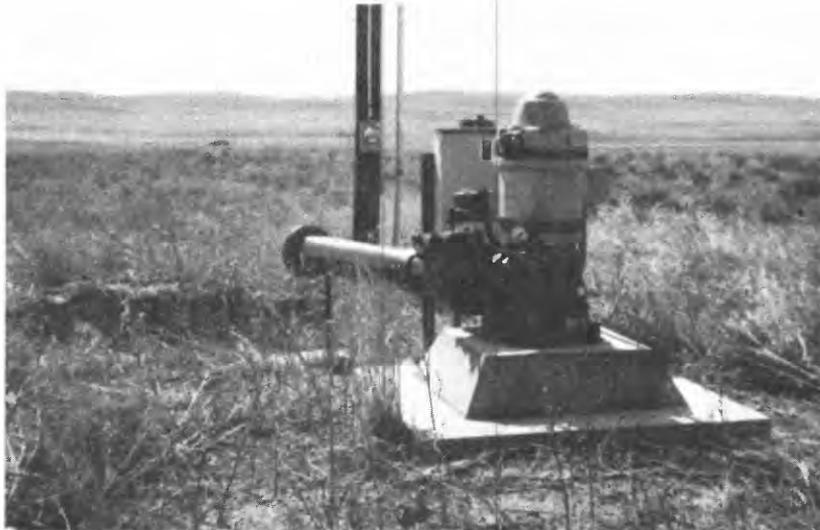
SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

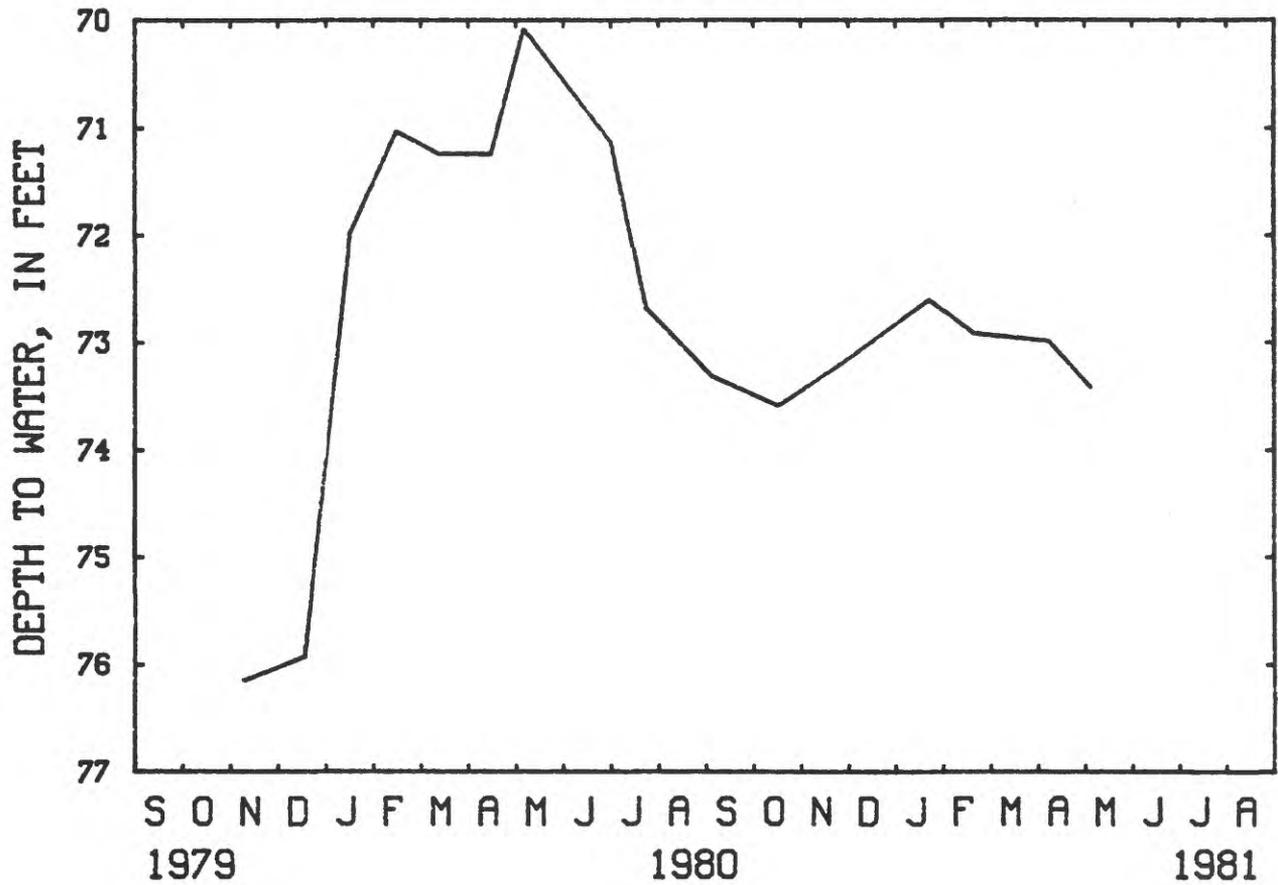
ALTITUDE = 3742.22

SITE DESCRIPTION AND LOCATION

A NEW IRRIGATION WELL DESIGNATED BY THE WILDLIFE AREA AS #8. THE LOCAL WELL NUMBER IS 10-48-09 CDD. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE IN THE NORTHEAST SIDE.



# SITE 37



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	9	79	76.15	*****	15.1952	4064.	****	*****	
12	18	79	75.92	1800.	15.2066	4064.	14.5	255.	
1	16	80	71.97	1950.	15.2214	4064.	14.5	260.	
2	14	80	71.03	1800.	15.2459	4064.	14.0	260.	
3	13	80	71.24	1790.	15.2465	4064.	14.0	260.	
4	16	80	71.24	1820.	15.2628	4064.	14.5	260.	
5	7	80	70.08	*****	15.2766	4064.	14.5	265.	
7	1	80	71.14	1860.	15.2925	4064.	15.0	275.	
7	23	80	72.69	1790.	15.3046	4064.	14.0	280.	
9	4	80	73.32	1960.	15.3173	4064.	14.5	280.	
10	16	80	73.59	2150.	15.3322	4064.	****	265.	
12	3	80	73.12	1790.	15.3466	4064.	14.5	250.	
1	21	81	72.60	1790.	15.3626	4064.	14.5	255.	
2	19	81	72.92	1790.	15.3775	4064.	14.5	260.	
4	8	81	72.99	1820.	15.3962	4064.	14.5	265.	
5	5	81	73.42	1790.	15.4072	4064.	15.0	260.	
6	16	81	*****	*****	15.4254	*****	15.0	280.	
7	14	81	*****	1695.	15.4555	*****	15.0	270.	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 38

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

ALTITUDE = 3676.76

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ABOUT 100 FEET NORTH OF THE WILDLIFE AREA ROAD. THE LOCAL WELL NUMBER IS 10-48-09 DBC. THE MP IS THE TOP OF THE PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE SOUTH SIDE.



# SITE 38



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	6	79	8.98	*****	*****	*****	****	*****	
10	12	79	9.51	*****	*****	*****	****	*****	
10	30	79	9.16	*****	*****	*****	****	*****	
11	9	79	8.89	*****	*****	*****	****	*****	
12	17	79	8.38	*****	*****	*****	****	*****	
1	15	80	8.03	*****	*****	*****	****	*****	
2	14	80	6.77	*****	*****	*****	****	*****	
3	13	80	7.39	*****	*****	*****	****	*****	
4	16	80	7.33	*****	*****	*****	****	*****	
5	6	80	4.62	*****	*****	*****	****	*****	
7	1	80	8.21	*****	*****	*****	****	*****	
7	23	80	10.03	*****	*****	*****	****	*****	
9	4	80	9.92	*****	*****	*****	****	*****	
10	16	80	10.66	*****	*****	*****	****	*****	
12	3	80	9.35	*****	*****	*****	****	*****	
1	21	81	8.79	*****	*****	*****	****	*****	
2	19	81	9.25	*****	*****	*****	****	*****	
3	25	81	10.12	*****	*****	*****	****	*****	
5	5	81	10.08	*****	*****	*****	****	*****	
6	16	81	9.07	*****	*****	*****	****	*****	
7	14	81	10.28	*****	*****	*****	****	*****	
8	12	81	10.37	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 39

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

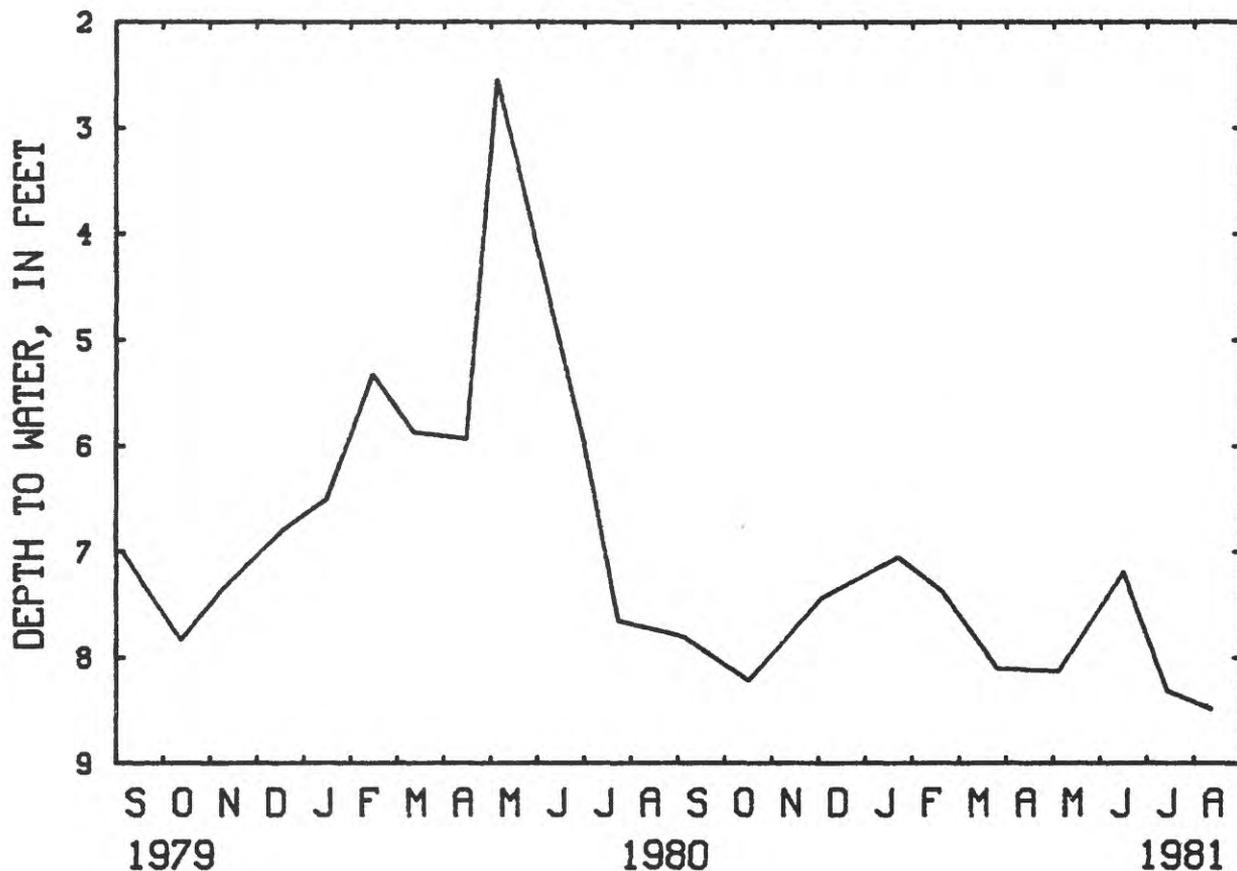
ALTITUDE = 3670.21

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1967 BY THE USGS TO A DEPTH OF 18 FEET. A 17 FOOT PIPE WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 50 FEET FROM A BEND IN THE WILDLIFE AREA ROAD AND IS 2 FEET SOUTH OF THE FENCE LINE. THE LOCAL WELL NUMBER IS 10-48-10 BCD. THE MP IS THE TOP OF CASING.



# SITE 39



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	5	79	7.02	*****	*****	*****	****	*****	
9	6	79	7.05	*****	*****	*****	16.5	400.	
10	12	79	7.84	*****	*****	*****	****	*****	
10	30	79	7.51	*****	*****	*****	****	*****	
11	9	79	7.34	*****	*****	*****	14.0	875.	
12	17	79	6.80	*****	*****	*****	11.0	1050.	
1	15	80	6.50	*****	*****	*****	10.0	1200.	
2	14	80	5.33	*****	*****	*****	7.0	1200.	
3	13	80	5.88	*****	*****	*****	7.0	1680.	
4	16	80	5.94	*****	*****	*****	8.0	1770.	
5	6	80	2.55	*****	*****	*****	8.0	1800.	FLOOD WATER 2.00 FROM TOP WT=185,SC=700
7	1	80	5.99	*****	*****	*****	15.0	1525.	
7	23	80	7.66	*****	*****	*****	13.5	1630.	
9	4	80	7.81	*****	*****	*****	15.0	1380.	
10	16	80	8.22	*****	*****	*****	15.0	870.	
12	5	80	7.43	*****	*****	*****	13.0	920.	
1	21	81	7.05	*****	*****	*****	10.5	1030.	WATER WAS BLACK
2	19	81	7.38	*****	*****	*****	10.0	800.	
3	27	81	8.11	*****	*****	*****	11.5	1100.	
5	5	81	8.13	*****	*****	*****	12.0	1150.	WATER WAS BLACK
6	16	81	7.19	*****	*****	*****	16.0	1210.	
7	14	81	8.32	*****	*****	*****	18.5	1150.	WATER WAS BLACK
8	12	81	8.49	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 40

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

ALTITUDE = 3691.01

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ABOUT 100 YARDS SOUTH OF THE WILDLIFE AREA ROAD. THE LOCAL WELL NUMBER IS 10-48-10 CAA. THE MP IS THE TOP OF CASING AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE EAST SIDE.



# SITE 40



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
10	12	79	30.27	*****	*****	*****	****	*****	
11	9	79	31.43	*****	*****	*****	****	*****	
12	18	79	29.88	*****	*****	*****	****	*****	
1	15	80	29.30	*****	*****	*****	****	*****	
2	14	80	28.62	*****	*****	*****	****	*****	
3	13	80	28.57	*****	*****	*****	****	*****	
4	16	80	28.53	*****	*****	*****	****	*****	
5	7	80	27.59	*****	*****	*****	****	*****	
7	1	80	27.75	*****	*****	*****	****	*****	
7	23	80	29.03	*****	*****	*****	****	*****	
9	4	80	30.12	*****	*****	*****	****	*****	
10	16	80	30.38	*****	*****	*****	****	*****	
12	7	80	30.03	*****	*****	*****	****	*****	
1	21	81	29.67	*****	*****	*****	****	*****	
2	19	81	29.71	*****	*****	*****	****	*****	
3	25	81	29.98	*****	*****	*****	****	*****	
4	8	81	29.79	*****	*****	*****	****	*****	
5	4	81	30.06	*****	*****	*****	****	*****	
6	16	81	29.49	*****	*****	*****	****	*****	
7	14	81	30.37	*****	*****	*****	****	*****	
8	12	81	31.62	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 41

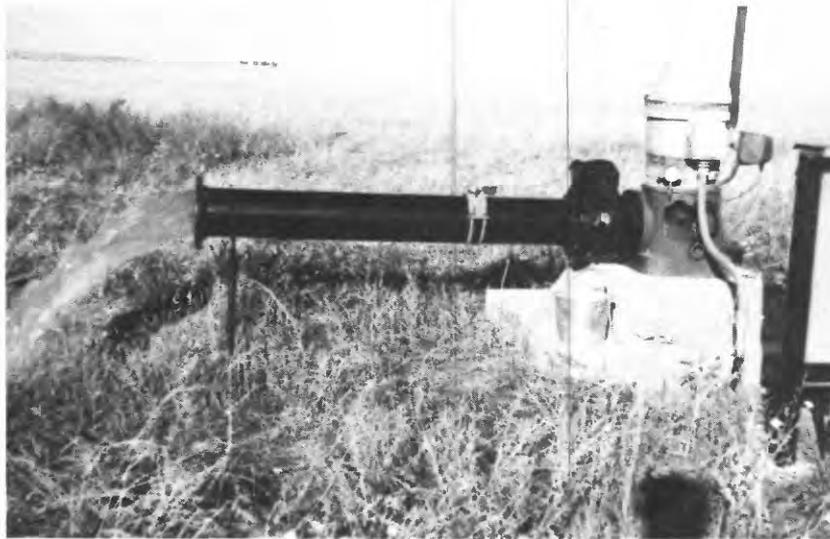
SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

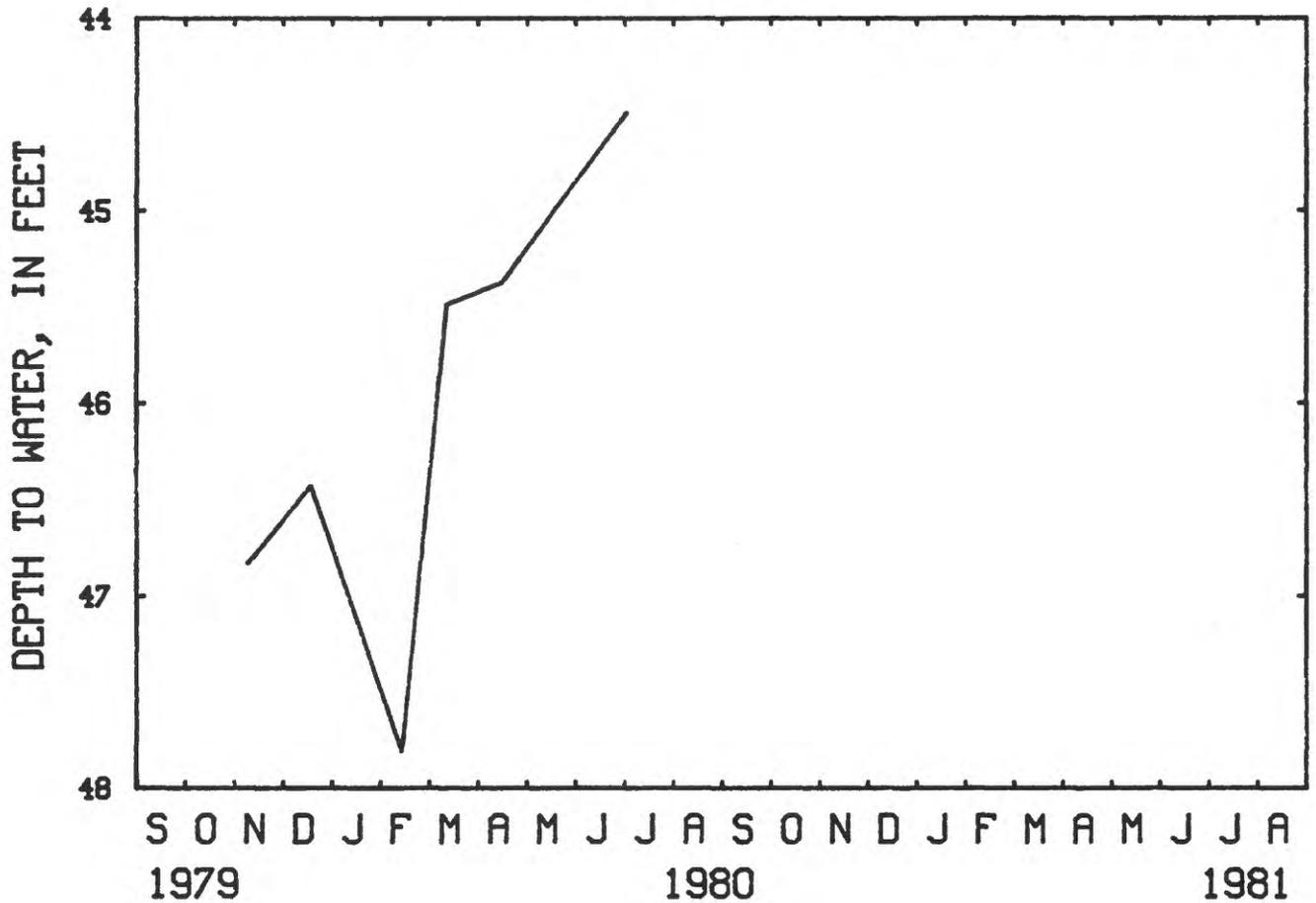
ALTITUDE = 3707.09

SITE DESCRIPTION AND LOCATION

A NEW IRRIGATION WELL DESIGNATED BY THE WILDLIFE AREA AS #9. THE LOCAL WELL NUMBER IS 10-48-10 DCB1. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE SOUTHWEST SIDE.



# SITE 41



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	9	79	46.83	*****	18.0289	5736.	14.0	235.	
12	18	79	46.43	1950.	18.0407	5736.	14.0	240.	
2	13	80	47.81	2150.	18.0561	5736.	14.5	240.	WATER LEVEL WAS NOT A CLEAN CUT
3	13	80	45.48	1960.	18.0787	5736.	14.0	235.	
4	16	80	45.37	1990.	18.0822	5736.	13.5	240.	
5	7	80	45.13	*****	18.0950	5736.	14.0	235.	
7	2	80	44.49	2050.	18.1107	5736.	14.5	240.	
7	23	80	*****	2085.	18.1353	5736.	14.0	240.	TAPE HANGS UP - DISCONTINUE WL MEAS.
9	4	80	*****	2020.	18.1505	5736.	14.0	240.	
12	3	80	*****	2050.	18.1776	5736.	14.5	235.	
1	21	81	*****	1960.	18.1844	5736.	14.0	240.	
2	20	81	*****	2020.	18.2085	5736.	14.5	235.	
4	8	81	*****	2050.	18.2216	5736.	14.0	235.	
5	8	81	*****	1990.	18.2370	5736.	14.5	230.	
6	16	81	*****	*****	18.2600	*****	15.0	230.	
7	14	81	*****	2085.	18.2880	*****	15.0	250.	
8	12	81	*****	1990.	18.2929	5736.	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 42

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

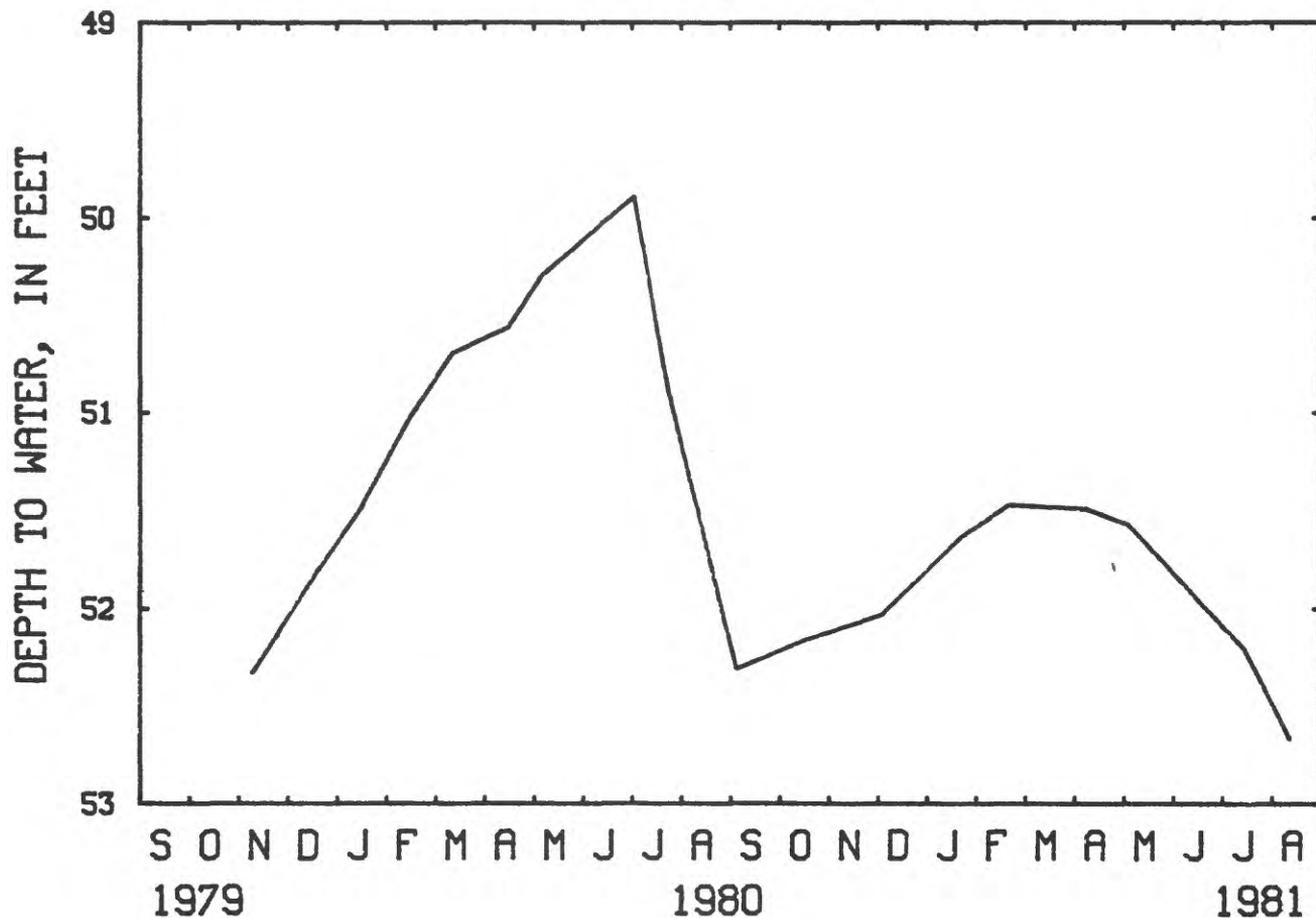
ALTITUDE = 3709.43

SITE DESCRIPTION AND LOCATION

A NEW IRRIGATION WELL DESIGNATED BY THE WILDLIFE AREA AS #10. THE LOCAL WELL NUMBER IS 10-48-10 DAB. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE SOUTHWEST SIDE.



# SITE 42



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	9	79	52.33	*****	*****	860.	****	*****	
12	18	79	51.82	2200.	20.2300	860.	15.0	260.	
1	15	80	51.48	2250.	20.2415	860.	15.0	260.	
2	14	80	51.02	2350.	20.2600	860.	14.5	250.	
3	13	80	50.69	2250.	20.2720	860.	15.0	255.	
4	16	80	50.56	2250.	20.2900	860.	14.5	270.	
5	7	80	50.29	2250.	20.3080	860.	15.0	265.	
7	2	80	49.89	2275.	20.3240	860.	15.5	260.	
7	23	80	50.89	2300.	20.3460	860.	15.0	280.	
9	4	80	52.31	2250.	20.3610	860.	15.0	270.	
10	16	80	52.16	2250.	20.4110	860.	15.0	265.	
12	3	80	52.03	2275.	20.4370	860.	14.5	265.	
1	21	81	51.63	2250.	20.4550	860.	15.0	260.	
2	19	81	51.47	2200.	20.4710	860.	15.5	255.	
4	8	81	51.49	2275.	20.4845	860.	15.5	260.	
5	4	81	51.57	2250.	20.4960	860.	15.5	255.	
7	14	81	52.21	2300.	20.5178	6000.	16.0	280.	
8	12	81	52.67	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 43

SITE SETTING IS RIVER BOTTOM

SITE TYPE IS RIVER

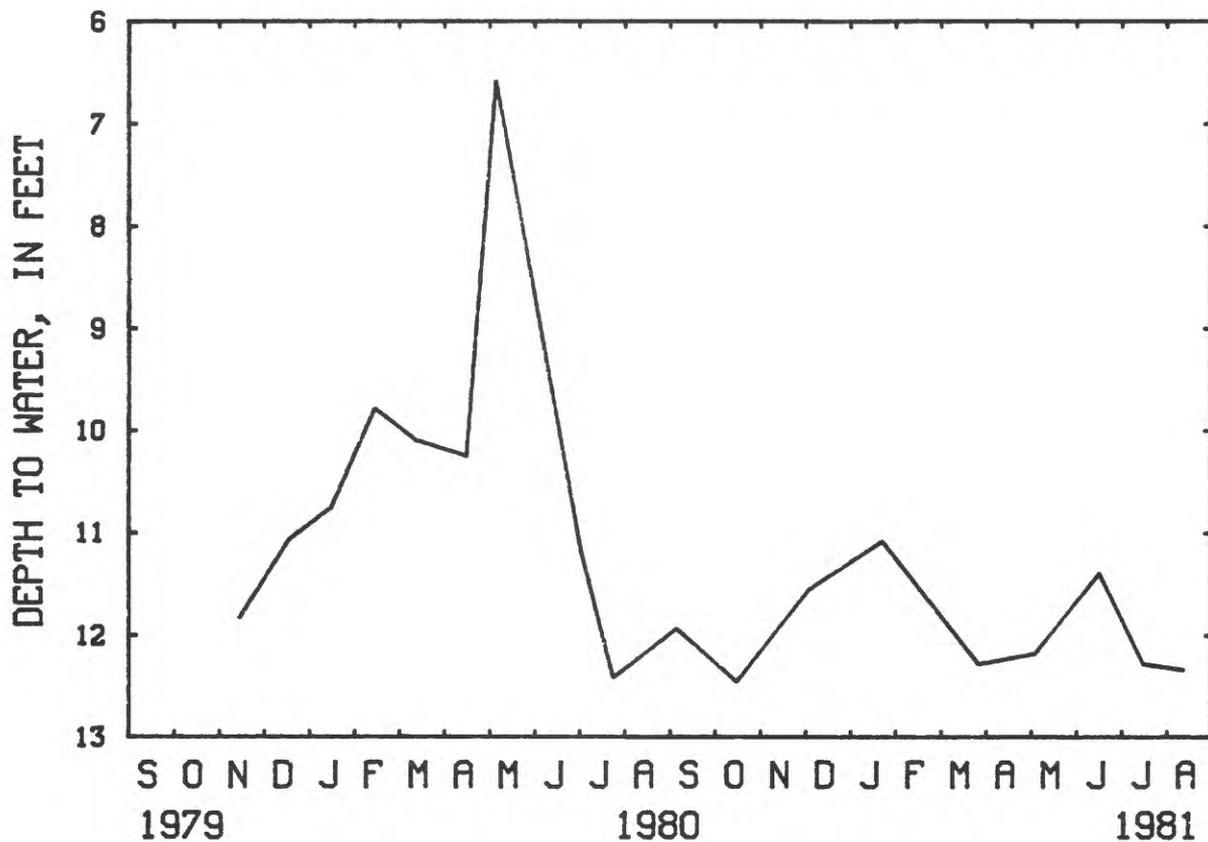
ALTITUDE = 3665.55

SITE DESCRIPTION AND LOCATION

SECOND CHANNEL (FROM THE NORTH, 1ST FROM THE SOUTH) OF THE SOUTH PLATTE RIVER AT THE RED LION BRIDGE. THE FLOW APPEARS TO BE ABOUT EVENLY DISTRIBUTED BETWEEN THE TWO CHANNELS. THERE ARE 3 MP'S TO MEASURE WATER LEVELS - S1 (LABELED F3) IS ON THE 3RD RAIL POST FROM THE SOUTH, S2 (LABELED F2) ON THE 4TH RAIL POST, AND S3 (LABELED F1) ON THE 7TH RAIL POST.



# SITE 43



MONTH	DAY	YEAR	TIME	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DEPTH TO WATER	DISCHARGE	AIR TEMP	WATER TEMP	SPECIFIC COND	REMARKS
9	5	79	1025	*****	*****	*****	*****	*****	23.0	21.0	1700.	
10	30	79	1030	*****	*****	*****	*****	*****	3.0	4.5	1725.	
11	14	79	1230	11.82	11.80	11.81	11.86	*****	****	5.5	1680.	
12	16	79	950	11.06	11.02	11.04	11.11	*****	11.0	.0	1650.	ICE IN RIVER AND SOLID SHORE ICE
1	15	80	1540	10.75	10.73	10.72	10.79	*****	7.0	4.0	1520.	
2	13	80	1640	9.79	9.76	9.76	9.84	*****	.0	.0	1550.	ICE IN WATER
3	13	80	820	10.10	10.07	10.07	10.16	*****	2.5	3.0	1500.	
4	16	80	1205	10.26	10.24	10.21	10.33	*****	14.5	10.5	1560.	
5	6	80	1225	6.59	6.51	6.55	6.71	*****	26.0	17.5	745.	
7	2	80	1010	11.20	11.51	11.16	10.94	*****	26.5	21.5	1290.	BRIDGE PARTIALLY WASHED OUT - SAGGING
7	21	80	1215	12.41	12.56	12.25	12.42	*****	33.5	26.0	1450.	
9	4	80	1645	11.94	12.14	11.78	11.89	*****	26.5	23.5	1600.	
10	15	80	1605	12.46	12.68	12.32	12.37	*****	11.5	10.5	1475.	
12	3	80	745	11.55	11.68	11.49	11.47	*****	1.5	.0	1850.	SHORE ICE - SLUSH
1	21	81	950	11.06	11.34	10.99	10.92	*****	-3.0	.0	1590.	FLOATING ICE AND SLUSH
2	20	81	930	11.06	11.91	11.55	11.46	*****	13.0	6.0	1630.	
3	27	81	1525	12.28	12.49	12.26	12.10	*****	24.0	17.0	1250.	
5	4	81	1730	12.18	12.46	12.09	11.98	*****	14.5	17.5	1540.	
6	16	81	750	11.39	11.62	11.36	11.20	*****	13.0	15.0	1500.	
7	15	81	815	12.29	12.76	12.14	11.96	*****	25.0	20.0	1500.	
8	12	81	1515	12.36	12.51	12.31	12.21	*****	26.0	25.5	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 44

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

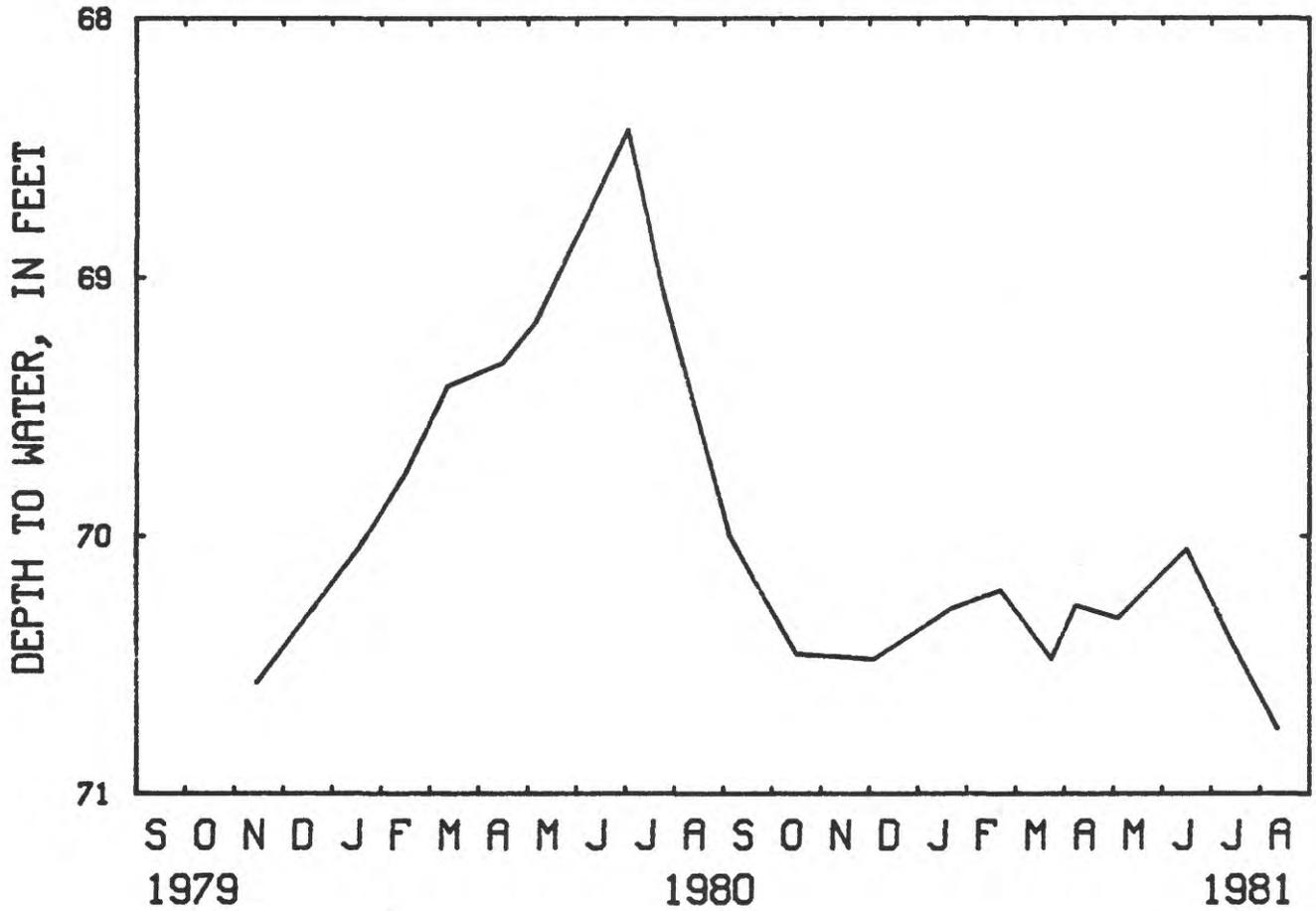
ALTITUDE = 3732.20

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ALONG THE TRUCK PATH ON THE SOUTH SIDE OF INTERSTATE 76. THIS IS THE EAST MOST OF THE FIVE WELLS ALONG THE ROUTE. THE LOCAL WELL NUMBER IS 10-48-15 BAA. THE MP IS THE NIPPLE OF THE PUMP BASE AND MEASUREMENT IS MADE BY SLIDING THE TAPE BETWEEN THE WELL CASING AND THE PUMP BASE ON THE WEST SIDE.



# SITE 44



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	14	79	70.57	*****	*****	*****	****	*****	
12	18	79	70.29	*****	*****	*****	****	*****	
1	16	80	70.05	*****	*****	*****	****	*****	
2	14	80	69.76	*****	*****	*****	****	*****	
3	13	80	69.42	*****	*****	*****	****	*****	
4	16	80	69.33	*****	*****	*****	****	*****	
5	7	80	69.17	*****	*****	*****	****	*****	
7	2	80	68.43	*****	*****	*****	****	*****	
7	23	80	69.04	*****	*****	*****	****	*****	
9	4	80	70.00	*****	*****	*****	****	*****	
10	16	80	70.46	*****	*****	*****	****	*****	
12	3	80	70.48	*****	*****	*****	****	*****	
1	21	81	70.28	*****	*****	*****	****	*****	
2	20	81	70.21	*****	*****	*****	****	*****	
3	24	81	70.48	*****	*****	*****	****	*****	
4	8	81	70.27	*****	*****	*****	****	*****	
5	4	81	70.32	*****	*****	*****	****	*****	
6	16	81	70.05	*****	*****	*****	****	*****	
7	13	81	70.41	*****	*****	*****	****	*****	
8	12	81	70.75	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 45

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

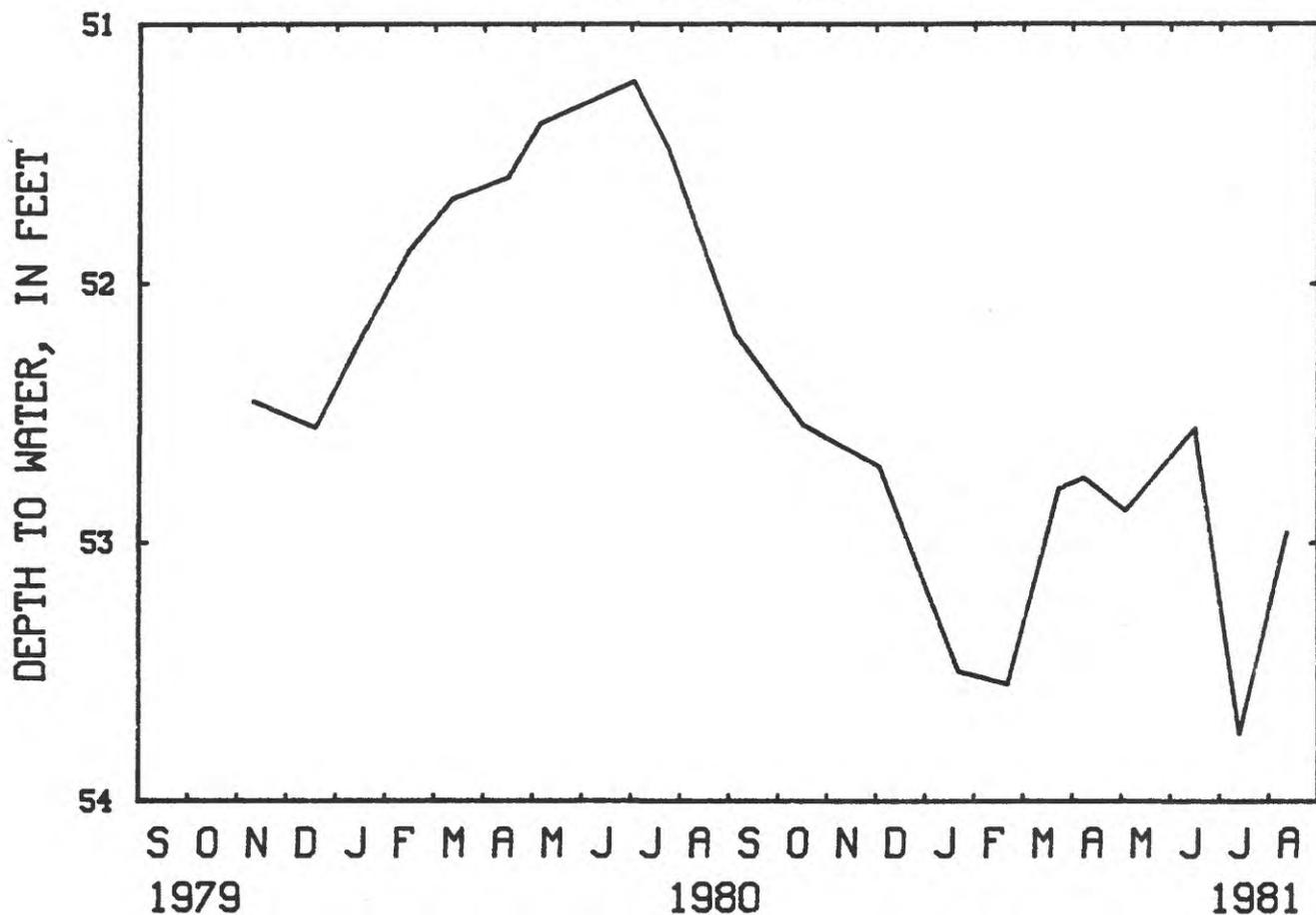
ALTITUDE = 3722.59

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ALONG THE TRUCK PATH ON THE SOUTH SIDE OF INTERSTATE 76. THIS IS THE SECOND FURTHEREST EAST OF THE FIVE WELLS ALONG THE ROUTE. THE LOCAL WELL NUMBER IS 10-48-16 ACC. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE SOUTH SIDE.



# SITE 45



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
11	10	79	52.46	*****	*****	*****	****	*****	
12	10	79	52.56	*****	*****	*****	****	*****	
1	16	80	52.20	*****	*****	*****	****	*****	
2	14	80	51.87	*****	*****	*****	****	*****	
3	13	80	51.67	*****	*****	*****	****	*****	
4	16	80	51.59	*****	*****	*****	****	*****	
5	6	80	51.38	*****	*****	*****	****	*****	
7	2	80	51.22	*****	*****	*****	****	*****	
7	23	80	51.48	*****	*****	*****	****	*****	
9	4	80	52.20	*****	*****	*****	****	*****	
10	16	80	52.55	*****	*****	*****	****	*****	
12	3	80	52.71	*****	*****	*****	****	*****	
1	21	81	53.50	*****	*****	*****	****	*****	
2	20	81	53.55	*****	*****	*****	****	*****	
3	24	81	52.79	*****	*****	*****	****	*****	
4	8	81	52.75	*****	*****	*****	****	*****	
5	4	81	52.88	*****	*****	*****	****	*****	
6	16	81	52.56	*****	*****	*****	****	*****	
7	13	81	53.74	*****	*****	*****	****	*****	
8	12	81	52.96	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 46

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

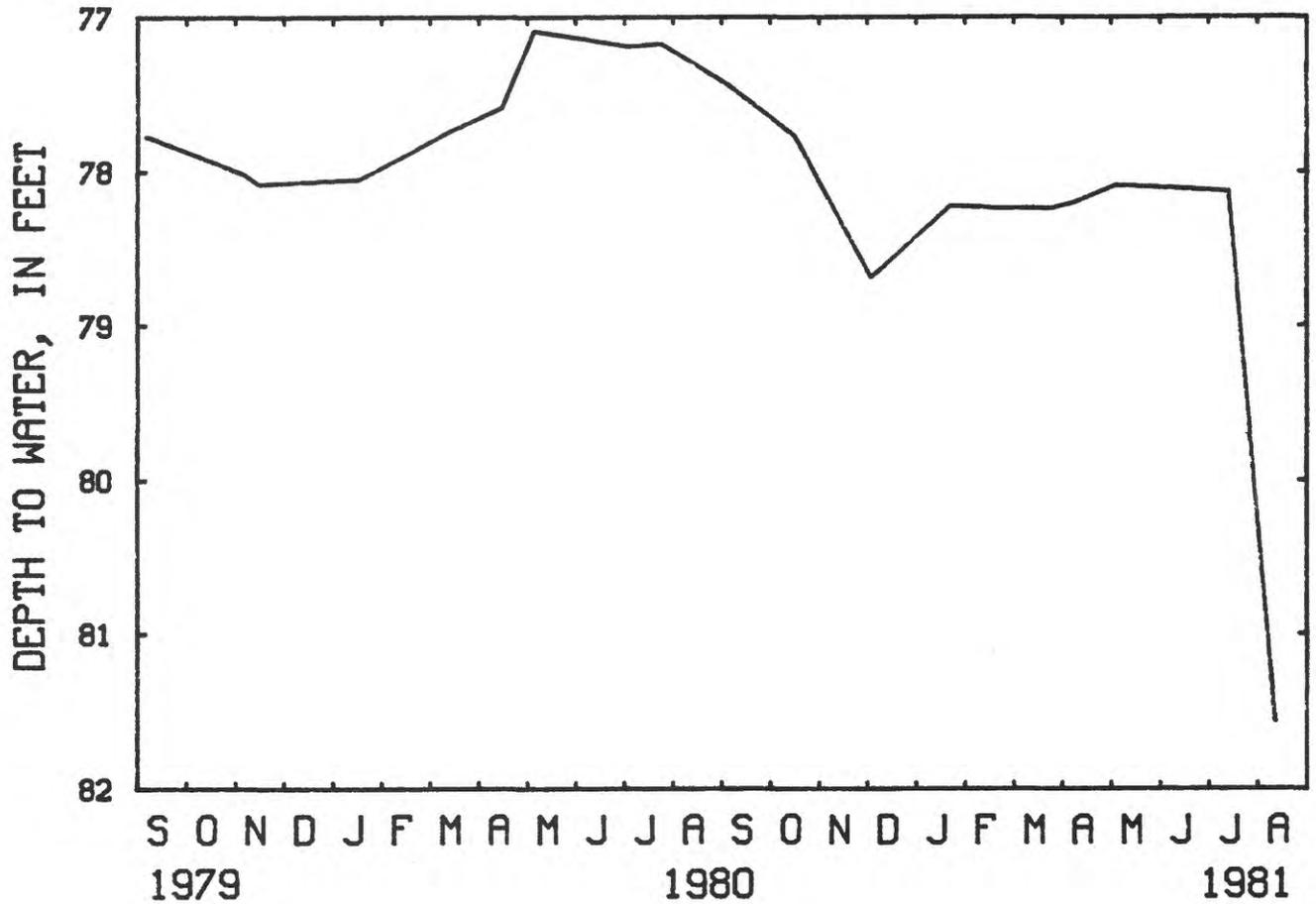
ALTITUDE = 3762.49

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ALONG THE TRUCK PATH ON THE SOUTH SIDE OF INTERSTATE 76. THIS IS THE MIDDLE WELL OF THE FIVE WELLS ALONG THE ROUTE. THE LOCAL WELL NUMBER IS 10-48-17 DCC. THE MP IS THE NIPPLE OF THE PUMP BASE AND MEASUREMENT IS MADE BY SLIDING THE TAPE BETWEEN THE WELL CASING AND THE PUMP BASE ON THE EAST SIDE.



# SITE 46



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	0	79	77.77	*****	*****	*****	****	*****	
11	0	79	78.02	*****	*****	*****	****	*****	
11	14	79	78.08	*****	*****	*****	****	*****	
1	16	80	78.05	*****	*****	*****	****	*****	
3	13	80	77.74	*****	*****	*****	****	*****	
4	16	80	77.58	*****	*****	*****	****	*****	
5	0	80	77.09	*****	*****	*****	****	*****	
7	2	80	77.19	*****	*****	*****	****	*****	
7	23	80	77.17	*****	*****	*****	****	*****	
9	4	80	77.44	*****	*****	*****	****	*****	
10	16	80	77.77	*****	*****	*****	****	*****	
12	3	80	78.69	*****	*****	*****	****	*****	
1	21	81	78.22	*****	*****	*****	****	*****	
2	20	81	78.24	*****	*****	*****	****	*****	
3	24	81	78.24	*****	*****	*****	****	*****	
4	8	81	78.20	*****	*****	*****	****	*****	
5	4	81	78.09	*****	*****	*****	****	*****	
6	16	81	78.11	*****	*****	*****	****	*****	
7	13	81	78.13	*****	*****	*****	****	*****	
8	12	81	81.57	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 47

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

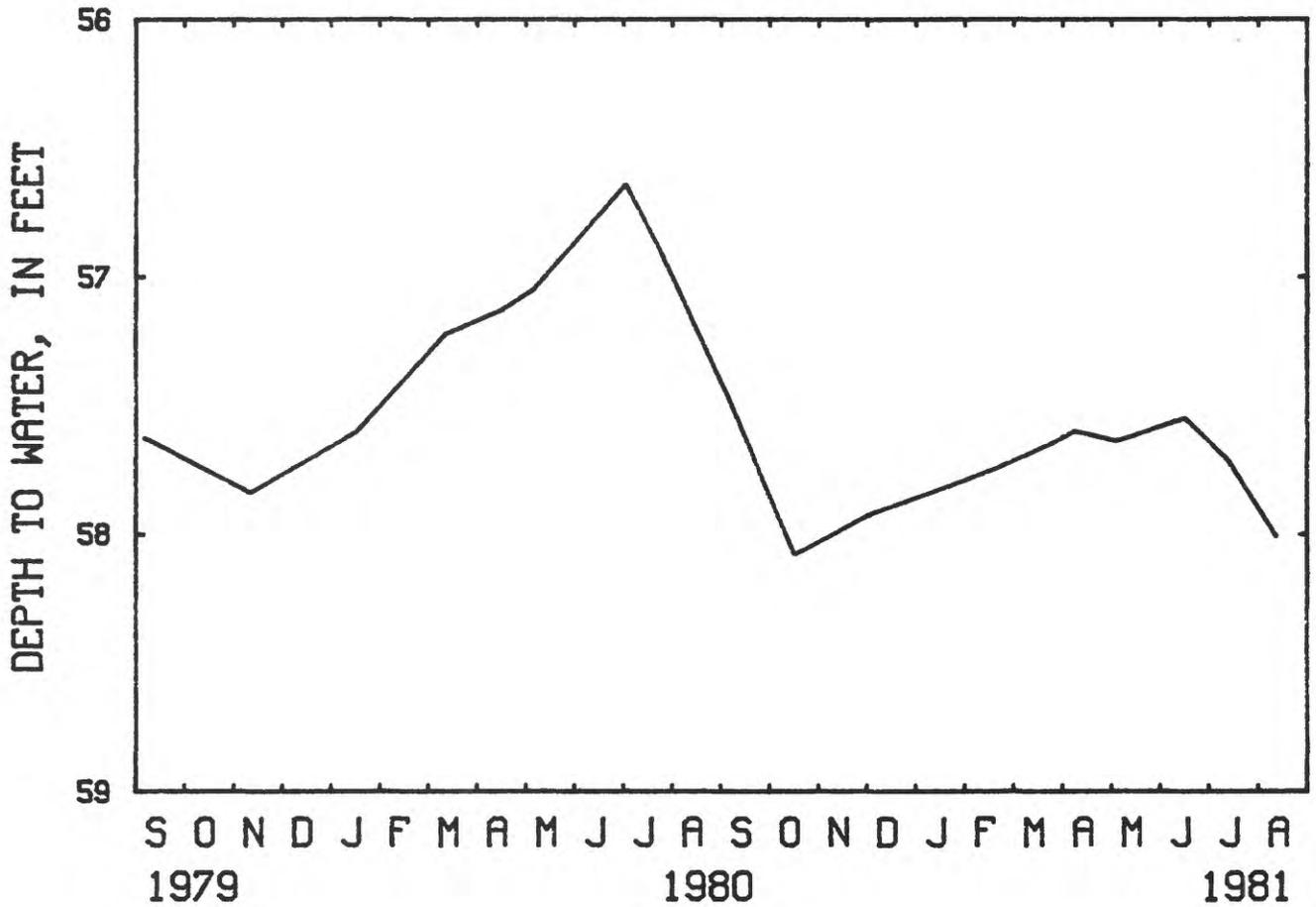
ALTITUDE = 3751.17

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ALONG THE TRUCK PATH ON THE SOUTH SIDE OF INTERSTATE 76. THIS IS THE SECOND FURTHEREST WEST OF THE FIVE WELLS ALONG THE ROUTE. THE LOCAL WELL NUMBER IS 10-48-19 ABC. THE MP IS THE TOP OF PUMP BASE AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE EAST SIDE.



# SITE 47



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	6	79	57.63	*****	*****	*****	****	*****	
11	10	79	57.84	*****	*****	*****	****	*****	
1	16	80	57.60	*****	*****	*****	****	*****	
3	13	80	57.22	*****	*****	*****	****	*****	
4	16	80	57.13	*****	*****	*****	****	*****	
5	6	80	57.05	*****	*****	*****	****	*****	
7	2	80	56.64	*****	*****	*****	****	*****	
7	23	80	56.90	*****	*****	*****	****	*****	
9	4	80	57.46	*****	*****	*****	****	*****	
10	16	80	58.08	*****	*****	*****	****	*****	
12	3	80	57.92	*****	*****	*****	****	*****	
1	21	81	57.81	*****	*****	*****	****	*****	
2	20	81	57.74	*****	*****	*****	****	*****	
3	24	81	57.65	*****	*****	*****	****	*****	
4	8	81	57.60	*****	*****	*****	****	*****	
5	4	81	57.64	*****	*****	*****	****	*****	
6	16	81	57.55	*****	*****	*****	****	*****	
7	13	81	57.72	*****	*****	*****	****	*****	
8	12	81	58.01	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 48

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

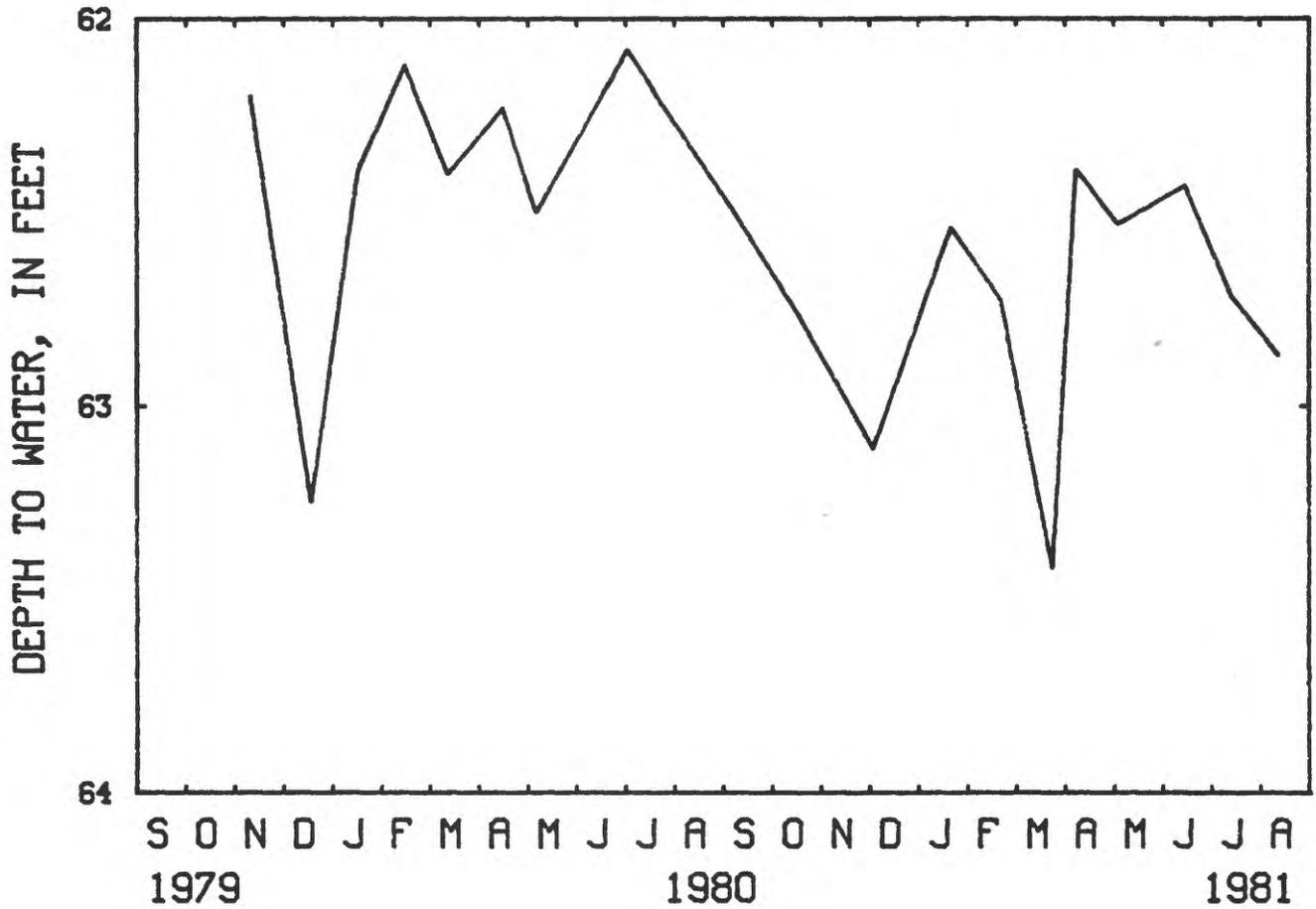
ALTITUDE = 3765.23

SITE DESCRIPTION AND LOCATION

A WINDMILL LOCATED ALONG THE TRUCK PATH ON THE SOUTH SIDE OF INTERSTATE 76. THIS IS THE WEST MOST OF THE FIVE WELLS ALONG THE ROUTE. THE LOCAL WELL NUMBER IS 10-49-24 CAB. THE MP IS THE TOP OF WELL CASING AND MEASUREMENT IS MADE THROUGH A HOLE IN THE PUMP BASE ON THE SOUTHWEST SIDE.



# SITE 48



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	6	79	62.20	*****	*****	*****	14.5	320.	
11	10	79	62.20	*****	*****	*****	14.5	305.	
12	18	79	63.25	*****	*****	*****	14.5	305.	
1	16	80	62.39	*****	*****	*****	14.0	300.	
2	14	80	62.12	*****	*****	*****	14.0	310.	
3	13	80	62.40	*****	*****	*****	14.5	310.	
4	16	80	62.23	*****	*****	*****	14.0	310.	
5	7	80	62.50	*****	*****	*****	14.0	310.	
7	2	80	62.08	*****	*****	*****	14.0	310.	
7	23	80	62.22	*****	*****	*****	14.0	310.	
9	4	80	62.48	*****	*****	*****	14.0	310.	
10	16	80	62.76	*****	*****	*****	14.0	310.	TOWER AND PUMP WERE REMOVED
12	3	80	63.11	*****	*****	*****	14.0	310.	
1	20	81	62.54	*****	*****	*****	14.0	310.	
2	20	81	62.73	*****	*****	*****	14.0	310.	
3	24	81	63.42	*****	*****	*****	14.0	310.	
4	8	81	62.39	*****	*****	*****	14.0	310.	
5	4	81	62.53	*****	*****	*****	14.0	310.	
6	15	81	62.43	*****	*****	*****	14.0	310.	
7	13	81	62.72	*****	*****	*****	14.0	310.	
8	12	81	62.87	*****	*****	*****	14.0	310.	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 49

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

ALTITUDE =\*\*\*\*\*

SITE DESCRIPTION AND LOCATION

AN IRRIGATION WELL AT THE INTERSTATE REST AREA. THE WESTMOST OF TWO WELLS SOUTH OF THE PICNIC AREA ON THE EASTBOUND REST AREA. WATER SAMPLES ARE TAKEN AT ANY SPRINKLER HEAD THAT IS TURNED ON. THE LOCAL WELL NUMBER IS 10-49-24 ACA. THERE IS NO MP BECAUSE NO ACCESS COULD BE FOUND.

MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
9	6	79	*****	*****	*****	*****	15.5	350.	
5	6	80	*****	*****	*****	*****	14.5	325.	
7	2	80	*****	*****	*****	*****	16.0	305.	
9	4	80	*****	*****	*****	*****	15.0	305.	
10	15	80	*****	*****	*****	*****	15.0	305.	
3	24	81	*****	*****	*****	*****	14.5	300.	
7	13	81	*****	*****	*****	*****	14.0	340.	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 50

SITE SETTING IS VALLEY MEADOW

SITE TYPE IS WELL

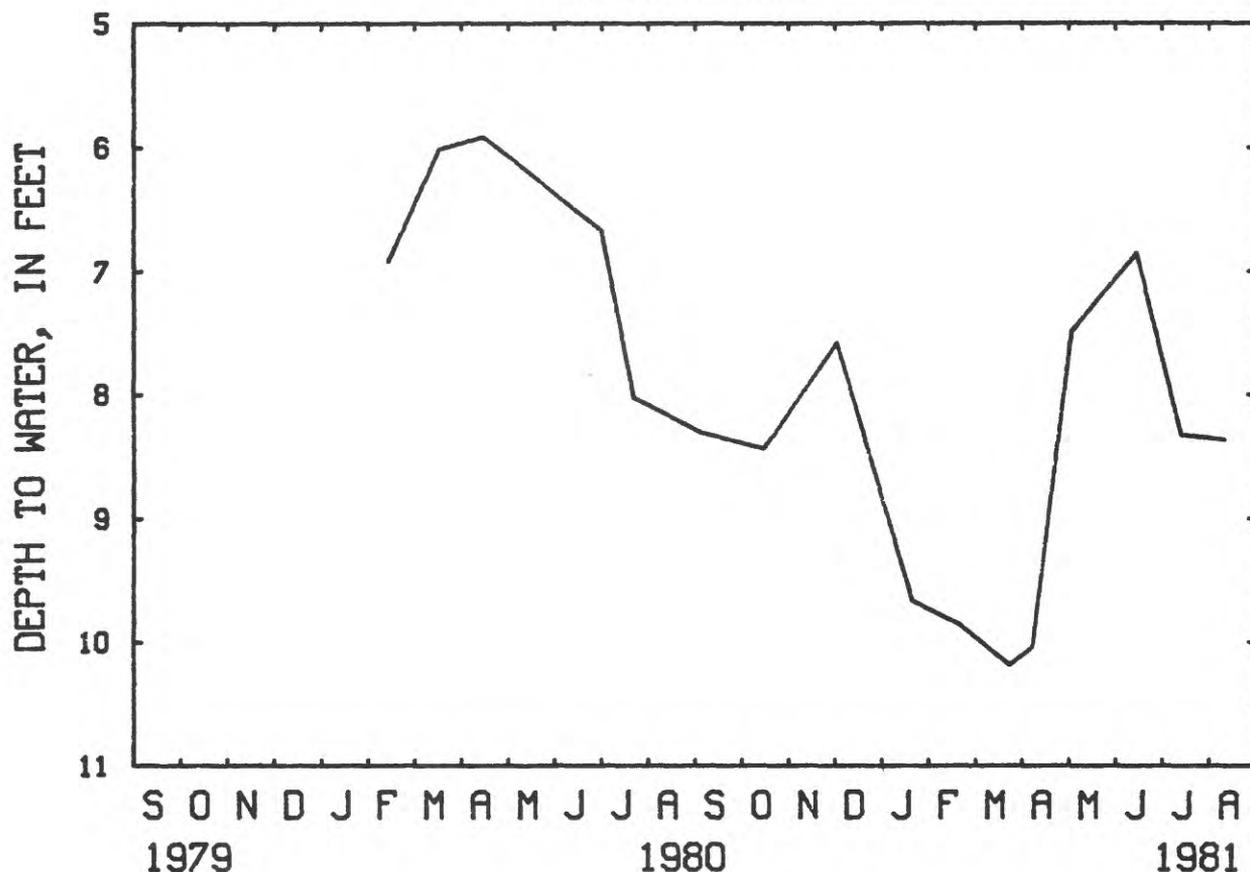
ALTITUDE = 3722.94

SITE DESCRIPTION AND LOCATION

A STOCK WELL LOCATED 1.3 MILES WEST ON THE WILDLIFE AREA ACCESS ROAD. WATER SAMPLES ARE TAKEN FROM THE NEWER WELL WHEN PUMPING AND WATER LEVELS ARE TAKEN FROM THE OLDER WELL WHICH WAS LEFT IN PLACE. THE LOCAL WELL NUMBER IS 10-49-16 DDB. THE MP IS THE TOP OF CASING ON THE EAST SIDE.



# SITE 50



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
12	17	79	*****	*****	*****	*****	11.5	2100.	HAS BEEN PUMPING CONTINUOUSLY HAS BEEN PUMPING CONTINUOUSLY NEWER WELL WAS INSTALLED AND IS PUMPING
1	16	80	*****	*****	*****	5648.	10.5	2150.	
2	15	80	6.92	*****	*****	5773.	11.5	1600.	
3	16	80	6.01	*****	*****	6006.	11.0	1670.	
4	15	80	5.91	*****	*****	*****	11.5	1720.	
7	1	80	6.68	*****	*****	*****	****	*****	
7	22	80	8.03	*****	*****	*****	****	*****	
9	4	80	8.31	*****	*****	*****	****	*****	
10	15	80	8.44	*****	*****	911.	17.0	1620.	
12	2	80	7.58	*****	*****	746.	11.0	1600.	
1	20	81	9.67	*****	*****	1122.	11.5	1610.	CONDON'S AUGMENTATION WELL NEARBY
2	19	81	9.86	*****	*****	1234.	11.0	1560.	
3	24	81	10.19	*****	*****	1252.	9.5	1635.	
4	6	81	10.04	*****	*****	*****	****	*****	
5	4	81	7.48	*****	*****	1256.	11.0	1670.	
6	15	81	6.85	*****	*****	*****	17.0	625.	
7	13	81	6.33	*****	*****	*****	19.0	925.	
8	11	81	8.37	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 51

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

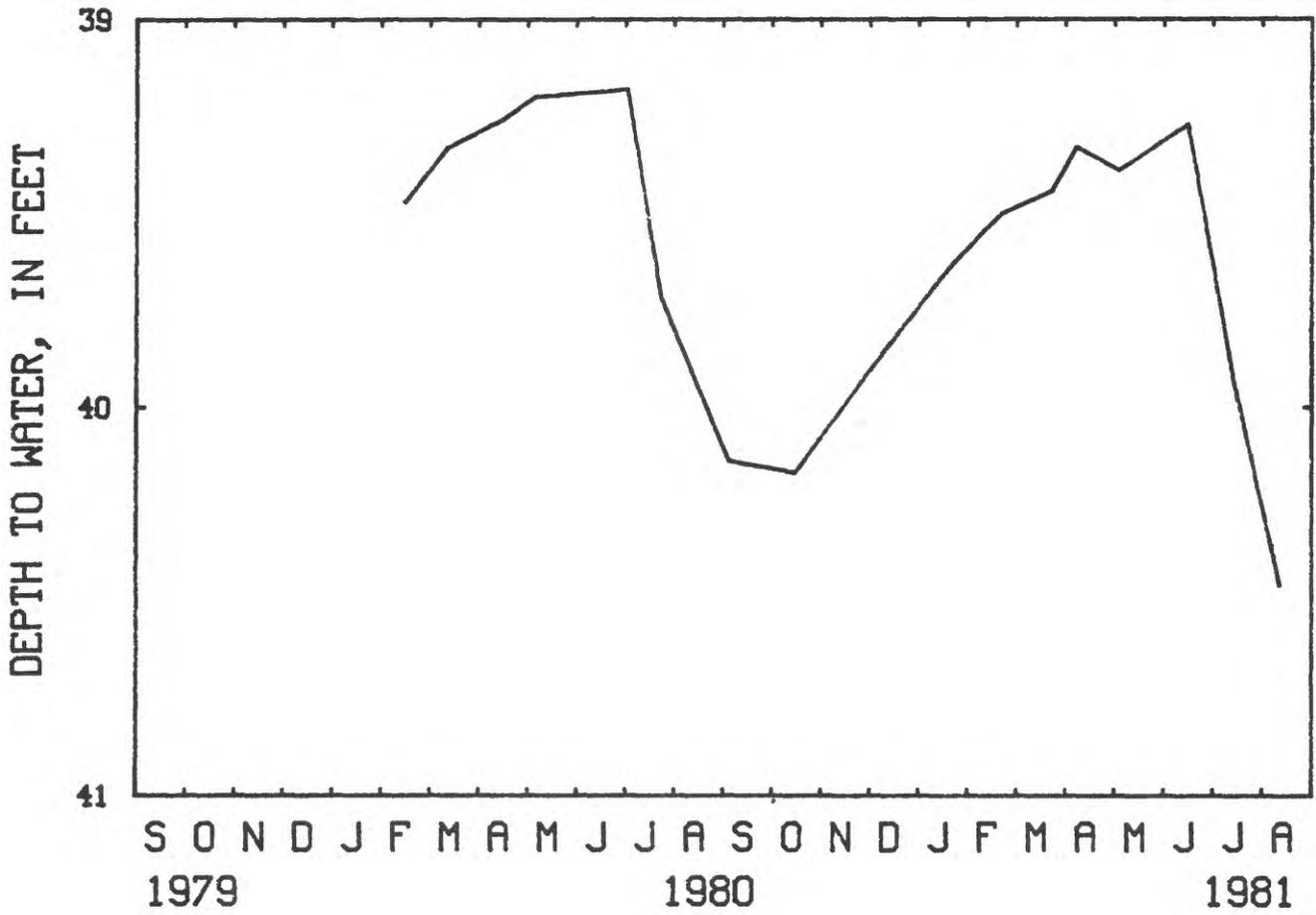
ALTITUDE = 3749.23

SITE DESCRIPTION AND LOCATION

WELL CASING (18 INCH) LEFT FROM A PRODUCTION WELL DRILLED DURING CONSTRUCTION OF INTERSTATE 76. THE WELL IS LOCATED ABOUT 50 FEET NORTH OF THE CROOK OFF RAMP (WESTBOUND) AND ABOUT 20 FEET SOUTH OF THE FENCE LINE. THE LOCAL WELL NUMBER IS 10-49-23 CCB. THE MP IS THE TOP OF WELL CASING AT ITS LOWEST POINT (CASING IS JAGGED AND UNEVEN) ON THE NORTHEAST SIDE.



# SITE 51



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
2	14	80	39.47	*****	*****	*****	****	*****	
3	13	80	39.33	*****	*****	*****	****	*****	
4	15	80	39.26	*****	*****	*****	****	*****	
5	6	80	39.20	*****	*****	*****	****	*****	
7	2	80	39.18	*****	*****	*****	****	*****	
7	23	80	39.72	*****	*****	*****	****	*****	
9	4	80	40.14	*****	*****	*****	****	*****	
10	15	80	40.17	*****	*****	*****	****	*****	
12	3	80	39.89	*****	*****	*****	****	*****	
1	21	81	39.63	*****	*****	*****	****	*****	
2	20	81	39.50	*****	*****	*****	****	*****	
3	24	81	39.44	*****	*****	*****	****	*****	
4	8	81	39.33	*****	*****	*****	****	*****	
5	4	81	39.39	*****	*****	*****	****	*****	
6	10	81	39.27	*****	*****	*****	****	*****	
7	14	81	39.94	*****	*****	*****	****	*****	
8	12	81	40.46	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 52

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

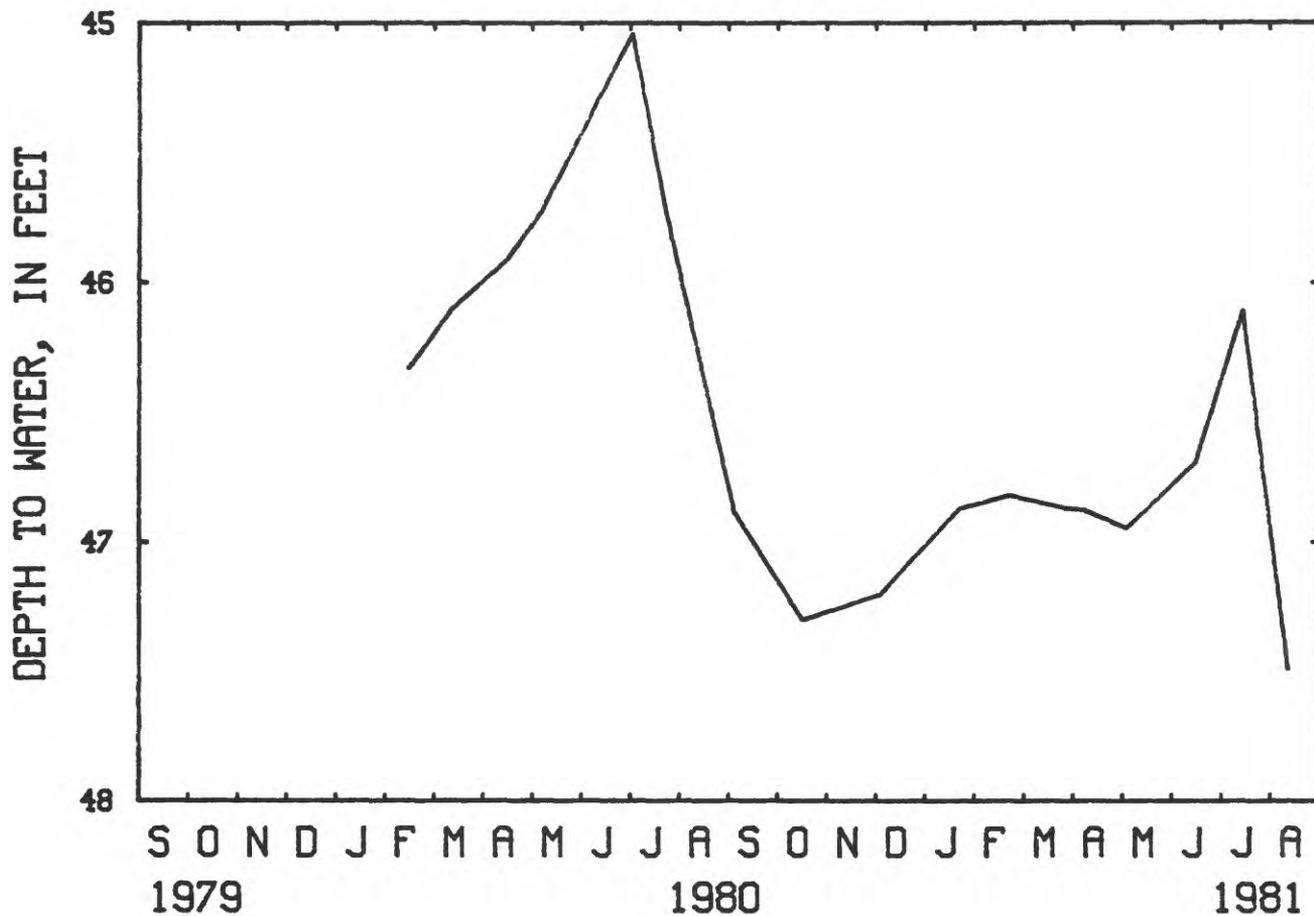
ALTITUDE = 3707.69

SITE DESCRIPTION AND LOCATION

WELL CASING (18 INCH) LEFT FROM A PRODUCTION WELL DRILLED DURING CONSTRUCTION OF INTERSTATE 76. THE WELL IS LOCATED ABOUT 100 FEET NORTH OF THE INTERSTATE AND 10 FEET SOUTH OF THE FENCE LINE NEAR NEW IRRIGATION WELL #9. THE LOCAL WELL NUMBER IS 10-48-10 DCB2. THE MP IS THE TOP OF WELL CASING WHERE IT IS EVEN ON THE SOUTHSOUTHEAST SIDE AND MEASUREMENT IS MADE BY LIFTING TAPE FROM HOLE IN SIDE.



# SITE 52



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
2	14	80	46.33	*****	*****	*****	****	*****	OIL ON SURFACE
3	13	80	46.10	*****	*****	*****	****	*****	
4	16	80	45.91	*****	*****	*****	****	*****	
5	7	80	45.73	*****	*****	*****	****	*****	
7	2	80	45.04	*****	*****	*****	****	*****	
7	23	80	45.74	*****	*****	*****	****	*****	
9	4	80	46.89	*****	*****	*****	****	*****	
10	10	80	47.30	*****	*****	*****	****	*****	
12	3	80	47.20	*****	*****	*****	****	*****	
1	21	81	46.87	*****	*****	*****	****	*****	
2	20	81	46.82	*****	*****	*****	****	*****	
3	25	81	46.87	*****	*****	*****	****	*****	
4	8	81	46.88	*****	*****	*****	****	*****	
5	4	81	46.95	*****	*****	*****	****	*****	
6	16	81	46.69	*****	*****	*****	****	*****	
7	14	81	46.11	*****	*****	*****	****	*****	
8	12	81	47.49	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 53

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

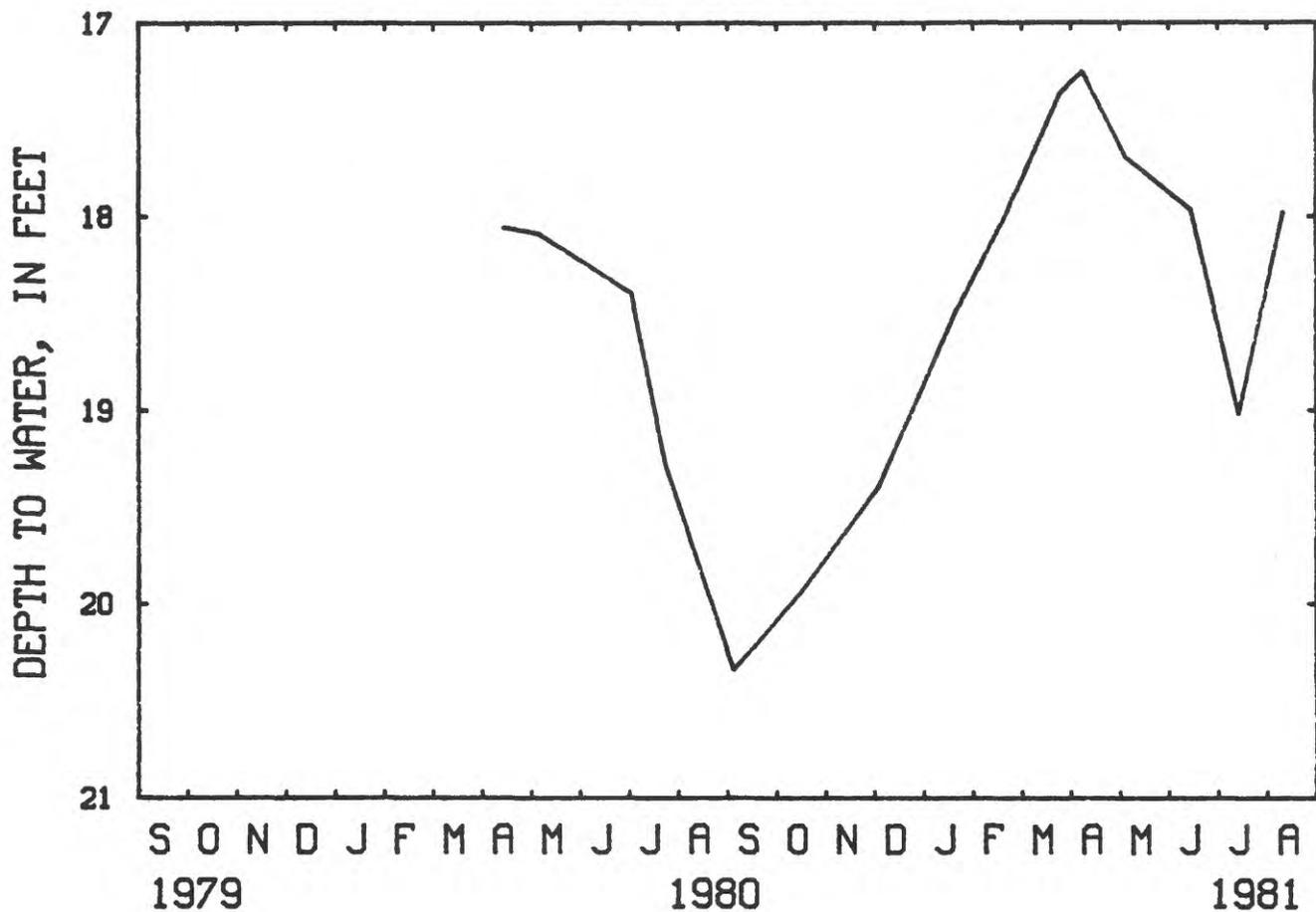
ALTITUDE = 3732.97

SITE DESCRIPTION AND LOCATION

AN OBSERVATION WELL INSTALLED BY USDA FOR THEIR EXPERIMENTS ON CONDONS PROPERTY. THE WELL IS LOCATED 1 FOOT SOUTH OF THE FENCE LINE WHICH IS ON THE NORTH SIDE OF THE SECOND CENTER PIVOT FROM THE EAST. THE LOCAL WELL NUMBER IS 10-49-22 CBA. THE MP IS THE TOP OF WELL CASING.



# SITE 53



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
4	15	80	18.06	*****	*****	*****	****	*****	
5	6	80	18.09	*****	*****	*****	****	*****	
7	2	80	18.40	*****	*****	*****	****	*****	
7	23	80	19.29	*****	*****	*****	****	*****	
9	4	80	20.34	*****	*****	*****	****	*****	
10	10	80	19.93	*****	*****	*****	****	*****	
12	3	80	19.39	*****	*****	*****	****	*****	
1	20	81	18.48	*****	*****	*****	****	*****	
2	20	81	17.98	*****	*****	*****	****	*****	
3	20	81	17.36	*****	*****	*****	****	*****	
4	8	81	17.25	*****	*****	*****	****	*****	
5	5	81	17.70	*****	*****	*****	****	*****	
6	15	81	17.97	*****	*****	*****	****	*****	
7	13	81	19.02	*****	*****	*****	****	*****	
8	11	81	17.98	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 54

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

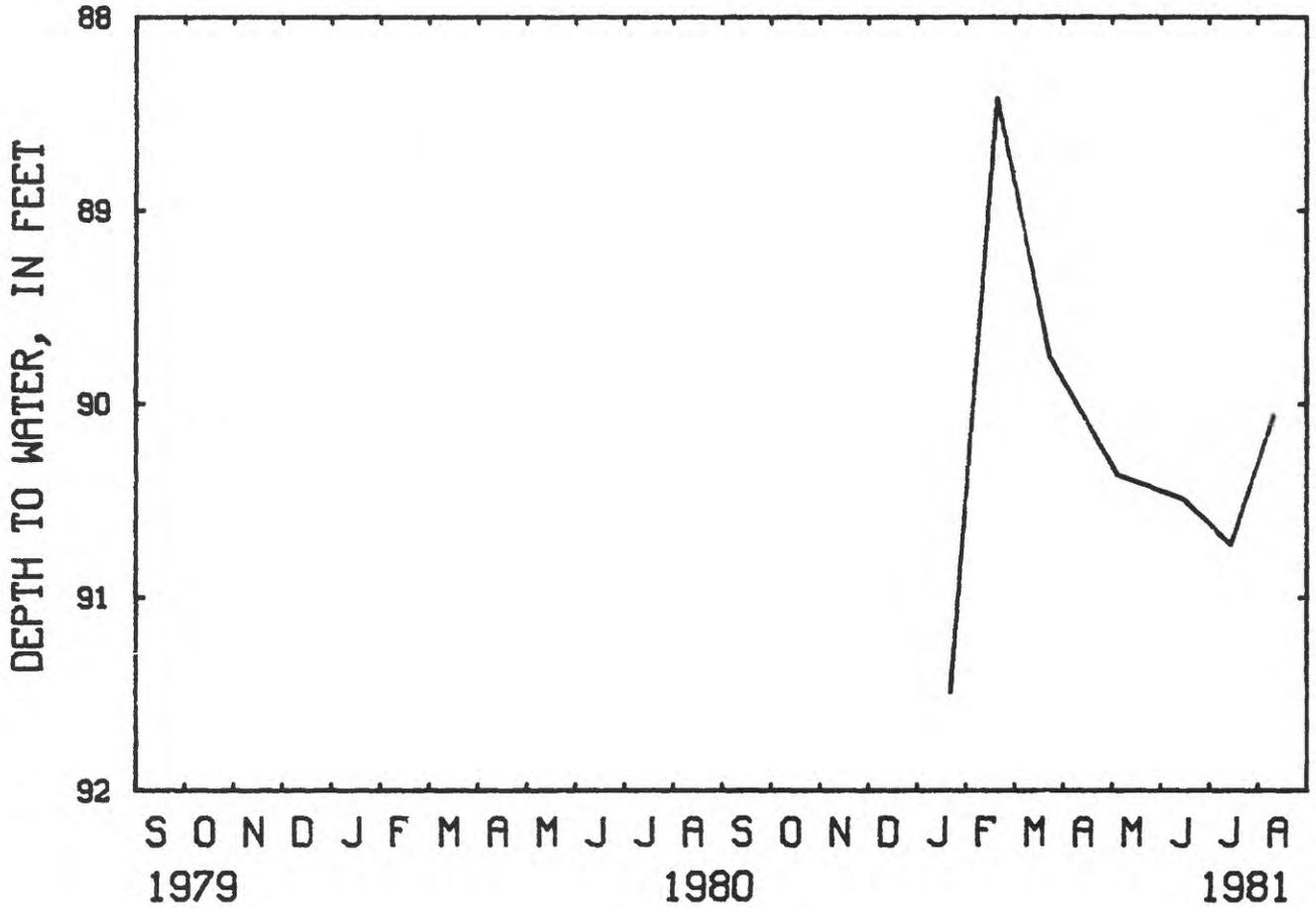
ALTITUDE = 3769.76

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1980 BY THE USGS TO A DEPTH OF 172 FEET. A 150 FOOT PVC PIPE, WITH AN OPEN BOTTOM AND 50 FOOT PERFORATED SECTION, WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED 60.5 FEET EAST OF NEW IRRIGATION WELL #6. THE LOCAL WELL NUMBER IS 10-48-17 BDA4. THE MP IS THE TOP OF CASING ON THE NORTH SIDE.



# SITE 54



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
1	21	81	91.49	*****	*****	*****	****	*****	
2	19	81	88.42	*****	*****	*****	****	*****	
3	24	81	89.76	*****	*****	*****	****	*****	
5	5	81	90.37	*****	*****	*****	****	*****	
6	16	81	90.50	*****	*****	*****	****	*****	
7	14	81	90.73	*****	*****	*****	****	*****	
8	11	81	90.06	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 55

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

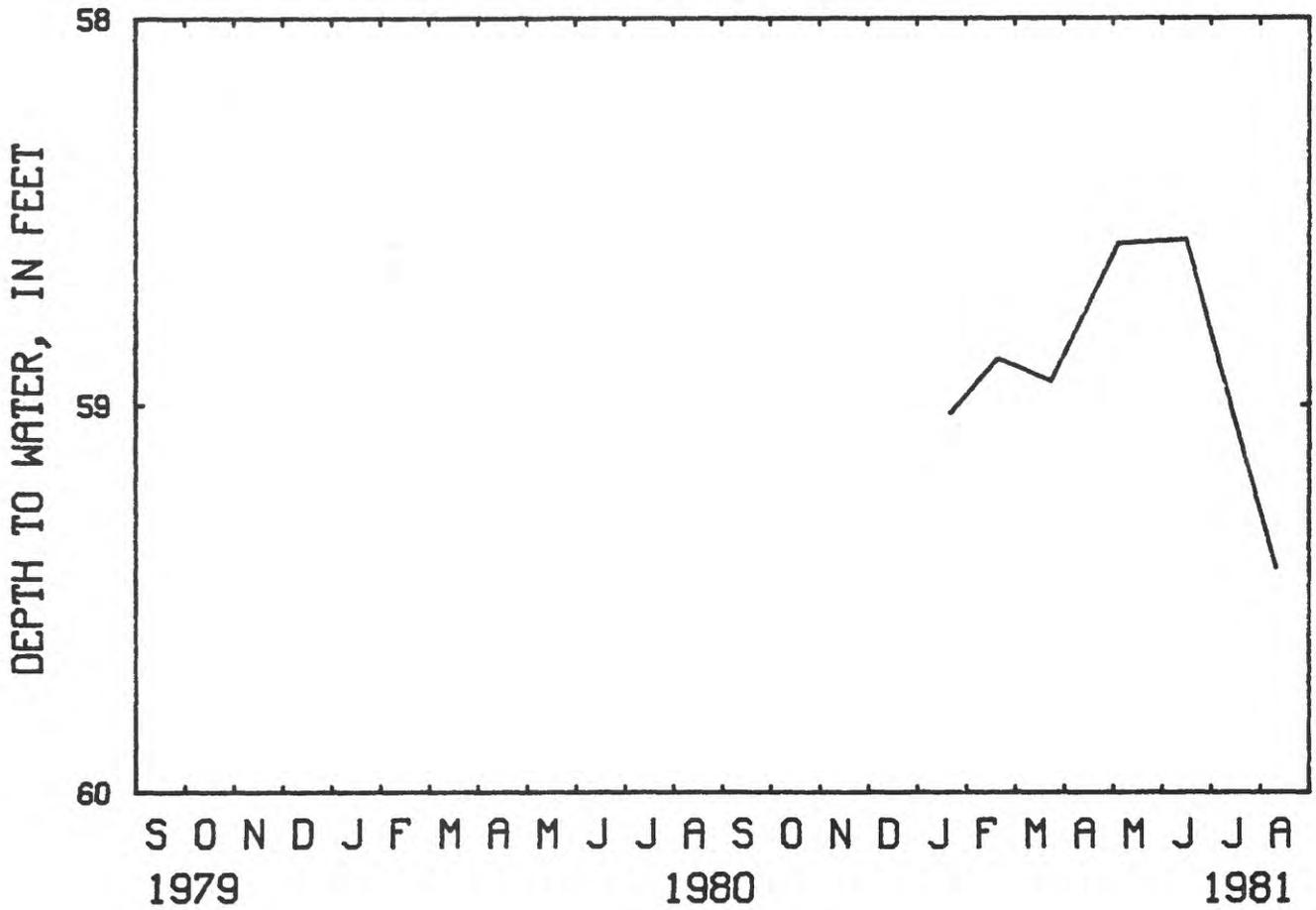
ALTITUDE =\*\*\*\*\*

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1980 BY THE USGS TO A DEPTH OF 75 FEET. A 66 FOOT PVC PIPE, PERFORATED FOR 20 FEET, WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 1200 FEET SW FROM NEW IRRIGATION WELL #6 AND 300 FEET FROM NEUTRON #1. THE LOCAL WELL NUMBER IS 10-48-17 CAB1. THE MP IS THE TOP OF CASING ON THE NORTH SIDE.



# SITE 55



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
1	21	81	59.02	*****	*****	*****	****	*****	
2	19	81	58.88	*****	*****	*****	****	*****	
3	24	81	58.94	*****	*****	*****	****	*****	
5	5	81	58.58	*****	*****	*****	****	*****	
6	16	81	58.57	*****	*****	*****	****	*****	
7	14	81	59.02	*****	*****	*****	****	*****	
8	11	81	59.42	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 56

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

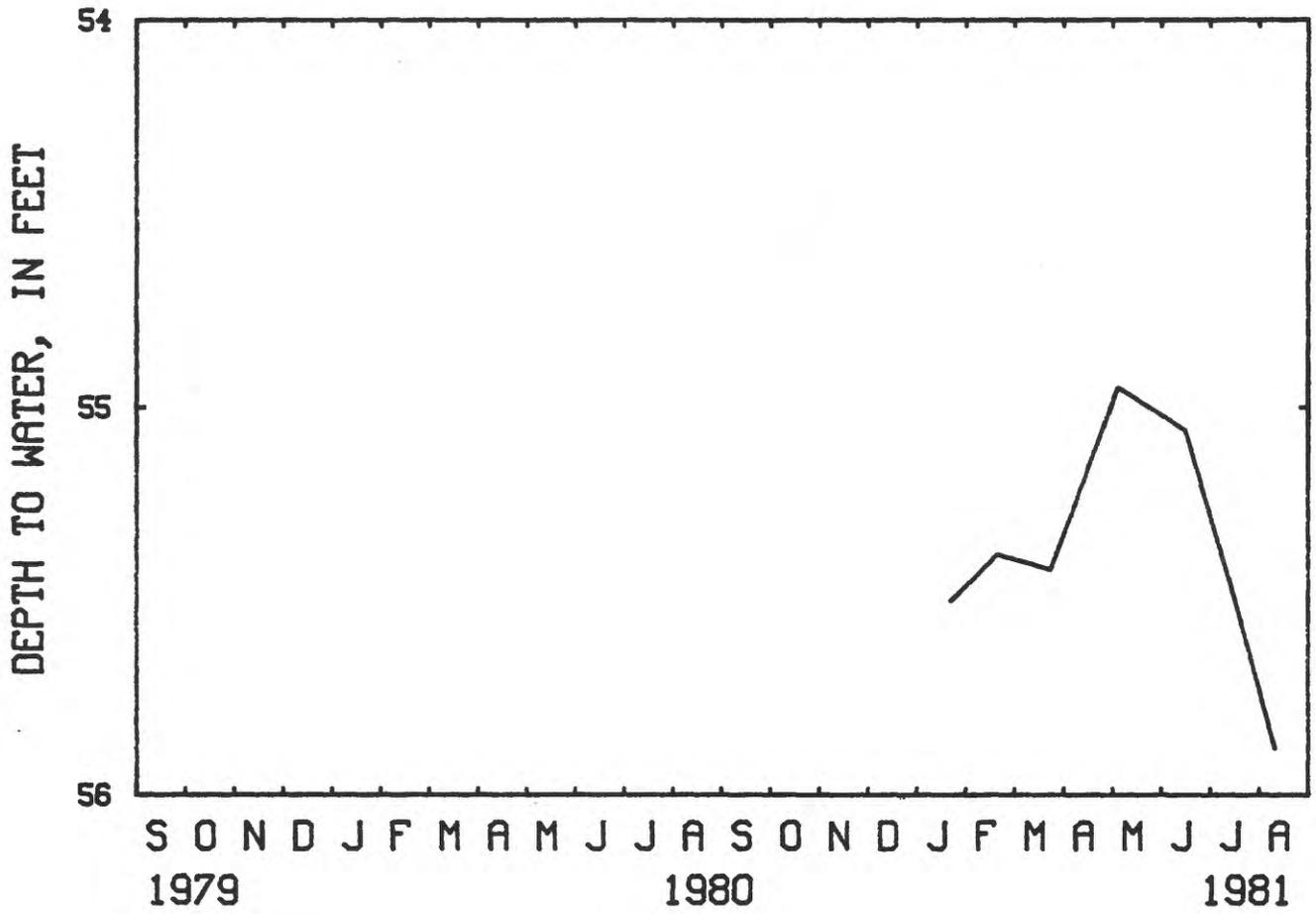
ALTITUDE =\*\*\*\*\*

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1980 BY THE USGS TO A DEPTH OF 70 FEET. A 65 FOOT PVC PIPE, PERFORATED FOR 20 FEET, WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 1300 FEET SW FROM NEW IRRIGATION WELL #6 AND 180 FEET FROM NEUTRON #1. THE LOCAL WELL NUMBER IS 10-48-17 CAB2. THE MP IS THE TOP OF CASING ON THE EAST SIDE.



# SITE 56



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
1	21	81	55.50	*****	*****	*****	****	*****	
2	19	81	55.38	*****	*****	*****	****	*****	
3	24	81	55.42	*****	*****	*****	****	*****	
5	5	81	54.95	*****	*****	*****	****	*****	
6	10	81	55.06	*****	*****	*****	****	*****	
7	14	81	55.47	*****	*****	*****	****	*****	
8	11	81	55.88	*****	*****	*****	****	*****	

TAMARACK RANCH DATA COLLECTION NETWORK

PROJECT - WARM-WATER SLOUGHS

SITE NUMBER 57

SITE SETTING IS SAND HILLS

SITE TYPE IS WELL

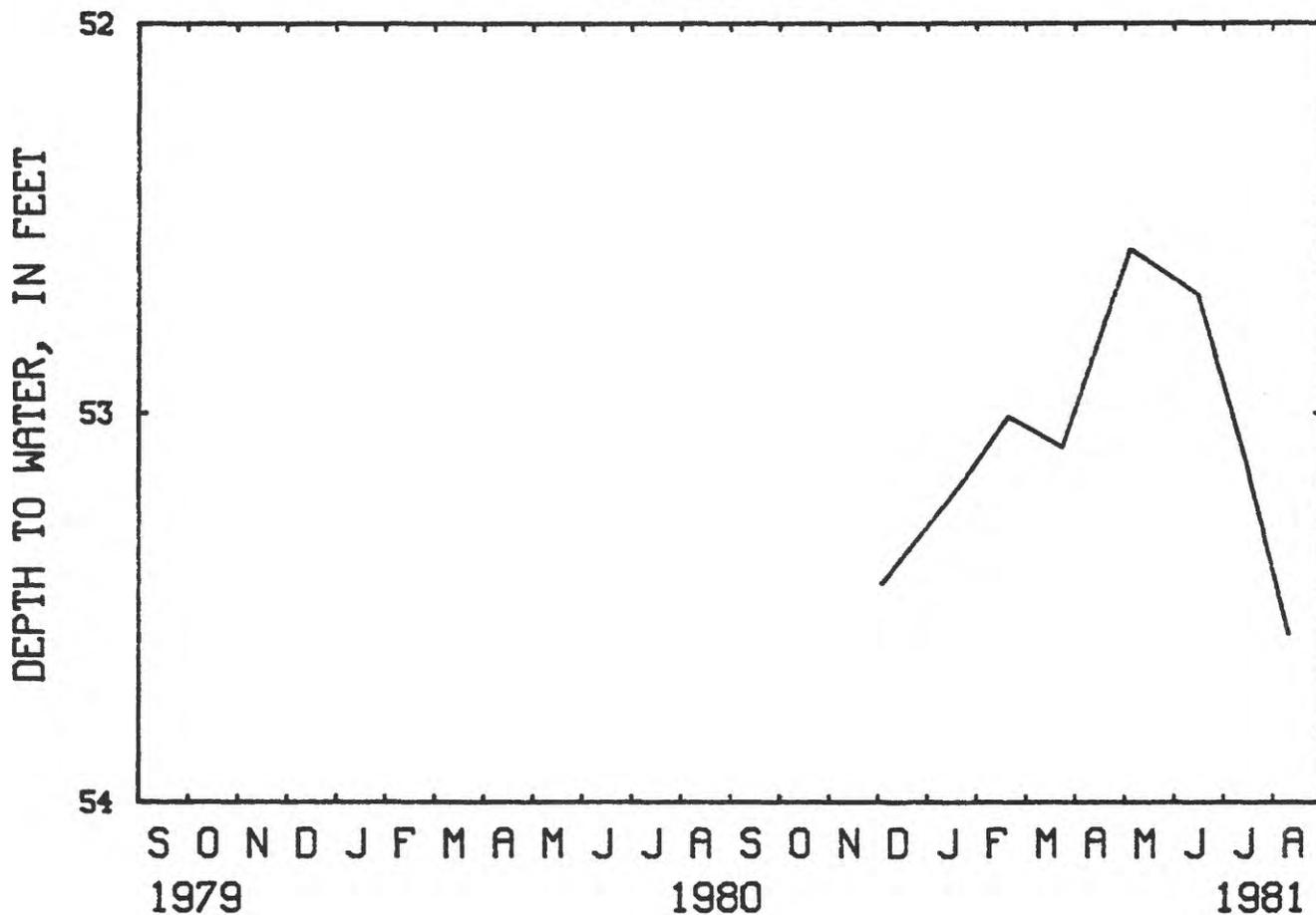
ALTITUDE =\*\*\*\*\*

SITE DESCRIPTION AND LOCATION

THE HOLE FOR THIS WELL WAS DRILLED IN 1980 BY THE USGS TO A DEPTH OF 65 FEET. A 57 FOOT PVC PIPE, PERFORATED FOR 20 FEET, WAS INSTALLED FOR AN OBSERVATION WELL. THE WELL IS LOCATED ABOUT 1500 FEET SW FROM NEW IRRIGATION WELL #6 AND 70 FEET FROM NEUTRON #1. THE LOCAL WELL NUMBER IS 10-48-17 CAB3. THE MP IS THE TOP OF CASING ON THE NORTH SIDE.



# SITE 57



MONTH	DAY	YEAR	DEPTH TO WATER	DISCHARGE	FLOW METER	POWER METER	WATER TEMPERATURE	SPECIFIC CONDUCTANCE	REMARKS
12	3	80	53.44	*****	*****	*****	****	*****	
1	21	81	53.18	*****	*****	*****	****	*****	
2	19	81	53.01	*****	*****	*****	****	*****	
3	24	81	53.09	*****	*****	*****	****	*****	
5	5	81	52.58	*****	*****	*****	****	*****	
6	10	81	52.70	*****	*****	*****	****	*****	
7	14	81	53.12	*****	*****	*****	****	*****	
8	11	81	53.57	*****	*****	*****	****	*****	